

How Do Employment Effects of Job Creation Schemes Differ with Respect to the Foregoing Unemployment Duration?*

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Abstract

Based on new administrative data covering entrances into programmes between July 2000 and May 2001, the effects of job creation schemes on the employability of the participating individuals are evaluated. The employment effect of the programmes are estimated considering the timing of treatment in the individual unemployment spell explicitly. Applying propensity score matching in a dynamic setting where the time until treatment is stratified into quarters, heterogeneity with respect to regional (East and West Germany) as well as gender differences is considered in the estimation. Unfortunately, the estimates provide no positive picture of the effectiveness of the programmes. Only one female group in West Germany experiences an increase of the employability, the evidence for all other groups is negative or at best insignificant at the end of the observation period. Job creation schemes harm the employment chances of the participating individuals, in particular if programmes start early in the unemployment spell.

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JEL Classification: J68, C14, H43

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1 Introduction

Job creation schemes (JCS) have been an important measure of active labour market policy (ALMP) in Germany until the early 2000s. From 1997 to 2003 over 23 billion Euro were spent on JCS and approximately 1.6 million participants joined the programmes. The programmes are a kind of subsidised employment and aim at improving the employability of unemployed persons with barriers to employment. Although efforts of the Federal Employment Agency (FEA) were immense, scepticism about the effectiveness in terms of an improved employability of the participants arose due to the persistently bad situation of the labour market. In particular in East Germany, where JCS have been used on a large extent, high unemployment - the unemployment rate in 2003 amounted to 20.1 percent - characterises the situation. West Germany is only slightly better as becomes obvious by an unemployment rate of 9.3 percent (2003).

To overcome the uncertainties about the effectiveness of JCS a number of empirical studies were conducted. The earlier studies were all based on survey data sets.¹ Drawing policy relevant conclusion from the results is problematic since the survey data have several shortcomings. First, they comprise a small number of observations only. Therefore, no heterogeneity in the effects could be regarded in the estimations. Second, although the data comprise a large number of attributes to describe the labour market situation of the individuals, problems arise due to inexact information on times of treatment as well as with respect to the (un)employment histories of the individuals. Third, all studies concentrated on East Germany, so evidence for West Germany was missing. With the introduction of Social Code III (*Sozialgesetzbuch III, SGB III*) as the legal basis, the legislator postulated the liberalisation of administrative data for scientific research. Based on a prototype data set covering entries in JCS in February 2000, the effects of the programmes in Germany have been analysed in a number of studies (see e.g. Hujer, Caliendo, and Thomsen (2004) or Caliendo, Hujer, and Thomsen (2004)). Due to the single entry month considered in these studies, possible seasonal differences in the allocation of unemployed persons to programmes or changes in the economy could not be regarded.

In this study we are able to use unique data derived from the final version of the programme participants master data set of the Institute for Employment Research, Nuremberg. The data contain rich information to characterise the individuals' labour market situations. The data were merged with information of the Employment Statistics Register to derive regular employment information as the outcome of interest. By using this new source, we are able to analyse the effects for entries in JCS between July 2000 and May 2001 until 30 months after programmes have started. Therefore, this study is the first using data covering entries to programmes in a one year period and taking account of possible seasonal differences. In addition, the large number of observations in the sample allows to consider possible effect heterogeneity due to regional differences (East and West Germany) as well as with respect to gender explicitly.

Using administrative data requires evaluation of the treatment effects by a non-experimental evaluation approach. Programme effects are estimated using propensity score matching. Due to the rich data at hand and the large number of observations, the conditional independence assumption seems to be achieved in our context. Recent empirical literature on evaluation of ALMP programmes in comprehensive systems like Sweden (Sianesi, 2004), Switzerland (Steiger, 2004) or Germany (Fitzenberger and Speckesser, 2005) has emphasised the necessity of considering the timing of treatment in the individual unemployment spell. As this issue seems to be important for the effects of JCS, too, this study considers the timing of treatment explicitly.

The estimates indicate a failure of the programmes in terms of increased employment chances. In particular in East

¹ See Thomsen (2005) as for a recent overview.

Germany, men as well as women suffer from participation by reduced average employment rates even 30 months after programmes have started. Heterogeneity of the effects with respect of the timing of treatments is observable in a sense, the effects are worse the earlier the programme starts in the individual unemployment spell. Unfortunately, West German participants do not benefit either. Except women who start the programmes in the fifth quarter of unemployment, all groups experience at best insignificant employment effects at the end of the observation period. Due to this, JCS could not be seen as an effective measure to reduce unemployment in Germany.

The paper is organised as follows. In the next section we will briefly describe the set-up and implementation of the JCS in Germany. Section 3 presents the data in use as well as some selected descriptives to describe participants and non-participants. The evaluation approach applied in this study is introduced in the fourth section. The employment effects of JCS are discussed in section 5. The final section concludes.

2 Job Creation Schemes in Germany

JCS are a kind of subsidised employment in Germany. In association with structural adjustment schemes they establish the so-called second labour market in Germany.² The legal basis for JCS is defined in §§260 to 271 and 416 Social Code III (SGB III) enacted in 1998. As our analysis is based on programmes that have started during 2000 and 2001, we will concentrate our description of the institutional set-up to this time span.

Financial support for JCS could be granted to the implementing institutions by the FEA as wage subsidies or loans if the jobs fulfil several requirements. The primary condition is that occupations provided in JCS must be additional in nature, of value for society and carried out by unemployed persons in need of assistance. Priority should be given to projects that explicitly aim at improving the pre-conditions for permanent employment, provide occupations for unemployed with special barriers to employment, or improve the social and environmental infrastructure (§260 SGB III). Additional in nature means that without the subsidy the activities would not be undertaken now or in the near future. Occupations are of value for society, if the outcome of the work is for the collective good. Unemployed persons with special barriers to employment are defined according to §7 SGB III as long-term unemployed, severely disabled persons, older unemployed with placement restrictions as well as applicants for vocational rehabilitation programmes. JCS could also be supported, if the participants take part in qualification programmes (up to 20 percent of the time) or internships (up to 40 percent, together no more than 50 percent) to improve their employability (§261 SGB III).

Eligibility of potential participants is in general approved if they are long-term unemployed (for more than one year, §6 SGB III) or unemployed for at least six out of the last twelve months prior to programme start and fulfil the eligibility criteria for reception of unemployment benefits or assistance, for vocational training programmes or for vocational integration of the disabled.³ Independent of these eligibility criteria, the local employment agencies (LEAs) are allowed

² The second labour market in Germany comprises jobs in subsidised employment financed by the FEA that should not compete with regular employment.

³ Unemployment benefits (*Arbeitslosengeld*, UB) are paid for individuals who have contributed for at least twelve months to unemployment insurance (UI) during the last three years before unemployment (seasonally employed workers have a reduced contribution period of six months). UB amount to 60 (67) percent of the last average net earnings from insured employment (with at least one dependent child) and are paid from UI funds. The entitlement lasts for at least six months. The maximum duration is up to 32 months and depends on the contribution period and the individual's age. Payment to the UI is compulsory for all employees and amounts to 6.5 percent of employee's gross salary. However, persons with only a minor employment, civil servants, judges, clergymen, professional soldiers, and some other groups of persons are exempted from contributions. Minor employment are jobs with a salary of less than Euro 325 (Euro 400 since 04/2003) as well as short-term and occasional jobs. The set-up of unemployment assistance (*Arbeitslosenhilfe*, UA) was changed within the Fourth Law 'Modern Services on the Labour Market' on January 1st, 2005. Until that time, UA was paid for persons who had exhausted their UB entitlement. UA amounted to 53 (57) percent of the last average net earnings from insured employment (with at least one dependent child). UA could have been paid potentially unlimited (until retirement age) if the individual satisfied the

to place younger unemployed (aged 25 or younger) without completed professional training, severely disabled persons, tutors and up to five percent of the participants who do not meet the general eligibility criteria (§263 SGB III).

Subsidies amount to in general between 30 and 75 percent of the workers salary, but can be extended up to 90 percent, if the allocated individual is in special need of assistance and if the implementing institution is not able to cover the costs. A further exception can be made in direction of a subsidy of 100 percent for programmes with emphasised priority (§264 SGB III). Furthermore, the LEAs could provide additional subsidies and loans if the programmes have an emphasised priority for labour market policy (enforced promotion), and if the funding could not be accomplished otherwise. These additional grants are not allowed to exceed 30 percent of the total spending on the particular programme (§266 SGB III).

The ordinary duration of support for JCS is twelve months. This duration can be extended up to 24 months for programmes with enforced priority, and up to 36 months if the implementing institution guarantees a permanent contract for the individual afterwards (§267 SGB III). Programmes could be supported in the commercial sector if delegated to private businesses. To prevent substitution effects and windfall gains, the number of promoted jobs in a region and an economic sector is limited. JCS in the commercial sector could be accomplished by public institutions for the following reasons only. The participants have to achieve a special educational assistance or fulfil a qualification or internship of at least 20 percent of the total programme duration. Participants employed have to be younger than 25 years and lack a completed professional training or older than 50 years. Support should only be granted in case of missing interest or insufficient capabilities of private businesses to accomplish the tasks (§262 SGB III).

The allocation of unemployed individuals to places in JCS results from decisions of the responsible caseworkers. Once an unemployed persons has registered at the LEA, the responsible caseworker takes up the case and meets the unemployed at regular, i.e. monthly, intervals to evaluate the individual's efforts for finding a job and to conceive a plan for integration into employment in cooperation with the unemployed person. By this procedure, the responsible caseworker possesses a large degree of discretion with respect to the allocation of unemployed persons into programmes. The caseworker decides to offer a specific occupation in a job creation scheme solely, if his assessment of the individual's need of assistance implies that the unemployed person cannot be integrated into regular employment and does not meet the conditions for other ALMP programmes. The occupations can be accomplished in different economic sectors of which the most important are agriculture, construction and industry, community services and office and services. The caseworker chooses the occupation in consultation with the unemployed person and according to the individual's qualification and interest. Once decreed by a caseworker, the programme is compulsory for the individual and rejection will be sanctioned by benefit cancellation for up to twelve weeks. In repeated cases, the unemployed individual may lose his/her UI entitlement completely (§269 SGB III).⁴ Since placement depends on the availability of programmes, unemployed persons may not be assigned to programmes due to a limited supply.

benefit conditions. UA was administered by the FEA, but funding was by tax. Since 2005, UA are pooled with social assistance (*Sozialhilfe*) in the so-called unemployment benefits II (*Arbeitslosengeld II*).

⁴ See §144 SGB III for the definitions regarding the exposure of income support.

3 Data and Selected Descriptives

3.1 Data

The 181 LEAs in Germany collect information within the so-called *CoArb* system on all registered job seekers.⁵ These are persons who are registered unemployed, persons threatened by unemployment or in temporary employment as well as participants in the different ALMP programmes. The purpose of the data collection is to administer the job-seekers and to alleviate the decisions of the local caseworkers regarding the placement of job-seekers in regular employment or ALMP programmes. Furthermore, the data is used to control the UI eligibility of the job-seekers. All data are collected detailed to a daily level, i.e. the day the unemployment spell starts as well as the day it ends are contained. These locally collected data are transferred to the FEA on a monthly basis. The information for all job-seekers is consolidated in the so-called job-seekers data base (*Bewerberangebotsdatei*, BewA) that is available from 1997 onwards (cf. Wilke and Winterhager (2004)). The BewA contains a rich set of attributes describing the individual's labour market situation. Three classes of characteristics could be distinguished: The first category, socio-demographic information, incorporates attributes like for example age, gender, marital status, citizenship, the number of children, birthday, and health restrictions. The second category, the qualification details, consists among others of the individual's graduation, completed professional training, the occupational group of the last occupation and work experience. The last category, the labour market history, includes the date of registration at the LEA (and the duration of unemployment since that date), the duration of the last employment, the number of job offers received by the individual as well as information on foregone programme participation. Although most of the attributes are 'objective' facts, like age or gender, the BewA also contains subjective assessments of the individuals' labour market prospects by the responsible caseworkers. These subjective attributes cover the assessment of the individual's health restriction with respect to employment chances, but also the assessment of the actual qualification of the individuals.

The information on the different ALMP programmes is not included in BewA, but is collected separately in the LEAs within the so-called *CoSach* system⁶ and transferred to the FEA on a monthly basis, too. As in BewA, data are detailed to a daily level. Information on the single ALMP programmes are stored in several different data sets. For example, data on vocational training programmes, training measures and German language courses are stored in the so-called *ST35*, whereas data on subsidised employment programmes in Germany, like job creation and structural adjustment schemes, are consolidated in the so-called *ST11*. This source contains all information necessary for the administration of the programmes, like e.g. information on the employer who receives the wage subsidy, the economic sector of the activity, times of qualification and/or practical training of the individual during the programme, the begin and end of the programme (payment of the subsidy) and the ex-ante planned as well as the ex-post realised programme entry and leave dates of the individual. Besides these attributes, a small number of further individual characteristics is included. However, these are redundant to those provided by BewA.

During the years 2000 to 2004 the information of the BewA and the several sources for the different programmes were standardised and merged into one major source: the programme participants' master data set (*Maßnahme-Teilnehmer-Gesamtdati*, MTG). This data set includes information on all programme participations in FEA sponsored programmes from 2000 to presence. For this reason the MTG contains a large number of attributes to describe the individual's labour

⁵ The term *CoArb* is an abbreviation for computer supported job placement (*computergestützte Arbeitsvermittlung*).

⁶ The term *CoSach* is an abbreviation for computer supported processing (*computergestützte Sachbearbeitung*).

market situation on the one hand. On the other hand it provides a reasonable basis for the construction of the comparison group as almost all individual characteristics are available for the participants as well as for the non-participants and originate from the same source.⁷

A further important determinant is the state of the local labour market (cf. Heckman and Smith (1999)). For the description of the regional context we use the classification of the labour office districts by the FEA (see Blien *et al.*(2004) for further details). The aim of this classification is to enhance the comparability of the labour office districts for a more efficient allocation of funds. The 181 LEAs were split into twelve types of office districts with similar labour market circumstances. These twelve types of comparable labour office districts can be summarised into five types for strategic purposes. Since almost all labour office districts in East Germany belong to the first of these five strategic types (except the city of Dresden), we use the finer typing of three groups here. For West Germany we use the remaining four types for strategic purposes. The clusters are ordered according to the labour market conditions, i.e. cluster Ia comprises LEAs with the worst and cluster V LEAs with the most promising labour market situation. The available information of the FEA for the evaluation of JCS is summarised in table 1. Altogether, we are able to use the five categories of variables as described.

Tab. 1: OVERVIEW ON DATA SOURCES AND ATTRIBUTES

Data Source		Attributes
MTG ¹	BewA ²	<p>a) Socio-demographic: age, gender, marital status, number of children, nationality, health restrictions</p> <p>b) Qualification: graduation, professional training, occupational group, position in last occupation, work experience, appraisal of qualification by the placement officer, desired occupation, desired work time</p> <p>c) Labour Market History: duration of unemployment, duration of last occupation, number of job offers, occupational rehabilitation, programme participation before unemployment</p>
	ST11 ³	<p>d) Programme: institution that receives the subsidy, activity sector, time of qualification and/or practical training during programme, begin and end of programme (payment of subsidy), entry and leave of the participation, duration of programme</p> <p>e) Regional Information: Types of comparable labour office districts by FEA</p>

¹ MTG: Programme participants' master data set (*Maßnahme-Teilnehmer-Gesamtdatei*)

² BewA: Job-seekers data base (*Bewerberangebotsdatei*).

³ ST11: Programme participants' data based of subsidised employment

For the outcome variable we use the information from the Employment Statistics Register ('Beschäftigtenstatistik', BSt), which includes information on the total population of persons who are registered in the German social security system since 1975. These are employees and participants in several ALMP programmes, but no self-employed or pensioners. Data on spells of employment that is subject to social insurance contributions are collected for each employed person in account form based on yearly notifications by the employers. However, due to delays in the sending of the notifications by the employers, the available information in the BSt has an up to two years time lag. Therefore, the FEA forecasts the information included. In consequence, assessing contemporary effects of ALMP programmes is possible, but the results may be problematic as they are based on forecasted employment information purely. As valuable evaluation of programme effects should be based on notified rather than forecasted information, our observation period ends in

⁷ This same origin of the data is an essential building block for a valid estimation. The results of Heckman, Ichimura, Smith, and Todd (1998) who analyse the sources of potential biases of evaluation estimators show that having access to a geographically-matched comparison group administered the same questionnaire as programme participants clearly matters in devising effective non-experimental estimators of programme impacts.

December 2003. However, as the time lag between the corresponding date of the information and the extraction of the information from the BSt for our analyses amounted to eight months only, the relation of notified and forecasted data has to be checked and should be considered when interpreting the estimated treatment effects. Based on the results of Fröhlich, Kaimer, and Stamm (2004), the share of forecasted data used in the analyses amounts to between four and ten percent at maximum.

We define only regular employment as a success, whereas all other kinds of subsidised employment or participations in active labour market policy programmes are defined as a failure. While this definition might conflict with the institutional setting, it reflects the economic point of view to measure the integration ability of a subsidised programme, namely the job creation scheme, into non-subsidised employment. To identify spells of regular employment without further promotion, we use the excerpted information of the final version of the MTG on the individual's time spent in ALMP programmes.

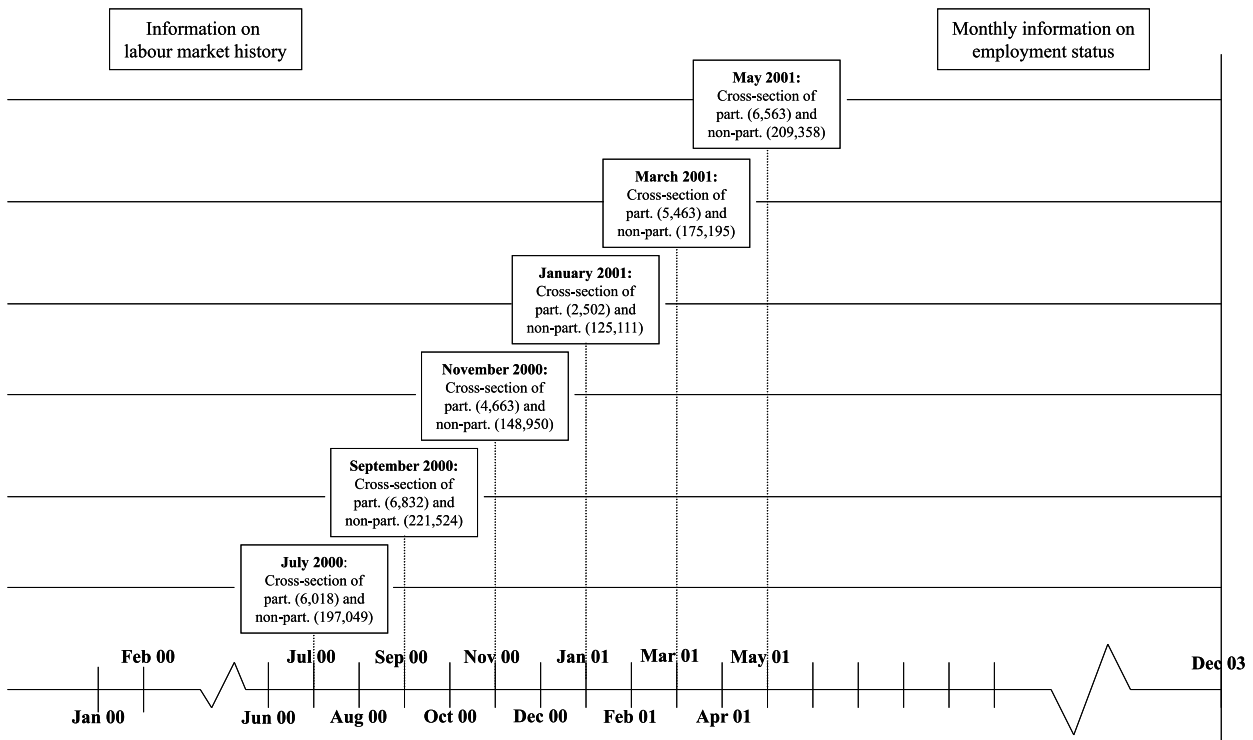
For the empirical analysis, we have drawn a random sample of individuals who have started a subsidised employment programme, i.e. a job creation or structural adjustment scheme, in six different months: July 2000, September 2000, November 2000, January 2001, March 2001 and May 2001. The construction of the comparison group has been accomplished in a similar way. Based on the information of the BewA-population in the respective months before the participants started their programmes, six random samples were drawn. The proportions of these original samples have been 20:1. In words, for each participant from MTG starting a job creation scheme in July 2000 we have drawn 20 non-participants from BewA of June 2000 as potential comparisons. By doing so, we have been left with the same set of attributes for participants and potential comparison individuals except the missing programme information.

The individual characteristics of the six cross-sections have been completed by the employment outcome of all individuals in our samples. As described above, the relevant information have been taken from the BSt and were corrected by times spent in active labour market policy programmes based on information of an excerpt of the MTG for the same period of time.⁸ However, a complete merge of the cross-section information (MTG/BewA) and the employment outcomes (BSt) was not possible for all observations, since both data sets use different identifiers. Whereas MTG/BewA use FEA-specific customer numbers to identify job-seeking and participating individuals, the BSt refers to the social insurance policy number (*Sozialversicherungsnummer*). Therefore, only in cases where this information is on the one hand available and on the other hand valid the data can be merged.

In our empirical analysis, we will evaluate the effects of JCS on regular employment only. The effects of other programmes are not considered. Thus, we have restricted the participants' data to JCS. Furthermore, to avoid issues related to education or basic vocational training we have restricted the data to persons of 25 years or older. In addition, as early retirement may induce some trouble to the results, persons older than 55 years are excluded, too. Moreover, the labour market of the capital city is not considered in our analysis. With respect to the arguments of Brinkmann, Caliendo, Hujer, Jahn, and Thomsen (2002) and Caliendo, Hujer, and Thomsen (2003), the special situation of Berlin would require a separate estimation and interpretation of the effects of JCS for participating individuals into regular employment. Thus, East Germany will be the federal countries of Mecklenburg-Western Pomerania, Brandenburg, Saxony, Saxony-Anhalt, and Thuringia for the rest of this study. West Germany refers to all West German federal countries. For homogeneity reasons, we have also excluded those persons whose unemployment duration and/or employment duration before were

⁸ This excerpt contains solely the entry and leave dates of individuals in the different programmes sponsored by the FEA. All remaining attributes are not available.

Fig. 1: AVAILABLE DATA FOR ANALYSIS



above the 99 percent percentile of the individuals, to reduce the problem of possible errors in the data.⁹

Figure 1 summarises the timeline of the available information and presents the resulting numbers of observations for participants and non-participants differentiated by gender, region and month of entry into the programme. For the reason of the random sampling from the BewA and the differing use of JCS in West and East Germany, the proportions between participants and non-participants differ in both regions. The numbers of entries in the months differ, too. Whereas our data set contains 6,832 participants starting a job creation scheme in September 2000, the corresponding number for January 2001 is 2,502 only. As JCS are used more often in East Germany, the number of programmes outnumbers that in West Germany. Altogether, we are able to use information on 32,041 participants starting a job creation scheme between July 2000 and May 2001 and on 1,077,187 non-participants for the evaluation of the employment effects of JCS.

3.2 Some Selected Descriptives

Based on the extensive set of attributes we have selected a number of variables for that we will analyse ex ante observable differences between participants and non-participants by descriptive statistics. These statistics are provided in tables B.1 and B.2 for West Germany and in tables B.3 and B.4 for East Germany in appendix B. The tables distinguish four different time intervals of the unemployment duration (until treatment starts): Up to six months, between six and twelve months, between twelve and 18 months, and between 18 and 24 months.

Starting with the results for West Germany, a first interesting point to note refers to the age of the participants compared

⁹ The limit for unemployment duration is 1,597 days which equals more than 4.3 years of unemployment. The limit for the duration of the last employment is 13,820 days which is approximately equal to 37.9 years of employment.

to the non-participants. Younger unemployed persons (between 25 and 34 years) with a duration of unemployment of less than 12 months are underrepresented in the participants' group. In contrast, the shares of participants and non-participants with a longer unemployment experience are almost equal. A possible explanation for this finding may be given by the institutional set-up. An occupation in a job creation scheme should only be offered to the individual if no other active labour market programme is available and if the person cannot be integrated into regular employment, but in particular the younger with only a short to medium duration of unemployment could be expected to have other possibilities on the labour market. However, with ongoing unemployment duration the number of these possibilities is assumed to be reduced (negative duration dependence) and participation in a programme may be more likely. Persons aged between 35 and 44 years are more often placed in JCS. Independently of the foregoing unemployment duration, persons in this age class are overrepresented in the programmes compared to their share in the non-participants group in West Germany. This finding is in line with the purpose of the programme, to conserve the employability of the unemployed and to maintain contact to the labour market. The picture for older unemployed persons (older than 45 years) is the other way round. Whereas the share of participants with an unemployment duration of up to six months exceeds the share in the non-participating group, in particular the persons in the highest age group (between 50 and 55 years) are less often placed in a programme with a longer unemployment duration. However, as mentioned in the description already, we have excluded persons older than 55 years from our analysis to avoid problems related to early retirement issues. Therefore, one possible explanation for this underrepresentation may be the lack of available slots and a possible priority to the middle-aged groups in the placement process.

Independently of the foregoing unemployment duration, there are some further notable differences between the treated and the non-treated groups. It becomes obvious from the results in tables B.1 and B.2 that foreigners and asylum-seekers are less often considered as participants. A simple reason may be the availability of other programmes, like for example language courses, that fit better to the needs of these groups. Another point to mention is that women are underrepresented in the participants group. Whereas the shares of women in the non-participating groups amount to about 45 (up to six months unemployed) and 49 percent (between twelve and 18 months unemployed) the corresponding shares in the participating groups are amount to only between 33 and 37 percent. A finding that supports the legal postulation of particularly allocating persons that are most in need of assistance are the differences in the number of placement propositions between the two groups. Whereas the non-participants have received about four placement propositions on average, the average number of job offers for the participants is between nine and ten. Clearly, this may be an important determinant that drives the participation decision. Considering the participation in a programme before unemployment indicates that participants in JCS are more likely to be so-called 'programme careerists', i.e. persons who participate subsequently in a series of programmes interrupted by times of unemployment. Whereas only about three to six percent of the non-participants have participated in a similar programme somewhen in the past, about one third of the participants did so.

Regarding the qualification of the individuals, there are also some ex ante observable differences between participants and non-participants. Except for persons starting the treatment between the twelfth and the 18th month of the unemployment spell, participants do more often lack a completed professional training. In addition, caseworkers assess the individuals' qualification as skilled employee more rarely in the treatment than in the non-treatment group. These results indicate, that participants are on average less educated than the non-participants. The last point we want to

mention for the West German groups is associated with the desired occupation of the individuals. Independently of the unemployment duration, treated individuals seek more often for an occupation in farming. Whereas persons who look for a manufacturing profession are overrepresented in the group with up to six months of unemployment, persons with a service profession are underrepresented. However, for the longer unemployment durations these differences are not observable.

For East Germany the findings are similar, but there are also some differences we want to emphasise. Whereas younger unemployed (between 25 and 34 years) are underrepresented in the participants' samples, too, in contrast to West Germany this finding also holds for the mid-aged groups (between 35 and 44 years). Older unemployed aged between 45 and 55 years are overrepresented in the programmes. This result may be seen as an indication for the slightly different purpose in the allocation of participants to the programmes. For West Germany, the findings imply an allocation to programmes that is oriented on the individual employment chances. Therefore, in particular mid-aged unemployed persons are potential participants. For East Germany, it is more likely that JCS are used as a means to relieve the tense situation of the labour market and to conserve social peace. For that reason, the likelihood of participation is higher for older unemployed persons.

Considering the number of placement propositions reveals a similar picture as in West Germany. Participants have received on average a higher number of placement propositions in East Germany compared to the non-participants, too. However, whereas the ratio is almost 3:1 for West Germany, in the East it is less than 2:1. Since the number of placement propositions is no indicator for the number of available jobs, but only for the activity of the LEAs, two implications could be derived from this finding. First, the outside options in the East German labour market are worse compared to the West. Hence, there are more job applicants per vacancy and the probability of becoming regular employed is lower. Second, the stronger emphasis on ALMP programmes in East Germany is reflected by the lower number of placement propositions in the participating groups, i.e. whereas in West Germany an unemployed individual receives on average between nine and ten placement propositions before the caseworker offers an occupation in a job creation scheme, in East Germany the number of required placement propositions amounts to between six to eight on average only.

The shares of participating women are clearly higher in East compared to West Germany. Whereas the total amount of women in West Germany is only about 33 to 37 percent of the participants, in East Germany about one half of the participants are females with unemployment durations until treatment of less than twelve months, and even about 59 to 62 percent with longer unemployment durations. A further difference refers to the qualification of the individuals. Whereas the majority of the participants in West Germany owned a CSE (*Hauptschulabschluss*) only, in East Germany more than half, i.e. between 50 to 53 percent of the treated individuals own an O-level degree (*Realschulabschluss*). This may be an important reason, why caseworkers assess the individuals' qualification in 52 to 57 percent of the cases as skilled employees. In contrast, in West Germany this assessment of the individuals' qualification is only valid in 27 to 32 percent of the cases.

With respect to the desired occupation, the picture in East Germany is more similar to the West. Persons who seek for an occupation in the farming are overrepresented in the programme groups compared to the share in the non-participating samples. A notable difference could be established for the service professions. Whereas there is an underrepresentation in the participants groups with short to medium foregoing unemployment in the West, in East Germany the shares in the participating and non-participating groups differ hardly. A last difference to be mentioned for East Germany refers

to the number of UI recipients. In contrast to the about 86 to 91 percent of the non-participants who receive UI, in the participants group this figure amounts to between 58 and 62 percent only. For West Germany, the figures in both groups are fairly similar.

4 Evaluation Approach

4.1 The Basic Evaluation Approach

A widely used method to evaluate the efficiency of ALMP programmes is the matching estimator embedded in the so-called *model of potential outcomes*.¹⁰ The model considers two possible states, i.e. individual i is imagined to either participate in a programme (1) or not (0) with Y_i^1 and Y_i^0 denoting the potential outcomes corresponding to the states. The individual causal effect of treatment is then defined as the difference of the two potential outcomes, i.e. $\Delta_i = Y_i^1 - Y_i^0$. However, since the individual cannot be in both states of the world at the same time, the observable outcome for i is given by $Y_i = Y_i^1 \cdot D_i + (1 - D_i) \cdot Y_i^0$, where $D_i \in \{0, 1\}$ is a binary treatment indicator. Due to that, one of the outcomes is unobservable for each individual and there is no opportunity to calculate the individual treatment effect directly from the data. In the words of Dawid (2000) this is that potential outcomes are complementary. To complete the notation, let X denote variables that are unaffected by treatment – the so-called *attributes* by Holland (1986).

To make the model adequate for causal analysis, the stable unit treatment value assumption has to be made (SUTVA, Rubin (1980; 1986), Holland (1986)). SUTVA rules out any cross-effects, or general equilibrium effects, that may occur among potential programme participants because of their participation decision (Lechner, 2001). That is, the potential outcomes of an individual depend on the individual's participation decision only and are not affected by the treatment status of other individuals. Furthermore, whether an individual participates or not does not depend on the participation decision of other individuals. This additional feature excludes peer-effects (Sianesi, 2004). However, although SUTVA is required for identification of causal treatment effects, its validity may be questionable for the empirical analysis. JCS have been used on a large extent especially in East Germany. Therefore, assuming no spill-over effects on non-participants may be problematic. Thus, the microeconomic evaluation can only analyse partial-equilibrium effects of the programmes. For a full evaluation, further macroeconomic analyses of the programme effects are necessary.¹¹

Due to the unobservability of one of the outcomes, direct estimation of the treatment effects is impossible and evaluation has to focus on population averages of gains from treatment. The most common parameter of interest in the empirical literature is the average effect of treatment on the treated (ATT), defined as

$$\Delta^{ATT} = E(\Delta|D = 1) = E(Y^1 - Y^0|D = 1) = E(Y^1|D = 1) - E(Y^0|D = 1), \quad (1)$$

which is the difference of the expected outcomes with and without treatment for participants. As it focusses directly on the actual treatment participants, it determines the realised gross gain for this group (Heckman, LaLonde, and Smith, 1999). Thus, its importance for policymakers becomes obvious, as programmes are in general targeted to certain groups, and by comparing the programme effect with its costs, the ATT is a reasonable approach to measure the performance of the programme, i.e. deciding whether the programme is a success or not (cf. Heckman and Robb (1985) and Heckman, Ichimura, and Todd (1997)).

¹⁰ This approach has been variously attributed to Neyman (1923; 1935), Fisher (1935), Roy (1951), Quandt (1972; 1988) or Rubin (1974). Detailed overviews on the method of matching can be found in e.g. Heckman, LaLonde, and Smith (1999) and Smith and Todd (2005a).

¹¹ See for example Hujer and Zeiss (2005) who analyse the macroeconomic impacts of JCS in Germany.

The second term on the right-hand side of eq. 1 is not identified in the data. Simply using the observable non-participants' outcomes to approximate the unobservable participants' outcomes without treatment may lead to biased estimates, since participants and non-participants may be selective groups even in the absence of the programme, and thus $E(Y^0|D = 1) \neq E(Y^1|D = 1)$. The basic idea of the matching approach is to find in a large group of non-participants those individuals who are similar to the participants in all relevant pre-treatment characteristics X ('statistical twins'). For that reason, the method appeals to the intuitive principle that it is possible to 'adjust away' differences between participants and non-participants using the available regressors (Heckman, LaLonde, and Smith, 1999). Originated in the statistical literature¹², matching thus generates a comparison group that resembles an experimental control group in one key respect: conditional on X , the distribution of the counterfactual outcome, Y^0 , for the participants is the same as the observed distribution of the outcome Y^0 of the comparison group (Heckman, LaLonde, and Smith, 1999). That is, with the matching method the construction of the correct sample counterpart for the missing information on the treated outcomes had they not participated consists in pairing each programme participant with one or more members of a comparison group (Blundell and Costa Dias, 2002). Therefore, the matching approach allows to compare the treated and the non-treated outcomes directly, without having to impose structure on the problem. This is the analogy to random assignment in a (social) experiment. An advantage of the method of matching is its generality due to the non-parametric nature of the approach. Therefore no particular specification has to be assumed. However, since matching methods concern themselves solely with selection of observable variables to solve the selection problem, they require very rich data in order to make the estimates of the treatment effects credible (Smith, 2000).

For the ATT to be identified the so-called *conditional independence assumption* (CIA) has to be invoked (Lechner, 1998), $Y^0 \perp\!\!\!\perp D|X$. It states, that conditional on the set of relevant (observable) covariates X the non-participation outcome Y^0 is independent of the participation decision. In addition, the availability of non-participating analogues for the participants must be guaranteed (*common support*), i.e. $Pr(D = 1|X) < 1$ (Smith and Todd, 2005a). Since the CIA is in general untestable, one has to be careful in choosing the set of relevant variables. It is well known that matching on X can become hazardous when X is of high dimension ('curse of dimensionality', cf. Pagan and Ullah (1999)). To deal with this dimensionality problem, Rosenbaum and Rubin (1983) suggest to use balancing scores. One possible balancing score is the probability of participating in a programme, i.e. the propensity score $p(X) = E(D = 1|X)$, that summarises the information of the relevant covariates X into a single index function. Therefore, all biases due to observable covariates can be removed by conditioning solely on the propensity score.

4.2 Some Methodological Issues

Up to now, we have discussed the evaluation approach for the static binary treatment case, i.e. treatment is exposed once and at one specific point of time only. In that case, those individuals who take the treatment are defined as the participants; all others are the non-participants. Simplifying the evaluation problem that way may be reasonable for social experiments. In contrast, for most regular ALMP programmes this approach may concur rather poorly (cf. Fredriksson and Johansson (2004)). It becomes obvious by taking a look on the ALMP system in Germany. This comprehensive system is characterised by a wide array of different ongoing programmes, which take place continuously over time and are open to job-seekers who meet the differing eligibility criteria. For that reason, job-seekers can participate in a

¹² See e.g. Rubin (1974), Rosenbaum and Rubin (1983; 1985) and the overview by Rosenbaum (2002). However, the idea of matching is not new. Heckman, Ichimura, Smith, and Todd (1998) note that the method of matching was first used by Fechner (1860).

programme at different points of time in the unemployment spell. Furthermore, for some programmes, like for example JCS, unemployment is in general a pre-condition for participation. Therefore, the starting point of the programme within the individual unemployment spell may be an important determinant for the type of programme an individual is assigned to as well as for the selectivity of the participating individuals. Moreover, the calendar time of the treatment also affects the assignment process, because of changing budget constraints within the calendar year or changes in the focus of the policy interventions from one year to another (cf. Speckesser (2004)). An important issue in this context is raised by Sianesi who analyses the efficiency of Swedish ALMP programmes (see Sianesi (2002; 2003; 2004)) that are similar to the German programmes. She argues that within the Swedish system an unemployed person will join a programme at some time, provided the individual remains unemployed long enough. Consequently, the reason why an unemployed individual is not observed to participate in a programme is that the person has found a job before or the time horizon of the analysis is too short. Obviously, although participation in a programme is not mandatory in Germany like in Sweden, it tends to be true that unemployed persons become more likely to participate in any programme the longer they are unemployed. Thus, Sianesi's argument may be true for Germany, too.

Hence, this has serious implications for the choice of the comparison group and the econometric evaluation estimator. If we would choose those individuals as the comparison group who have been observed never to participate in the data, this may invalidate the CIA, as we have to condition on future outcomes. The conditioning on future outcomes may furthermore bias the estimates. To give an example, if we select all individuals as the comparison group who have never been on a programme within the observation window and for whom we observe a transition into employment, we may underestimate the true treatment effects because one can assume that this group contains a large number of individuals who were intended to be treated because they have a per se higher probability to become regular employed.

For that reason, participation and non-participation has to be defined dynamically, i.e. with respect to the point of time the comparison should be made. According to Sianesi (2004), we define persons who have neither entered a programme nor left unemployment up to a specific point in time as non-participants of interest or 'waiters' (in the sense that they are waiting to be allocated to a programme). Thus, non-participation can be interpreted as the default state for each individual and everybody is a non-participant until entering a programme or leaving for employment. In this context it should be noted, that the state to which programme participants are compared to is in fact none of being completely left on one's own to look for a regular job. It is rather the state of the baseline services provided by the LEA, since being registered as a job-seeker gives access to the various employment services offered by the offices (cf. Sianesi (2002)). Furthermore, individuals who are defined as non-participants in the moment we start our comparison may enter a programme at a later point of time.

The approach has been used in the study by Steiger (2004) evaluating the effects of different active labour market policy programmes in Switzerland, too. Speckesser (2004) and Fitzenberger and Speckesser (2005) apply a matching approach that takes the timing of the programme into account to evaluate the effects of a programme called *provision of specific professional skills and techniques* in Germany. A similar definition of non-participation is used by Brodaty, Crépon, and Fougere (2001) who focus on the effects of youth employment programmes in France. Fredriksson and Johansson (2004) try to formalise this idea and to connect the matching approach with the concept of duration models.

In contrast, several studies use only individuals who have never participated within the observation window as the comparison group, for example Gerfin and Lechner (2002) or Lechner, Miquel, and Wunsch (2005a; 2005b). To over-

come the problem of comparing participating individuals to non-participants who were never intended to be treated, they apply an approach suggested by Lechner (1999) first. In this approach, each comparison individual is assigned a random starting date by drawing from the discrete distribution of the estimated starting dates of the participants. All non-participants who are already employed at the time of the hypothetical starting date are excluded from the analysis. However, this approach adds additional noise to the data and does not take the timing of events seriously (cf. Fitzenberger and Speckesser (2005)). Moreover, since the observation window is in general limited the observable distribution of the starting dates will be truncated. Thus, imposing the starting date distribution to the non-participants by random drawing may be biased (cf. Fredriksson and Johansson (2004)).

4.3 Evaluation Approach in the Dynamic Setting

To formalise the evaluation approach in the dynamic setting, i.e. when the timing of treatment is considered explicitly, we will introduce some additional notation. Let $U = \{0, \dots, U_{\max}\}$ define the discrete elapsed unemployment duration of the individual since registration at the LEA. Furthermore, let u denote the point of time in the unemployment spell the programme of interest starts and D_u the treatment indicator with the discrete time index. $D_u = 1$ if the individual starts a programme at time u of the unemployment spell, $D_u = 0$ if the individual remains unemployed at u . Programme effects are estimated for time t with $t \geq u$, i.e. the time after the programme has started. The hypothetical outcomes for time t given a treatment at time u are then defined as $Y_{t,u}^1$ for individuals who received the treatment at u and $Y_{t,u}^0$ for individuals who have not received the treatment at least up to time u .

The parameter of interest for each u is then the average effect in t for individuals starting a programme in the u^{th} month of their unemployment spell, of joining the programme at u compared to not joining at u , i.e. waiting longer in open unemployment. This is (in analogy to eq. 1):

$$\begin{aligned} \Delta_{t,u}^{ATT} &= E(Y_{t,u}^1 - Y_{t,u}^0 | D_u = 1, D_1 = \dots = D_{u-1} = 0, u \leq t) \\ &= E(Y_{t,u}^1 | D_u = 1, D_1 = \dots = D_{u-1} = 0, u \leq t) \\ &\quad - E(Y_{t,u}^0 | D_u = 1, D_1 = \dots = D_{u-1} = 0, u \leq t). \end{aligned} \quad (2)$$

Whereas the first term is identified in the data by the observed outcome of the participants, for the second term to be identified, we have to invoke an adjusted version of the conditional independence assumption. That is, the hypothetical outcome at time t after not participating up to time u is independent of a programme participation at time u , conditional on a set of observed characteristics X_u or the propensity score $p(X_u)$ measured at time u . By use of the propensity score, this *dynamic version of the conditional independence assumption* (Fitzenberger and Speckesser, 2005) is defined as:

$$Y_{t,u}^0 \perp\!\!\!\perp D_u | p(X_u), D_1 = \dots = D_{u-1} = 0, u \leq t. \quad (3)$$

It states that treated and non-treated individuals are comparable in their non-treatment outcomes at time t conditional on $p(X_u)$, conditional on being unemployed up to time $u - 1$, and conditional on not receiving treatment before u with $u \leq t$. If this assumption holds, the parameter of interest could be estimated by propensity score matching in the following way:

$$\begin{aligned} \Delta_{t,u(MAT)}^{ATT} &= E(Y_{t,u}^1 | p(X_u), D_u = 1, D_1 = \dots = D_{u-1} = 0, u \leq t) \\ &\quad - E_{p(X_u) | D_u=1, D_1=\dots=D_{u-1}=0} \{ E_Y(Y_{t,u}^0 | p(X_u), D_1 = \dots = D_u = 0, u \leq t) \}. \end{aligned} \quad (4)$$

In analogy to the ATT in the static setting, the second term approximates the participants' outcome in t of not joining a programme in u by the outcome of the comparable non-participants in u .

Considering the timing of treatment has also an implication for the interpretation of the ATT. Whereas the ATT in the static setting was defined as the average outcome of the treated compared to the hypothetical outcome had they not been treated, the adjusted version is defined as the ATT conditional that the unemployment spell has lasted at least until the start of the comparison. This parameter is of interest in a situation where caseworkers and individuals meet at regular intervals, e.g. on a monthly basis, and decide on each meeting whether to start a treatment in the next interval or whether to postpone it to the future (cf. Sianesi (2004)). Therefore, by interpreting the results one has to bear in mind, that the chosen comparison group does not reflect a no-programme state, but rather possibly postponed participation.

What should be noted is that individuals are not allowed to anticipate future treatments as well as future labour market outcomes. Anticipatory effects of a treatment are present if for example those individuals who are informed about a future active labour market policy programme reduce their search activity in order to wait for the treatment. Anticipatory effects of future employment may occur if the individual knows that the former employer is going to call him or her back. In that case, the person is likely to have no or less incentives to participate in a programme at any given month in unemployment (cf. Sianesi (2004)). However, as noted by Abbring and van den Berg (2003), the exclusion of anticipatory effects does not rule out that the individuals know and act on the determinants of the assignment to treatment or labour market outcomes, i.e. individuals are allowed to adjust their optimal behaviour to the determinants of the treatment process, but not to the realisations of the treatment. This is not a problem for the analysis as long as treated and non-treated individuals anticipate the chances of these events conditional on $p(X_u)$ and the elapsed unemployment duration in u in the same way (cf. Fitzenberger and Speckesser (2005)).

4.4 Plausibility of the Conditional Independence Assumption in the Dynamic Setting

An important issue to be considered in the context of evaluating the treatment effects of JCS using the matching estimator is the plausibility of the CIA. As mentioned in subsection 4.3, for this assumption to be fulfilled in the dynamic setting requires us to observe all covariates that, conditional on having spent a given amount of time in unemployment u , jointly influence the participation decision at that time, $D_{t,u}$, and the outcome variable where such decision to be postponed further, $Y_{t,u}^0$ (cf. Sianesi (2004)). If this assumption holds, the observed probability distribution of subsequently finding a job or of later joining a programme for the non-participants in months u of the unemployment spell is the same as the counterfactual distribution for the treated individuals in u had they decided to wait longer. However, the choice of the relevant variables is not straightforward. Therefore, we relate our discussion of the plausibility to the institutional set-up of the assignment process to JCS as well as to the rich set of variables available in the data set.

To start with the relevant aspects of the assignment process to be considered in the model should be recapitulated. Allocation of an unemployed individual to a programme depends to a large extent on the caseworker's assessment of the individual's need of assistance. This need of assistance is assessed based on regular interviews of the unemployed individual to evaluate his or her efforts for finding a job. In particular, groups with barriers to employment, e.g. long-term unemployed, severely disabled or older unemployed persons, are in need of assistance. Furthermore, to become eligible for participation in a job creation scheme, a person should be unemployed for at least six out of the last twelve months before programme start and the criteria for the reception of UI benefits have to be fulfilled. Moreover, the

need of assistance as assessed by the caseworker implies that the potential participant cannot be integrated into regular employment or in another active labour market policy programme at that time. In addition, a place in a programme has to be available. If these three preconditions are fulfilled, the caseworker may offer the unemployed individual a specific occupation in a job creation scheme. For the CIA to be achieved it is crucial to identify enough information able to capture these determinants of allocation.

As we have seen from the description of the data set we are able to control for a large set of variables characterising the individual's past and current (at the start of the treatment) labour market situation. We expect employment and unemployment experience, gender and geographic region of the unemployed individuals to be the most important determinants of the participation decision. Following Sianesi (2004), the elapsed unemployment duration of the individuals can be used to capture possible unobservable influences for the participation decision. These influences occur for example due to changes in the motivation, loss of hope, or the perceived or actual deterioration of human capital. Moreover, in the presence of duration dependence the outflow to employment will differ between individuals with unemployment durations less than u for reasons unrelated to the programme. Thus, it is crucial to ensure that comparison individuals have spent in unemployment at least the time it took the participants to join the programme (Sianesi, 2004). In addition, gender seems to be of particular interest as there is a differing labour market behaviour of men and women which should be regarded explicitly. Moreover, to evaluate the employment effects of JCS reasonably one has to take account of the strong regional differences of the German labour market in East and West Germany together with the differing amount of ALMP programmes implemented in both parts.

For that reason, we condition on previous unemployment experience by stratifying the samples for East and West Germany and men and women by the discretised unemployment duration $U = 1, 2, \dots, U_{\max}$ with $U_{\max} = 8$ and quarter as unit.¹³ Hence, we will analyse the employment effects of a job creation scheme for groups of individuals that join within the first two years of the current unemployment spell, i.e. whether there is a differential programme impact according to U . In our samples, more than 89 percent of all treated persons in JCS are observed to enter a programme within that time span. However, we have to note that we can only identify whether the programme effect for persons joining in quarter k is better or worse than the effect for persons joining in quarter l with $k \neq l$. We are not able to analyse the effects for participants of quarter k if they had decided to wait longer and started a treatment in quarter l .

In addition to the individual unemployment experience, programme effects may also differ with calendar time. For that reason, Fitzenberger and Speckesser (2005) note that an ideal approach would consider the different starting dates of unemployment as well as the different starting dates of the programmes. However, the number of observations available for analysis would be too small. As we have seen from the description of the data the numbers of persons starting a programme in the different months do not vary much (except the cohort of January 2001). Moreover, as we use data on programmes that have started during one year and persons are allocated to programmes not at specific points of time (like for example in vocational training programmes that provide a professional training to the individuals), we assume the calendar date of unemployment entry to be of minor importance for the evaluation of the programme effects. Therefore, we aggregate the six programme cohorts into one sample and consider the time the individuals have spent in unemployment before. However, to take account of possible seasonal differences we regard seasonal dummies for the

¹³ Ideally, one would condition on a finer stratification considering monthly intervals. However, due to practical limitations one has to rely on some kind of aggregation. As we expect the participation chances of the individuals to remain fairly similar within the quarters, we suppose that the stratification is adequate to analyse the programme effects.

different programme starts in the estimation.¹⁴

For the employment experience and qualification of the individuals we use information the caseworkers survey to evaluate the unemployed person's likelihood of employment. These attributes comprise the duration of the last employment and a dummy for work experience, the schooling and professional training of the individuals, and the work time of the last occupation. The duration of the last employment in combination with work experience are good proxies for the individual's familiarity with work. We consider employment duration in four different categories, i.e. up to 180 days, between 180 and 365 days, 366 to 730 days, and more than 730 days. This distinction allows to proxy different levels of specific human capital accumulation during the jobs to some extent. Whereas we could expect persons who have worked for more than two years to own a relevant amount of specific human capital, this expectation would not hold for persons who have worked for less than 180 days. Unfortunately, as we have no information concerning the nature of the contract, i.e. whether the unemployed individual worked within a permanent or temporary contract before, the employment duration could be used as a proxy only. Schooling and professional training are regarded to assess the general human capital the person owns. Both variables are good indicators for the individual qualification. The work-time of the last occupation is used to denote the past labour market involvement of the individuals. The characterisation of the individual's qualification is completed by a subjective assessment of the caseworkers. This subjective assessment seems particularly important to be considered in the model as it refers to observed and unobserved differences between characteristics of individuals. It can therefore be viewed as a summary statistic of the amount as well as the transferability, effectiveness and obsolescence of previous human capital accumulation. The desired occupation together with the desired work time of the individuals provides information on the economic sector of the job and the work-time the individual seeks for. Furthermore, as there is no strong occupational mobility between economic sectors in Germany, it is a proxy for the past occupation of the individuals. In addition, consideration of the occupation type of the individual together with the implicit consideration of the unemployment spell in the estimation is necessary to capture possible anticipatory effects in terms of future employment. To give an example, seasonal unemployed workers may know in advance that their past employer will call them back. In that case they would have no incentive to participate in a job creation scheme. By balancing the occupation as well as the month of unemployment start between treated and non-treated individuals the problem of this type of anticipatory effects should be ruled out.

There are also some socio-demographic attributes that are important determinants for the individual labour market prospects, like citizenship (foreigner, asylum-seeker), the age of the individuals (measured in six categories at the start of the treatment), the number of children and marriage/cohabitation. For example, the number of children and marriage/cohabitation are indicators for the social background, mobility and responsibility of the individual for other persons. Moreover, the characterisation of the labour market prospects is supported by a number of further variables. These variables comprise the application for vocational rehabilitation, whether or not the individual has received an ALMP programme somewhere in the past, the number of placement propositions, the reception of UI and the caseworker's assessment of placement restrictions due to health problems. The number of placement propositions indicates the placement restraints of the individual. A higher number of unsuccessful placement propositions refers to a higher need of assistance in the placement process including an adjustment of the unemployed person's human capital to the needs of the labour market. Information on a participation in an ALMP programme before may be used to identify potential 'programme careerists'. In particular in East Germany during the early 1990s, the majority of unemployed persons have

¹⁴ By doing so we will implicitly consider the start of the unemployment spell in the estimation, too.

participated in ALMP programmes.¹⁵ Therefore, it may also indicate the willingness to participate in a programme.

Obviously, the caseworkers play a crucial role in the allocation process to the programmes. Since denying a job offer in a job creation scheme by the unemployed individual could be sanctioned by benefit cancellation, the caseworkers are expected to have the final word in the participation decision. If the caseworkers act upon unobservable information that is correlated with the individual's potential labour market outcomes, the CIA would be violated. However, as the data used in this analysis is surveyed by the caseworkers and augmented by their own subjective assessment of the individuals qualification and placement restrictions, we assume that caseworkers act idiosyncratically given the observable characteristics of the unemployed individuals and the subjective assessments. The large degree of freedom of the caseworkers has implications for possible anticipatory effects in terms of future participation of the unemployed individuals. Unemployed individuals are unlikely to turn down an offered occupation in a job creation scheme in order to wait for a place in another ALMP programme since this would imply the cancellation of unemployment benefits or assistance.

The attributes considered so far concentrate on supply side aspects of the labour market. But, participation in programmes and labour market outcomes depend on demand side aspects, too, like e.g. the local labour market conditions (see Heckman, Ichimura, and Todd (1997)). On the one hand, as mentioned above the situation in the labour market differs between East and West Germany. On the other hand, the enactment of Social Code III in 1998 has provided a larger degree of self-responsibility and flexibility to the LEAs, i.e. the single agencies decide on the set of labour market policy interventions they offer. For that reason, it is quite possible that different local labour market conditions in the LEAs lead to a different mix of policy interventions. Explicit consideration of the 181 labour office districts is not feasible for estimation. Therefore, we use the classification of the FEA as described above to characterise the differing local labour market conditions in a parsimonious way.

In summary, the discussion of the CIA in our context has shown that given the detailed and comprehensive data set at hand we are able to consider most if not all factors that determine participation and labour market outcomes. For that reason, we can argue that the CIA holds and we can use the matching estimator in the dynamic setting to evaluate the employment effects of JCS in Germany.

4.5 Implementation of the Estimator

We have estimated series of eight probit models for each region and gender (East and West Germany, men and women), each one modelling the probability of starting a programme in quarter u , conditional on X , conditional on having reached the unemployment duration of $u \in \{1, \dots, 8\}$ quarters and conditional on not having received a treatment before u . The final model for the propensity score estimations was chosen based on the above discussion of the plausibility of the conditional independence assumption and extensive specification testing. Variables were selected in order to minimise the differences between the treated and non-treated samples after matching, i.e. to maximise the balance between the covariate distributions.¹⁶ Estimation of the treatment effects of JCS was accomplished using single nearest neighbour matching on the propensity score without replacement.¹⁷ To ensure common support we impose the minima and maxima comparison condition. As we use propensity score matching to estimate the treatment effects, the ability

¹⁵ Bielski, Brinkmann, and Kohler (1997) note that about three quarters of the East German labour force have been at least once in a labour market programme between November 1989 and November 1994.

¹⁶ The results of the estimations are given tables C.1 to C.8 in appendix C.

¹⁷ All estimations have been made with *STATA*. For the matching estimator we used the programme *psmatch2* by Leuven and Sianesi (2003).

of this procedure to balance the relevant covariates between the treated and non-treated individuals has to be checked. Tables 2 and 3 provide some quality indicators for West and East Germany. The first indicator is the standardised difference in percent as suggested by Rosenbaum and Rubin (1985). It considers the size of the differences in means of a conditioning variable between the treated and matched comparison groups, scaled by the square root of the average variances in the original samples (Smith and Todd, 2005b). To abbreviate the documentation, we present the median of the statistic before (column four) and after matching (column five). Moreover, the tables contain the calculated pseudo- R^2 of the propensity score estimation for the full (column six) and the matched sample (column seven). The idea is to compare the coefficients of determination before and after matching. Successful matching should adjust away all systematic differences with respect to the observable covariates. Therefore, after matching there should be no systematic differences in the distribution of the covariates between the treated and the non-treated group (cf. Sianesi (2004)). The last column denotes the number of individuals lost due to the common support condition.

Tab. 2: INDICATORS OF COVARIATE BALANCING BEFORE AND AFTER MATCHING (WEST GERMANY, BY QUARTER)

Quarter ¹	No. of Treated Before	No. of Non-Treated Before	Median Bias Before ²	Median Bias After ²	Probit ps- R^2 Before ³	Probit ps- R^2 After ³	No. lost due to CS ⁴
Men							
1	1,137	160,492	5.69	1.78	0.14	0.01	0
2	743	68,777	4.94	2.23	0.13	0.01	1
3	729	36,175	4.02	2.18	0.11	0.01	0
4	652	22,222	4.69	2.72	0.12	0.02	1
5	636	14,692	5.32	2.50	0.17	0.01	0
6	273	10,516	7.05	3.71	0.15	0.02	0
7	233	8,449	5.92	2.85	0.14	0.03	1
8	182	6,600	8.47	3.97	0.14	0.04	0
Women							
1	541	126,781	9.21	2.47	0.14	0.02	0
2	405	59,610	8.56	2.84	0.16	0.03	1
3	389	33,053	12.13	2.84	0.15	0.02	1
4	386	21,385	9.47	2.36	0.18	0.02	0
5	399	14,269	8.99	2.21	0.22	0.02	2
6	135	10,331	11.35	5.75	0.18	0.08	1
7	122	8,037	11.57	3.82	0.22	0.07	0
8	114	6,154	13.10	5.50	0.18	0.10	0

¹ Quarter refers to the quarter the treatment starts in the individual unemployment spell, u .

² Median bias denotes the median of the standardised difference in percent following Rosenbaum and Rubin (1985) before and after matching.

³ Probit ps- R^2 refers to the pseudo R^2 computed for the full sample (before) and the matched sample (after).

⁴ Number of treated individuals lost after imposing the common support condition.

The results show that the matching procedure is able to reduce the differences in the covariate distributions between both groups quite well for all points of time. Starting with the median of the standardised difference in percent for West Germany shows that the remaining bias after matching is for men between 1.78 ($u = 1$) and 3.97 ($u = 8$) percent. The corresponding figures for women are slightly worse and amount to a median of between 2.21 ($u = 5$) and 5.75 ($u = 6$) percent. The results of the pseudo- R^2 's support these findings.

It has to be kept in mind that the median of the standardised difference in percent allows a crude approximation of the bias reduction in the single covariates only. Whereas some of the covariates differ enormously between treated and non-treated groups before matching, others are more similar. In particular for variable that are statistically significant in the propensity score estimations on a high level, like e.g. the number of placement propositions or having participated in a

Tab. 3: INDICATORS OF COVARIATE BALANCING BEFORE AND AFTER MATCHING (EAST GERMANY, BY QUARTER)

Quarter ¹	No. of Treated Before	No. of Non-Treated Before	Median Bias Before ²	Median Bias After ²	Probit ps- R^2 Before ³	Probit ps- R^2 After ³	No. lost due to CS ⁴
Men							
1	1,913	79,365	7.26	1.96	0.18	0.00	0
2	1,618	40,099	4.27	1.03	0.13	0.00	1
3	1,819	24,363	6.02	1.80	0.13	0.01	1
4	1,459	15,729	5.04	1.80	0.13	0.01	6
5	1,442	9,504	4.36	1.69	0.18	0.01	131
6	838	6,222	6.25	1.93	0.19	0.01	84
7	497	4,412	6.90	2.13	0.20	0.02	44
8	364	3,223	8.72	2.14	0.21	0.01	33
Women							
1	2,104	68,058	4.40	1.71	0.15	0.01	1
2	1,548	40,362	5.33	1.54	0.12	0.01	0
3	1,716	28,684	4.63	1.08	0.12	0.00	0
4	1,593	20,883	5.28	1.25	0.12	0.00	1
5	2,101	13,935	5.29	1.21	0.21	0.01	180
6	1,178	9,700	5.75	2.11	0.21	0.01	124
7	860	7,786	3.33	3.04	0.21	0.01	76
8	560	5,872	5.18	2.60	0.20	0.01	19

¹ Quarter refers to the quarter the treatment starts in the individual unemployment spell, u .

² Median bias denotes the median of the standardised difference in percent following Rosenbaum and Rubin (1985) before and after matching.

³ Probit ps- R^2 refers to the pseudo R^2 computed for the full sample (before) and the matched sample (after).

⁴ Number of treated individuals lost after imposing the common support condition.

programme before, the matching procedure reduces the imbalances between treated and non-treated individuals strongly. To give an example, the standardised difference in percent for men (women) in West Germany for $u = 1$ is 59.78 (59.25) percent before matching and only 8.87 (4.89) percent after matching for the number of placement propositions. The corresponding reduction for programme before unemployment is even stronger: Here, men (women) have a difference of 86.80 (82.86) percent before and of 7.54 (4.36) percent after.

The quality indicators for East Germany show a better picture. The median of the standardised difference in percent after matching amounts to between 1.03 ($u = 2$) and 2.14 ($u = 8$) percent for men and to between 1.08 ($u = 3$) and 3.04 ($u = 7$) percent for women. Again, the differences in some of the variables had to be reduced far stronger than for others. To give the analogue figures to the example for West Germany, men (women) in East Germany for $u = 1$ differed in the number of placement propositions by 59.23 (56.49) percent before and by 4.82 (2.63) percent after. The difference in programme before unemployment was 86.92 (73.93) percent before and 3.80 (0.20) percent after.

A final point to be mentioned refers to the number of potential comparison individuals at each point of time. For persons starting a treatment early in the unemployment spell, we are able to use a large number of non-participants as potential matches, e.g. for $u = 1$ the number of non-participants before matching amounts to 160,492 (126,781) men (women) in West Germany and 79,365 (68,058) men (women) in East Germany. Thus, it is more likely for the matching procedure to find adequate matches. For persons starting a treatment later in the unemployment spell, the number of potential comparisons decreases because the non-participants have left the unemployment for regular employment or other programmes. In particular for persons who start the programme in quarter $u = 5$ the ratio between treated and non-treated individuals is rather small. Due to this it is harder for the matching procedure to find adequate comparison individuals to approximate the counterfactual outcome of the participants. This is also a reason for the clear loss of

individuals due to the common support condition in East Germany. However, for the later quarters ($u = 6$ to $u = 8$) the ratio is higher again in all groups.

5 Employment Effects of Job Creation Schemes

We will discuss the results for East and West Germany in the following separately. This distinction is reasonable due to the clearly different situation of the labour markets in both parts. All treatment effects are estimated from the start of the programmes onwards. By doing so we have to consider the possible occurrence of locking-in effects, in particular shortly after programmes have started. Since the majority of participants leaves the programme within one year after programme start and we measure the employment effects until 30 months after treatments have started, successful programmes should overcompensate for the expected initial fall.

5.1 Effects for West Germany

The employment effects of JCS with respect to the timing of treatment for men and women in West Germany are presented in figures 2 and 3. The graphs plot the development of the effects from the first month after treatment start to month 30. The solid line describes the monthly employment effect, i.e. the difference in the employment rates between treated and matched non-treated individuals. The dotted lines are the lower and upper 95 percent confidence limits.¹⁸ In addition, to allow a more accurate discussion table 4 presents the results for five selected months.

The first thing to note, common to all groups independently of the foregoing unemployment duration, is a large drop in the effects during the first months after programmes have started. For the majority of groups this difference in the employment rates reaches its peak around month six. It is reasonable to interpret the drop in the effects as the expected locking-in effects the participants experience whilst on the programmes. These locking-in effects are particularly articulated for groups starting a job creation scheme early in the unemployment spell. To give an example, six months after start of the programmes the employment rate for men starting in $u = 1$ ($u = 3$) is -20.1 (-19.1) percentage points lower compared to the matched non-participants. For groups starting the programmes later in the unemployment spell, the locking-in effects are still observable, but not as strong as for the earlier starting groups. Thus, men for example who have started a programme in quarter $u = 6$ ($u = 8$) of unemployment have an employment rate that is -13.2 (-11.5) percentage points lower compared to a situation where they had decided to wait longer. Although a similar picture could be revealed for women, the picture is not consistent for all strata. Whereas women in $u = 1$ ($u = 3$) experience locking-in effects in the sixth month after programmes have started of about -28.1 (-17.3) percentage points, women in $u = 6$ have an effect of -29.1 percentage points that is even stronger.¹⁹ However, the other estimates point in the same direction as for men, e.g. the effect for women in $u = 7$ is -15.6 percentage points. This different magnitude of the locking-in effects for different starting points of the programmes during the unemployment spell reflects the different labour market situation of the individuals. Persons with only a short duration of unemployment could be expected to have better outside options on the labour market, i.e. finding jobs early, compared to individuals with a longer unemployment

¹⁸ Standard errors are calculated following Steiger (2004).

¹⁹ It has to be noted that we have to be careful when interpreting the effects for women who have started the programmes after $u = 6$ to 8 quarters of unemployment. The quality indicators (see above) have shown that for these groups problems with the balancing of the covariates arised. A possible reason may be the small number of observations in these groups.

Fig. 2: EMPLOYMENT EFFECTS FOR MEN IN WEST GERMANY (TREATMENT START BETWEEN QUARTERS $u = 1$ AND $u = 8$)

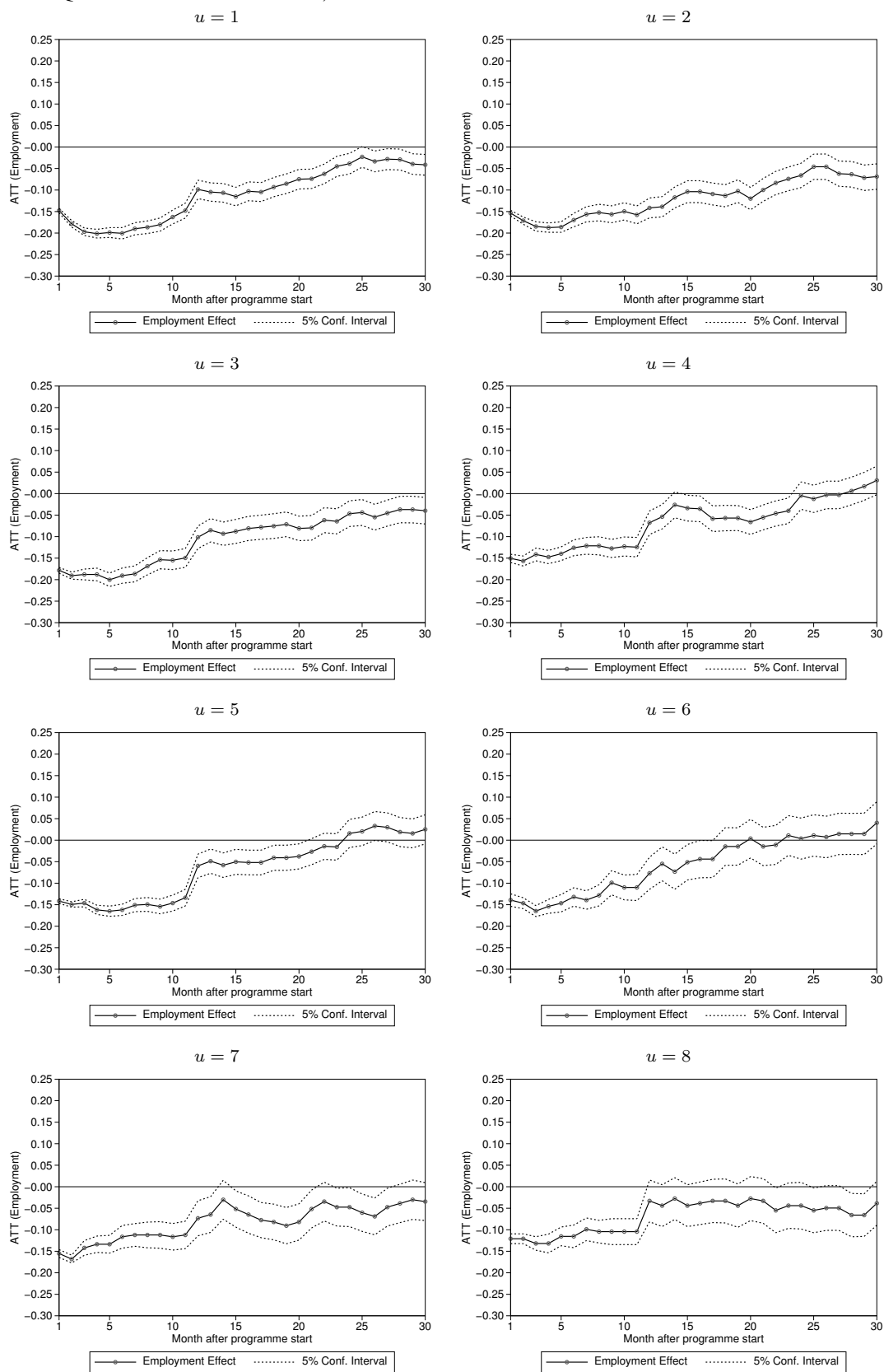
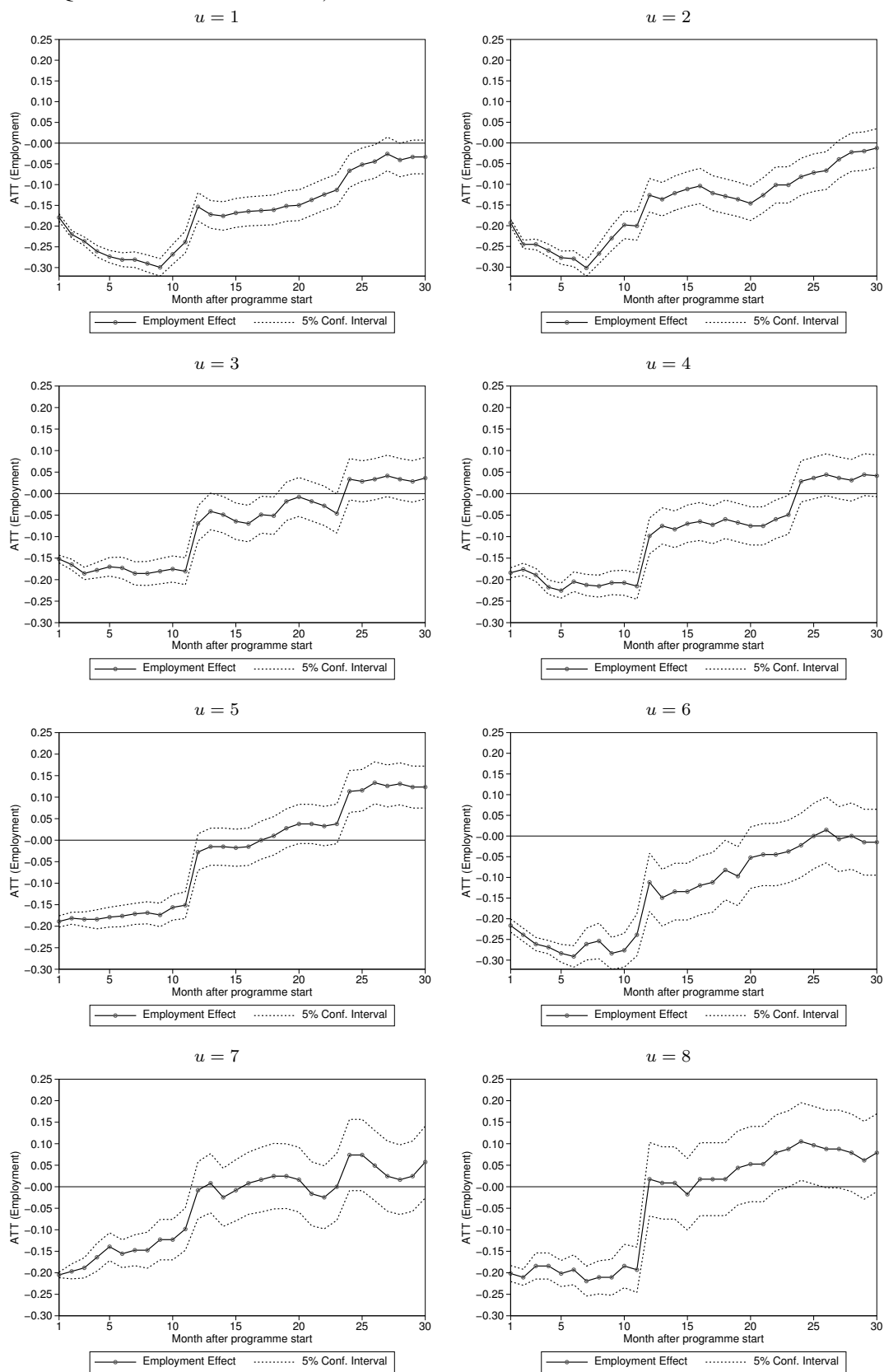


Fig. 3: EMPLOYMENT EFFECTS FOR WOMEN IN WEST GERMANY (TREATMENT START BETWEEN QUARTERS $u = 1$ AND $u = 8$)



experience ('negative duration dependence'). Therefore, the higher employment probabilities of the comparable non-participants to individuals who join a programme early in the unemployment spell lead to a stronger locking-in effect whilst on the programme.

Tab. 4: EMPLOYMENT EFFECTS FOR SELECTED MONTHS (WEST GERMANY, BY QUARTER)

u^1	Obs. ²		$\Delta_{6,u}$	$\Delta_{12,u}$	$\Delta_{18,u}$	$\Delta_{24,u}$	$\Delta_{30,u}$
Men							
1	1,137	Effect	-0.201	-0.099	-0.093	-0.039	-0.041
		Std. Err.	0.007	0.011	0.011	0.012	0.012
2	742	Effect	-0.170	-0.142	-0.113	-0.066	-0.069
		Std. Err.	0.008	0.012	0.013	0.014	0.015
3	729	Effect	-0.191	-0.102	-0.075	-0.047	<i>-0.040</i>
		Std. Err.	0.009	0.013	0.015	0.015	0.016
4	651	Effect	-0.126	-0.068	-0.057	-0.005	0.031
		Std. Err.	0.009	0.014	0.015	0.016	0.017
5	636	Effect	-0.162	-0.060	-0.041	0.016	0.025
		Std. Err.	0.007	0.014	0.015	0.017	0.017
6	273	Effect	-0.132	-0.077	-0.015	0.004	0.040
		Std. Err.	0.011	0.019	0.022	0.024	0.025
7	232	Effect	-0.116	-0.073	-0.082	<i>-0.047</i>	-0.034
		Std. Err.	0.013	0.021	0.021	0.023	0.022
8	182	Effect	-0.115	-0.033	-0.033	-0.044	-0.038
		Std. Err.	0.013	0.025	0.026	0.028	0.026
Women							
1	541	Effect	-0.281	-0.153	-0.161	-0.067	-0.033
		Std. Err.	0.009	0.017	0.018	0.020	0.021
2	404	Effect	-0.280	-0.126	-0.129	-0.082	-0.012
		Std. Err.	0.010	0.021	0.021	0.023	0.024
3	388	Effect	-0.173	-0.070	<i>-0.052</i>	0.034	0.036
		Std. Err.	0.013	0.021	0.022	0.025	0.025
4	386	Effect	-0.205	-0.098	-0.060	0.028	0.041
		Std. Err.	0.012	0.021	0.023	0.024	0.025
5	397	Effect	-0.176	-0.028	0.010	0.113	0.123
		Std. Err.	0.013	0.022	0.023	0.025	0.025
6	134	Effect	-0.291	-0.112	<i>-0.082</i>	-0.022	-0.015
		Std. Err.	0.013	0.036	0.037	0.040	0.041
7	122	Effect	-0.156	-0.008	0.025	0.074	0.057
		Std. Err.	0.017	0.034	0.039	0.042	0.043
8	114	Effect	-0.193	0.018	0.018	<i>0.105</i>	0.079
		Std. Err.	0.018	0.044	0.043	0.046	0.046

Bold letters indicate significance on a 1% level, *italic* letters refer to the 5% level.

¹ u denotes the quarters spent in open unemployment.

² Obs. refers to the number of treated observations when using nearest-neighbour matching without replacement. Common support is imposed by the minimum-maximum comparison.

As mentioned above, most of the participants have left the programmes after twelve months. Therefore, locking-in effects should decrease at that time. The empirical picture confirms this expectation. Except for men starting a programme in $u = 2$ and $u = 6$, for all other groups a jump in the employment effects could be observed between month eleven and twelve after start of the job creation scheme. Unfortunately, no positive effects could be established for any of the groups at that time. The estimated treatment effects are at best insignificant in month twelve (men: $u = 8$, women: $u = 5, 7$ and 8), i.e. the situation of the participants did not improve. In contrast, as most of the effects are negative, for the majority of the individuals the situation is even worse compared to having not joined the programme one year ago.

The development of the employment effects in the following months until the end of the observation period (month 30) is mixed. The effects tend to increase over time, in particular for the groups starting between quarter $u = 4$ and $u = 6$ of the unemployment spell. But, for male participants there are no significant positive estimates of the employment effects even 30 months after programmes have started. Instead, the employability of men that have started a programme within

quarter $u = 1$ to $u = 3$ of the unemployment spell is still below that of the comparable non-participants as becomes clear by effects of -4.1, -6.9 and -4.0 percentage points. For the other groups, the estimates do not differ significantly from zero. Whereas for men the picture is unsatisfying, women tend to experience better effects. With respect to the graphs (figure 3) a steeper increase in the employment effects is observable for all of the female groups. However, all groups experience neither negative nor positive effects except women starting in $u = 5$. For this group a positive employment effect of 12.3 percentage points could be established. Unfortunately, as this is the only positive estimate for West Germany, the results do not indicate the expected success of the JCS.

As mentioned above, the selection problem was solved based on observable characteristics only. Although we are able to use a rich set of variables describing the individual's labour market situation that are apt to capture the differences between treated and non-treated individuals, testing the sensitivity of the results with respect to further unobserved selection is reasonable. Appendix A provides the outline of this analysis. The results are given in table A.1 and show that the estimated treatment effects are sensitive to possible unobserved influences. In particular in case of a positive unobserved selection, that is participants in programmes are also more likely to become employed, we would overestimate the treatment effects. For the case of a negative selection (and consequently underestimation of the effects), the results are more robust only for men in $u = 2$ and women in $u = 5$. Here, an additional unobserved covariate must have a magnitude of about 15 to 25 percent of all observable variables to change inference of outcomes. However, it has to be noted that the tests are not able to indicate whether biases are present, but only to analyse the sensitivity of the results to selection bias. In that sense, the discussion of the plausibility of the CIA (section 4.4) has shown that most if not all determinants that drive selection are considered in our model, and that the occurrence of further unobserved factors is not very plausible.

To summarise the findings for West Germany the results show that independently of the foregoing unemployment duration participants in JCS experience strong locking-in effects whilst on the programmes. Moreover, although we considered 8 distinct intervals in the individual unemployment spells when to start a programme, the findings indicate that for most of the groups the effects do not differ significantly from zero even 30 months after programmes have started. For this reason, JCS do not improve the employability of the participants in the short and medium-run. In addition, men who start a programme early in the unemployment spell suffer from participation as the estimated negative employment effects two and a half years after programme start imply. Thus, JCS should be avoided early in the unemployment spell in the direction of searching longer in open unemployment. Only for women who meet the institutional conditions for long-term unemployment, the picture is not so bad at all. Here, the programme seems to work in terms of an improved employability of the participants as becomes obvious from the positive employment effects at the end of the observation period. However, except this group, the overall picture of the efficiency of JCS with respect to the goal of improving the employment chances of the participating individuals is rather disappointing for West Germany.

5.2 Effects for East Germany

The development of the employment effects of JCS in East Germany with respect to the timing of treatment in the unemployment spell are given in figures 4 (men) and 5 (women). In addition, table 5 provides more detailed information for five selected months. Similar to the findings for West Germany, participants of both gender suffer from locking-in effects of the programmes during the first months after programmes have started. However, in contrast to the West, the

Fig. 4: EMPLOYMENT EFFECTS FOR MEN IN EAST GERMANY (TREATMENT START BETWEEN QUARTERS $u = 1$ AND $u = 8$)

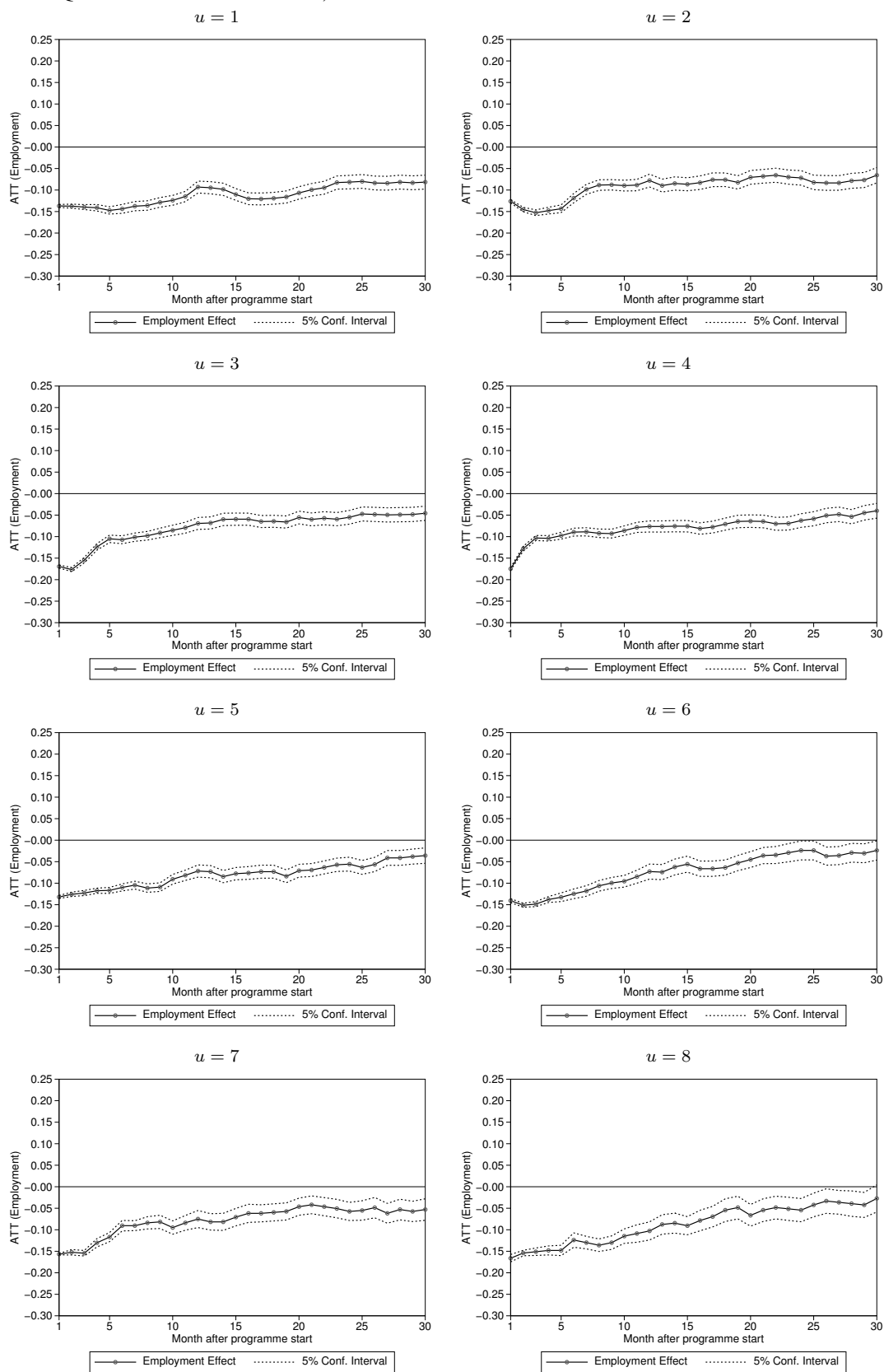
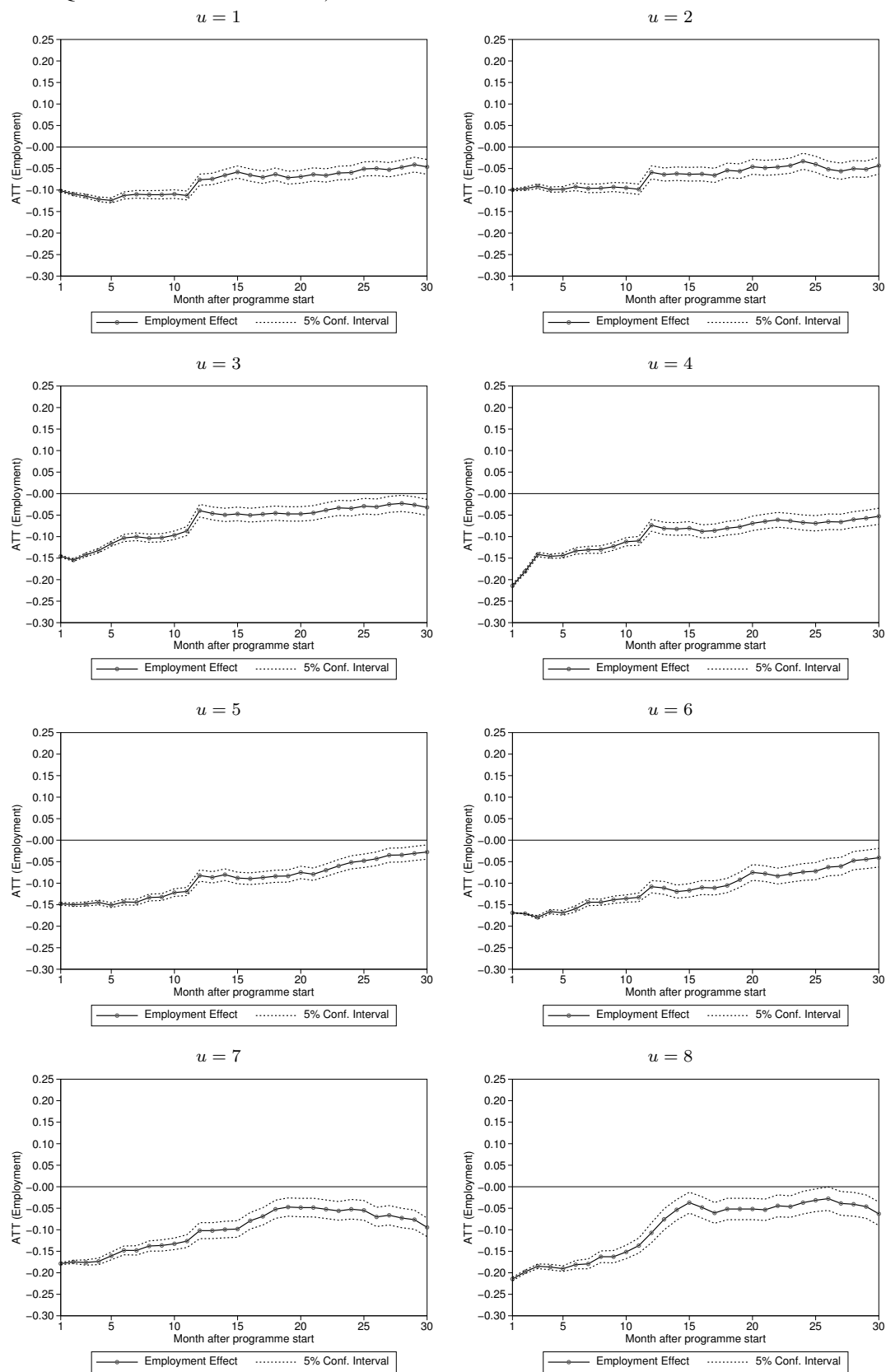


Fig. 5: EMPLOYMENT EFFECTS FOR WOMEN IN EAST GERMANY (TREATMENT START BETWEEN QUARTERS $u = 1$ AND $u = 8$)



magnitude of these effects is less strong. With respect to the tense situation of the East German labour market, this finding is not surprising. Since vacancies are rare, there are not many outside options for the comparable non-participants. Consequently, the number of individuals leaving unemployment for regular jobs is lower than in West Germany, even if they have experienced a short duration of unemployment only. Thus, the employment rates for participating men six months after programmes have started are about -8.9 ($u = 4$) to -14.4 ($u = 1$) percentage points lower than for the matched non-participants. For women, the figures are similar with employment effects between -9.2 ($u = 2$) and -18.1 ($u = 8$) percentage points.

Similar to West Germany most of participants have left the programmes about one year after programmes have started. In contrast to the West, a clear increase in the employment effects could not be established at that time. However, several groups experience a modest increase. In addition, a comparable increasing tendency in the development of the results as in the West could not be observed for most of the groups. Only men who start their programmes after more than one year of unemployment ($u = 5$ to $u = 8$) as well as women starting in $u = 5$ and 6 experience an improvement of their employment chances. However, it should be noted that this improvement is far too low to compensate the initial fall in the employment effects and thus, individuals suffer from JCS even 30 months after programmes have started. For men and women starting the programmes until $u = 4$ the employment rates of the participants remain relatively constant below that of the matched non-participants throughout the observation period. Although the employment effects for women who have started the programmes in $u = 7$ and 8 rise after twelve months, at the end of our observation period there is an anew decrease observable.

In contrast to West Germany, where most of the estimates do not differ significantly from zero, the results for East Germany provide a clearer picture. Except men starting in $u = 8$ all employment effects are significant negative even 30 months after programmes have started. However, some differences in the effects should be noted. There is a similar tendency as in West Germany, that men who start the programmes earlier in the unemployment spell suffer more from participation than other groups. To give an example, men starting in $u = 1$ have an employment effect of -8.2 percentage points in month 30, whereas the employment rate of those starting in $u = 5$ is only -3.6 percentage points lower compared to a situation where they had decided to wait longer in open unemployment. Except for men starting in quarter $u = 7$ (-5.3 percentage points) the negative employment effects are smaller the longer the participants have waited to begin a job creation scheme. None of the female groups has increased employment rates at the end of the observation period in comparison to the matched non-participants. Moreover, the estimated treatment effects are vary more than for men. Women who have started the programmes in quarter $u = 5$ experience the weakest decrease of their employability (-2.8 percentage points), whereas women who have waited until $u = 7$ suffer most with -9.4 percentage points lower employment rates. We have also tested the sensitivity of the results with respect to possible selection due to unobserved factors (see table A.1). All estimates are sensitive to possible unobserved influences, but in the overall picture the results tend to be more robust than in the West. Thus, the magnitude an unobserved covariate needs to change inference on outcomes varies between about 5 (women, $u = 5$) to about 60 (women, $u = 7$) percent. However, there is no reason why we should expect unobserved influences as we are able to use very rich and informative data and believe the CIA to be fulfilled.

In summary, the findings of the empirical analysis for East Germany indicate that JCS are not able to improve the employment chances for participating individuals within the first 30 months after programmes have started. Although

Tab. 5: EMPLOYMENT EFFECTS FOR SELECTED MONTHS (EAST GERMANY, BY QUARTER)

u^1	Obs. ²		$\Delta_{6,u}$	$\Delta_{12,u}$	$\Delta_{18,u}$	$\Delta_{24,u}$	$\Delta_{30,u}$
Men							
1	1,913	Effect	-0.144	-0.093	-0.119	-0.082	-0.082
		Std. Err.	0.005	0.007	0.007	0.008	0.008
2	1,617	Effect	-0.119	-0.078	-0.076	-0.072	-0.066
		Std. Err.	0.005	0.008	0.008	0.009	0.009
3	1,818	Effect	-0.107	-0.069	-0.064	-0.055	-0.046
		Std. Err.	0.005	0.007	0.007	0.008	0.008
4	1,453	Effect	-0.089	-0.076	-0.071	-0.063	-0.040
		Std. Err.	0.005	0.007	0.007	0.008	0.009
5	1,311	Effect	-0.110	-0.072	-0.073	-0.056	-0.036
		Std. Err.	0.004	0.007	0.008	0.008	0.009
6	754	Effect	-0.125	-0.073	-0.064	<i>-0.024</i>	<i>-0.024</i>
		Std. Err.	0.006	0.009	0.009	0.011	0.011
7	453	Effect	-0.091	-0.075	-0.060	-0.057	-0.053
		Std. Err.	0.006	0.010	0.010	0.011	0.013
8	331	Effect	-0.124	-0.103	-0.054	-0.054	-0.027
		Std. Err.	0.009	0.011	0.013	0.014	0.016
Women							
1	2,103	Effect	-0.113	-0.076	-0.063	-0.059	-0.046
		Std. Err.	0.004	0.007	0.007	0.008	0.009
2	1,548	Effect	-0.092	-0.059	-0.054	-0.033	-0.043
		Std. Err.	0.005	0.008	0.009	0.009	0.010
3	1,716	Effect	-0.103	-0.040	-0.045	-0.034	-0.032
		Std. Err.	0.004	0.007	0.008	0.009	0.010
4	1,592	Effect	-0.133	-0.073	-0.080	-0.067	-0.053
		Std. Err.	0.004	0.007	0.008	0.009	0.010
5	1,921	Effect	-0.144	-0.082	-0.084	-0.052	-0.028
		Std. Err.	0.003	0.007	0.007	0.008	0.008
6	1,054	Effect	-0.159	-0.108	-0.105	-0.074	-0.041
		Std. Err.	0.004	0.007	0.008	0.010	0.011
7	784	Effect	-0.148	-0.102	-0.052	-0.052	-0.094
		Std. Err.	0.005	0.010	0.011	0.012	0.011
8	541	Effect	-0.181	-0.107	-0.052	-0.037	-0.063
		Std. Err.	0.005	0.012	0.013	0.013	0.014

Bold letters indicate significance on a 1% level, *italic* letters refer to the 5% level.

¹ u denotes the quarters spent in open unemployment.

² Obs. refers to the number of treated observations when using nearest-neighbour matching without replacement. Common support is imposed by the minimum-maximum comparison.

we find some effect heterogeneity with respect to the timing of treatment in the individual unemployment spell, we could not establish any positive treatment effects for the groups in analysis. Participants in JCS suffer from strong locking-in effects during the first months after programmes have started. However, in contrast to the results for West Germany, the rising tendency in the development of the employment effects in the time after the majority of the participants has left the programmes could not be established. For that reason, the overall picture of the efficiency of JCS in East Germany in terms of improved employment chances is rather unsatisfying.

6 Conclusion

JCS have been an important programme of ALMP in Germany in terms of the promoted individuals and the fiscal spending. In particular in East Germany they are still used on a large extent. Although there are a number of previous empirical studies that analyse the effects of these programmes, several reasons harm the generality of the results. Earlier studies were based on survey data sets that are characterised by small numbers of observations and a concentration on the East German labour market only (see e.g. Huebler (1997), Kraus, Puhani, and Steiner (2000) and Eichler and Lechner

(2002)) In addition, effects are not exactly attributable to specific programmes since the data suffer from shortcomings with respect to the quality of the programme information and to the precision of the employment history. Hujer, Caliendo, and Thomsen (2004) and Caliendo, Hujer, and Thomsen (2004) have analysed the effects of JCS for Germany. Both studies are based on a cross-section of participants of one single month only. Therefore, the studies could not control for changes in the allocation of participants as well as for changes in the labour market. In addition, the first study uses unemployment as the outcome of interest. Therefore, the estimated effects do not provide evidence on the employment effects. The results of the second study are based on regular employment. The overall picture of the efficiency of the programmes is rather disappointing.

In this paper we have evaluated the effects of JCS on the individual re-integration chances into regular (unsubsidised) employment. By using rich administrative data covering entrances into programmes of a one year period, possible seasonal differences are considered. A particular focus of this analysis is the timing of treatment in the individual unemployment spell. As emphasised in recent empirical literature on evaluation of social programmes in comprehensive ALMP systems like Sweden, Switzerland and Germany (see e.g. Sianesi (2004), Steiger (2004) or Fitzenberger and Speckesser (2005)), this timing conveys useful information to assess the efficiency of the programmes. Moreover, it allows to define participation and non-participation more dynamically, i.e. unemployed persons are non-participants as long as they do not join a programme or leave for regular employment.

We have estimated the treatment effects using propensity score matching. We have described the selection of the relevant variables carefully and have also checked the quality of the matches. In addition, as matching is not robust to further unobserved heterogeneity, we have tested the sensitivity of the results to hidden bias. The different labour market conditions and the corresponding differences in the use of ALMP programmes in East and West Germany as well as gender differences have been considered by separate analyses for those four groups. The estimations have been accomplished programmes started within the first two years of the unemployment spell with a distinction for the eight quarters. The employment effects have been estimated until 30 months after programmes have started. Since JCS are in general promoted for twelve months, the majority of the individuals leaves the programmes after that time. Until that time, participants suffer from strong locking-in effects independently of region and gender. Differences in the locking-in effects with respect to the timing of treatment are observable in the sense, that persons who have started a programme early in the unemployment spell suffer more compared to those who have started later. Furthermore, the negative effects for participants whilst in the programmes are more emphasised in the West than in the East.

The overall picture at the end of the observation period is rather disappointing and is in line with the findings from earlier studies. Almost all of the participants experience a decline in their employability due to participation in a job creation scheme. Even 30 months after programmes have started in West Germany for none of the male groups any positive effects could be established. In contrast, men who have started the programmes within the first three quarters of unemployment suffer from the programmes in terms of lower employment rates compared to the situation where they had decided to wait longer. For the remaining groups, the employment rates do not differ from that of the matched non-participants. Slightly better, but still unsatisfying in terms of improved employability, is the picture for women. Seven of the groups do not differ in the employment rates 30 months after programmes have started and for women starting a job creation scheme in quarter $u = 5$ we find a positive effect of 12.3 percentage points. Hence, although this seems to be the light at the end of the tunnel, the results should not be overrated. In particular in West Germany, women

have a lower propensity to work than men. Therefore, we could expect them to leave the labour force after some time of unemployment if no job is available. As this drop could not be accounted for in the outcome variable without violating the CIA, interpretation of this ‘employment effect’ should be made with care.

The results for East Germany are even worse. Although persons do not suffer from as strong locking-in effects as in West Germany, the increase of the employment effects after the majority of participants has left the programmes is smaller. Only for groups who have started the programmes after more than one year of unemployment, an improvement in the employment rates could be observed. For the other groups, the effects remain relatively constant after one year throughout the observation period. At the end of the time horizon of the analysis all (except one) of the groups experience negative employment effects.

In summary, the findings of the estimations for West and East Germany indicate that JCS perform poorly in improving the employment chances of the participating individuals. To be more explicit, participation in the programmes does not help the individuals to re-integrate into regular (unsubsidised) employment. Limiting access to the programmes and tailoring them for the ones who are most in need of them may be a way to improve the overall efficiency and offering a ‘last chance’ for hard-to-place individuals.

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A Sensitivity to Hidden Bias

The estimated treatment effects in this study are identified under the CIA. However, for the CIA to be fulfilled all relevant variables that jointly influence participation and outcomes have to be observed for estimation. Although we are able to use very informative data and have discussed the plausibility of the CIA in detail in section 4.4, there may be concern about a possible selection on unobserved factors, like e.g. motivational differences between treated and non-treated individuals, the so-called *hidden bias* (cf. Rosenbaum (2002)). Matching estimators are not robust against this hidden bias. Unfortunately, estimation of the magnitude of this bias is impossible, i.e. whether we under- or overestimate the true effects. Rosenbaum (2002) suggests to apply a sensitivity analysis to answer the question if inference about programme effects may be altered by unobserved factors. The idea is to calculate the lower and upper bounds for different values of unobserved selection bias of a test-statistic that tests the null hypothesis of no treatment effect (cf. Aakvik (2001)).

Following Aakvik (2001), let $\pi_i = Pr(D_i = 1 | X_i) = F(\beta X_i + \gamma v_i)$ be the probability of participation, where X_i are the observed variables, v_i the unobserved variable, and γ is the effect of v_i on the participation probability of individual i .²⁰ With F assumed to be distributed logistic, the odds of participation for i is given by $\pi_i / (1 - \pi_i) = \exp(\beta X_i + \gamma v_i)$. Comparison of two persons with common support of X and equal distribution of X , i.e. a treated, i , and a comparable non-treated individual, j , can be accomplished by calculation of the relative odds:

$$\left(\frac{\pi_i}{1 - \pi_i} \right) = \frac{\exp(\beta X_j + \gamma v_j)}{\exp(\beta X_i + \gamma v_i)} = \exp[\gamma(v_i - v_j)], \text{ with } i \neq j. \quad (\text{A.1})$$

The odds ratio in eq. A.1 is one if there are no differences in unobserved variables or the unobserved variables do not influence the participation decision, i.e. no hidden bias. In that case, controlling for selection based on the observed covariates would produce unbiased treatment effects (Aakvik, 2001). Otherwise, treatment effects may be biased. For simplicity assume $v \in \{0, 1\}$. In that case, eq. A.1 can be rewritten as

$$\frac{1}{\Gamma} \leq \frac{\pi_i(1 - \pi_j)}{\pi_j(1 - \pi_i)} \leq \Gamma, \quad (\text{A.2})$$

with $\Gamma = \exp(\gamma)$. Γ denotes the relative odds of participation of two individuals who appear similar in their X . Two individuals i and j have the same participation probability if $\Gamma = 1$. They differ if $\Gamma > 1$, e.g. if $\Gamma = 1.5$ by factor of 1.5. The estimated treatment effects are said to be sensitive to unobserved selection if Γ close to one changes inference about the effects.

We will introduce some additional notation necessary to calculate the nonparametric test-statistics. Let n_1 denote the number of treated, n_0 the number of matched non-treated and n the sum of all matched individuals in the sample. y_1 (y_0) is the number of participants (matched non-participants) who are employed in month 30 after programmes have started; y describes the sum of all ‘successes’ in month 30. The test-statistic to be used is the Mantel-Haenszel statistic (Mantel and Haenszel, 1959) that is defined as²¹:

$$Q_{MH} = \frac{[y_1 - E(y_1)]^2}{Var(y_1)}, \quad (\text{A.3})$$

with $E(y_1) = (n_1 y) / n$ and $Var(y_1) = [n_1 n_0 y (n - y)] / [n^2 (n - 1)]$ (Aakvik, 2001). It provides a nonparametric test of no treatment effect and is χ^2 distributed with one degree of freedom. Under the null hypothesis for fixed $\Gamma \geq 1$ and

²⁰ For simplicity of notation, we drop the index u for the time until treatment in this description.

²¹ The Mantel-Haenszel statistic considers different strata of the population. As this is not necessary in our analysis, we have simplified the notation accordingly.

$v \in \{0, 1\}$ Rosenbaum (2002) shows that the test-statistics Q_{MH} can be bounded by:

$$Q_{MH}^+ = \frac{Y_{t,u}^1 - \tilde{E}}{Var(\tilde{E})} \quad \text{and} \quad Q_{MH}^- = \frac{Y_{t,u}^1 - \tilde{E}}{Var(\tilde{E})}. \quad (\text{A.4})$$

Q_{MH}^+ is the test-statistics given that we have overestimated the true treatment effect, i.e. we have a positive unobserved selection in the sense that persons who are most likely to participate also have higher employment rates. Thus, the χ^2 statistics is too high and should be adjusted downwards, $Q_{MH}^+ \leq Q_{MH}$. The opposite case is given by Q_{MH}^- , where we have a negative unobserved selection, and underestimate the true treatment effect.

\tilde{E} and $Var(\tilde{E})$ are the large sample approximations to the expectation and variance of the number of successful treated persons. \tilde{E} is determined by solving the quadratic equation (cf. Rosenbaum (2002)):

$$\tilde{E}^2(\Gamma - 1) - \tilde{E}\{(\Gamma - 1) \cdot (n_1 + y) + n\} + \Gamma \cdot y \cdot n_1, \quad (\text{A.5})$$

with $\max(0, y + n_1 - n) \leq \tilde{E} \leq \min(y, n_1)$. The variance could be calculated by:

$$Var(\tilde{E}) = \left(\frac{1}{\tilde{E}} + \frac{1}{y - \tilde{E}} + \frac{1}{n_1 - \tilde{E}} + \frac{1}{n - y - n_1 + \tilde{E}} \right)^{-1}. \quad (\text{A.6})$$

The opposite bound on the significance is computed by replacing Γ with $1/\Gamma$.

Tab. A.1: SENSITIVITY OF THE ESTIMATES TO POSSIBLE HIDDEN BIAS^a

West				East			
Quarter	Q_{MH} $\Gamma = 1$	Value ^b of Γ	Bounds for Q_{MH}^c	Quarter	Q_{MH} $\Gamma = 1$	Value ^b of Γ	Bounds for Q_{MH}^c
Men				Men			
1	5.328	1.05	3.285 – 7.872	1	40.431	1.45	3.409 – 120.757
2	9.375	1.15	3.618 – 17.895	2	22.581	1.30	3.402 – 59.368
3	(3.038)	1.05	1.791 – 4.621	3	13.141	1.20	2.388 – 32.749
4	n.s.	–	–	4	9.250	1.15	2.936 – 19.181
5	n.s.	–	–	5	6.902	1.10	3.157 – 12.125
6	n.s.	–	–	6	(2.004)	1.05	1.224 – 2.981
7	n.s.	–	–	7	6.704	1.20	3.073 – 11.859
8	n.s.	–	–	8	n.s.	–	–
Women				Women			
1	n.s.	–	–	1	12.800	1.15	2.847 – 30.003
2	n.s.	–	–	2	8.690	1.10	3.485 – 16.266
3	n.s.	–	–	3	5.343	1.05	2.999 – 8.367
4	n.s.	–	–	4	13.667	1.20	2.666 – 33.384
5	13.085	1.30	3.429 – 29.232	5	4.955	1.05	2.709 – 7.882
6	n.s.	–	–	6	6.150	1.10	2.742 – 10.946
7	n.s.	–	–	7	26.923	1.60	3.645 – 74.792
8	n.s.	–	–	8	8.385	1.20	3.362 – 15.802

^a All estimates refer to $\Delta_{30,u}$. The numbers in parentheses denote groups were the estimates are sensitive to hidden bias even if $\Gamma = 1$. n.s. denote groups were the treatment effects are insignificant. No sensitivity tests were calculated here.

^b Γ is the weight the additional covariate needs to influence the results.

^c Bounds denote the corresponding bounds, Q_{MH}^+ and Q_{MH}^- .

Table A.1 shows the test-statistics Q_{MH} for $\Gamma = 1$ together with the sensitivity of the test-statistics. All results refer to month 30 after programmes have started. We have tested the sensitivity for significant employment effects only. The analysis was accomplished by increasing the value of Γ in steps of 0.05. To abbreviate documentation, the table only presents the values of Γ where at least one of the bounds of the test-statistics become insignificant. Although the results of the sensitivity indicate how biases may alter the inferences and that the estimated treatment effects are sensitive to possible unobserved selection, it has to be kept in mind that the sensitivity analysis could not provide evidence whether biases are present or what magnitudes are plausible.

B Selected Descriptives

Tab. B.1: DESCRIPTIVE STATISTICS FOR SELECTED CHARACTERISTICS (WEST GERMANY)

	Unemployment duration ¹ <= 6 months				Unemployment duration ¹ > 6 and <= 12 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
No. of observations	3,095		434,782		2,407		105,043	
Programme duration	290.30	126.90	<i>n.a.</i>	<i>n.a.</i>	283.30	122.20	<i>n.a.</i>	<i>n.a.</i>
<i>Age</i>								
25 to 29 years	0.10	0.30	0.15	0.36	0.08	0.27	0.11	0.31
30 to 34 years	0.16	0.37	0.20	0.40	0.15	0.35	0.18	0.38
35 to 39 years	0.21	0.41	0.20	0.40	0.23	0.42	0.20	0.40
40 to 44 years	0.19	0.39	0.17	0.38	0.21	0.41	0.18	0.38
45 to 49 years	0.17	0.38	0.14	0.35	0.17	0.37	0.16	0.36
50 to 55 years	0.17	0.38	0.14	0.34	0.16	0.37	0.17	0.38
Foreigner	0.10	0.30	0.16	0.37	0.10	0.30	0.17	0.37
Asylum-seeker	0.04	0.19	0.06	0.24	0.05	0.21	0.06	0.23
Woman	0.33	0.47	0.45	0.50	0.36	0.48	0.48	0.50
No. of placement propositions	10.23	11.31	4.07	7.80	9.54	9.77	3.90	7.29
No. of children	0.64	1.05	0.68	1.02	0.69	1.10	0.73	1.05
Placement restrictions	0.23	0.42	0.14	0.35	0.17	0.37	0.18	0.38
Vocational rehabilitation ²	0.07	0.25	0.04	0.20	0.06	0.24	0.05	0.21
Health restrictions	0.33	0.47	0.23	0.42	0.27	0.44	0.27	0.44
Marriage/ cohabitation	0.47	0.50	0.57	0.50	0.51	0.50	0.59	0.49
Work experience	0.92	0.27	0.93	0.26	0.92	0.27	0.93	0.26
Programme bef. unemp. ³	0.34	0.47	0.03	0.18	0.33	0.47	0.05	0.23
Reception of UI	0.82	0.38	0.82	0.38	0.77	0.42	0.84	0.36
<i>Duration of last employment</i>								
up to 180 days	0.34	0.47	0.27	0.44	0.36	0.48	0.25	0.43
between 180 and 365 days	0.10	0.30	0.14	0.35	0.11	0.31	0.09	0.29
between 366 and 730 days	0.16	0.37	0.15	0.36	0.16	0.37	0.14	0.35
more than 730 days	0.40	0.49	0.44	0.50	0.38	0.48	0.52	0.50
<i>Pension</i>								
No pension	1.00	0.05	1.00	0.05	1.00	0.04	1.00	0.07
Vocational disability	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.05
Permanently unable to work	0.00	0.03	0.00	0.04	0.00	0.04	0.00	0.04
Social plan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
<i>Schooling⁴</i>								
No school	0.18	0.39	0.12	0.33	0.17	0.38	0.14	0.35
CSE	0.52	0.50	0.54	0.50	0.50	0.50	0.54	0.50
O-levels	0.12	0.33	0.19	0.39	0.12	0.32	0.18	0.38
Adv. technical college entrance ⁵	0.05	0.22	0.05	0.21	0.07	0.25	0.04	0.20
A-levels	0.12	0.32	0.10	0.30	0.14	0.35	0.10	0.30
<i>Assessment of individual's qualification</i>								
Other	0.54	0.50	0.49	0.50	0.53	0.50	0.52	0.50
Unskilled employee	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Skilled employee	0.32	0.47	0.42	0.49	0.31	0.46	0.39	0.49
Ass. to technical school ⁶	0.02	0.15	0.02	0.15	0.03	0.16	0.02	0.14
Ass. to adv. technical college	0.05	0.23	0.02	0.15	0.07	0.26	0.02	0.15
Ass. to university	0.06	0.24	0.04	0.19	0.07	0.25	0.04	0.20
Ass. to top-management	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06
<i>Professional Training</i>								
Without compl. prof. training	0.44	0.50	0.40	0.49	0.44	0.50	0.43	0.49
Apprenticeship (on-the-job)	0.39	0.49	0.48	0.50	0.36	0.48	0.45	0.50
Apprenticeship (off-the job)	0.02	0.14	0.01	0.12	0.02	0.12	0.01	0.11
Full-time vocational school	0.02	0.13	0.02	0.14	0.02	0.14	0.02	0.14
Technical school	0.04	0.19	0.04	0.19	0.05	0.22	0.04	0.19
Advanced technical college	0.04	0.19	0.02	0.13	0.05	0.21	0.02	0.13
University	0.06	0.23	0.04	0.19	0.07	0.25	0.04	0.20
<i>Month of treatment start</i>								
July 2000	0.15	0.36	0.17	0.37	0.17	0.38	0.21	0.41
September 2000	0.18	0.38	0.19	0.39	0.20	0.40	0.23	0.42
November 2000	0.16	0.36	0.13	0.34	0.17	0.37	0.14	0.35
January 2001	0.15	0.36	0.12	0.33	0.12	0.32	0.10	0.30
March 2001	0.17	0.38	0.18	0.38	0.16	0.36	0.13	0.34
May 2001	0.19	0.39	0.20	0.40	0.19	0.39	0.19	0.39
<i>Regional Context Variable</i>								
Cluster II	0.32	0.47	0.23	0.42	0.35	0.48	0.28	0.45
Cluster III	0.42	0.49	0.41	0.49	0.42	0.49	0.42	0.49
Cluster IV	0.07	0.26	0.11	0.32	0.07	0.26	0.11	0.31
Cluster V	0.19	0.39	0.25	0.43	0.16	0.37	0.19	0.40
<i>Desired work time</i>								
Full-time work	0.93	0.25	0.85	0.36	0.90	0.30	0.82	0.39
Part-time work	0.07	0.25	0.15	0.36	0.10	0.30	0.18	0.39
Other (e.g. telework)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
<i>Work time (last occupation)</i>								
Full-time work	0.47	0.50	0.47	0.50	0.52	0.50	0.40	0.49
Part-time work	0.03	0.17	0.05	0.22	0.05	0.21	0.05	0.22
Not applicable	0.50	0.50	0.48	0.50	0.43	0.50	0.54	0.50

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TABLE B.1: (CONTINUED)

<i>Desired Occupation</i>	Unemployment duration ¹ <= 6 months				Unemployment duration ¹ > 6 and <= 12 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Farming ⁷	0.08	0.28	0.03	0.17	0.09	0.28	0.03	0.17
Mining, mineral extraction	0.00	0.03	0.00	0.04	0.00	0.03	0.00	0.05
Manufacturing	0.39	0.49	0.35	0.48	0.34	0.47	0.34	0.47
Technical professions	0.03	0.17	0.04	0.19	0.03	0.17	0.04	0.19
Service Professions	0.48	0.50	0.56	0.50	0.54	0.50	0.57	0.50
Other occupations	0.01	0.09	0.02	0.15	0.00	0.06	0.03	0.16
Other	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02

n.a. = not available

¹ Unemployment duration until treatment start.

² Attendant for vocational rehabilitation.

³ Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

⁴ Schooling: CSE = Certificate of Secondary Education.

⁵ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁶ Ass. = assimilable

⁷ Farming comprises plant cultivation, breeding and fishery.

Tab. B.2: DESCRIPTIVE STATISTICS FOR SELECTED CHARACTERISTICS (WEST GERMANY)

	Unemployment duration ¹ > 12 months and <= 18 months				Unemployment duration ¹ > 18 and <= 24 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
No. of observations	1,020		48,102		664		29,286	
Programme duration	305.50	114.80	<i>n.a.</i>	<i>n.a.</i>	297.20	121.90	<i>n.a.</i>	<i>n.a.</i>
<i>Age</i>								
25 to 29 years	0.09	0.28	0.09	0.28	0.07	0.25	0.07	0.25
30 to 34 years	0.14	0.35	0.16	0.36	0.12	0.32	0.14	0.34
35 to 39 years	0.20	0.40	0.19	0.39	0.21	0.40	0.18	0.38
40 to 44 years	0.22	0.41	0.17	0.38	0.22	0.42	0.18	0.38
45 to 49 years	0.19	0.39	0.17	0.38	0.18	0.39	0.19	0.39
50 to 55 years	0.17	0.38	0.22	0.41	0.21	0.41	0.26	0.44
Foreigner	0.11	0.31	0.17	0.38	0.11	0.32	0.18	0.38
Asylum-seeker	0.05	0.21	0.06	0.24	0.06	0.24	0.07	0.25
Woman	0.37	0.48	0.49	0.50	0.36	0.48	0.48	0.50
No. of placement propositions	9.60	9.80	3.61	6.87	9.04	8.40	3.54	6.64
No. of children	0.68	1.14	0.73	1.06	0.73	1.14	0.73	1.08
Placement restrictions	0.19	0.39	0.19	0.39	0.16	0.37	0.20	0.40
Vocational rehabilitation ²	0.06	0.24	0.05	0.22	0.07	0.25	0.05	0.22
Health restrictions	0.27	0.45	0.29	0.45	0.25	0.43	0.29	0.46
Marriage/ cohabitation	0.47	0.50	0.60	0.49	0.51	0.50	0.60	0.49
Work experience	0.92	0.27	0.93	0.26	0.92	0.27	0.93	0.26
Programme bef. unemp. ³	0.38	0.49	0.06	0.23	0.32	0.47	0.06	0.24
Reception of UI	0.74	0.44	0.85	0.36	0.82	0.39	0.85	0.36
<i>Duration of last employment</i>								
up to 180 days	0.36	0.48	0.23	0.42	0.33	0.47	0.23	0.42
between 180 and 365 days	0.13	0.33	0.09	0.28	0.17	0.37	0.08	0.27
between 366 and 730 days	0.14	0.35	0.12	0.33	0.13	0.34	0.11	0.32
more than 730 days	0.37	0.48	0.56	0.50	0.37	0.48	0.58	0.49
<i>Pension</i>								
No pension	1.00	0.05	0.99	0.08	1.00	0.04	0.99	0.08
Vocational disability	0.00	0.04	0.00	0.06	0.00	0.00	0.00	0.06
Permanently unable to work	0.00	0.03	0.00	0.05	0.00	0.04	0.00	0.06
Social plan	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
<i>Schooling</i> ⁴								
No school	0.17	0.38	0.15	0.36	0.21	0.41	0.16	0.37
CSE	0.49	0.50	0.55	0.50	0.53	0.50	0.56	0.50
O-levels	0.13	0.33	0.16	0.37	0.08	0.28	0.15	0.36
Adv. technical college entrance ⁵	0.07	0.26	0.04	0.20	0.05	0.21	0.04	0.19
A-levels	0.14	0.35	0.09	0.29	0.13	0.34	0.09	0.28
<i>Assessment of individual's qualification</i>								
Other	0.51	0.50	0.55	0.50	0.61	0.49	0.57	0.49
Unskilled employee	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02
Skilled employee	0.32	0.47	0.37	0.48	0.27	0.44	0.35	0.48
Ass. to technical school ⁶	0.02	0.14	0.02	0.13	0.02	0.12	0.02	0.13
Ass. to adv. technical college	0.08	0.27	0.02	0.15	0.05	0.22	0.02	0.15
Ass. to university	0.07	0.25	0.04	0.19	0.06	0.24	0.04	0.19
Ass. to top-management	0.00	0.03	0.00	0.06	0.00	0.00	0.00	0.05
<i>Professional Training</i>								
Without compl. prof. training	0.42	0.49	0.45	0.50	0.50	0.50	0.46	0.50
Apprenticeship (on-the-job)	0.36	0.48	0.43	0.50	0.33	0.47	0.42	0.49
Apprenticeship (off-the-job)	0.02	0.12	0.01	0.10	0.02	0.13	0.01	0.08

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TABLE B.2: (CONTINUED)

	Unemployment duration ¹ > 12 months and ≤ 18 months				Unemployment duration ¹ > 18 and ≤ 24 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Full-time vocational school	0.03	0.16	0.02	0.14	0.02	0.14	0.02	0.14
Technical school	0.05	0.22	0.03	0.18	0.04	0.20	0.03	0.18
Advanced technical college	0.05	0.23	0.02	0.13	0.03	0.18	0.02	0.13
University	0.07	0.26	0.04	0.19	0.06	0.24	0.04	0.19
<i>Month of treatment start</i>								
July 2000	0.18	0.38	0.21	0.41	0.20	0.40	0.22	0.42
September 2000	0.21	0.41	0.24	0.43	0.23	0.42	0.23	0.42
November 2000	0.14	0.35	0.15	0.36	0.14	0.35	0.15	0.35
January 2001	0.14	0.34	0.10	0.30	0.11	0.31	0.10	0.30
March 2001	0.17	0.37	0.13	0.34	0.16	0.36	0.13	0.34
May 2001	0.16	0.37	0.16	0.37	0.16	0.37	0.16	0.37
<i>Regional Context Variable</i>								
Cluster II	0.38	0.49	0.31	0.46	0.45	0.50	0.32	0.47
Cluster III	0.40	0.49	0.41	0.49	0.39	0.49	0.41	0.49
Cluster IV	0.08	0.28	0.10	0.31	0.06	0.24	0.10	0.30
Cluster V	0.13	0.34	0.17	0.38	0.09	0.29	0.16	0.37
<i>Desired work time</i>								
Full-time work	0.91	0.28	0.82	0.39	0.93	0.25	0.83	0.38
Part-time work	0.09	0.28	0.18	0.39	0.07	0.25	0.17	0.37
Other (e.g. telework)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02
<i>Work time (last occupation)</i>								
Full-time work	0.52	0.50	0.35	0.48	0.56	0.50	0.34	0.47
Part-time work	0.05	0.21	0.05	0.22	0.04	0.19	0.05	0.21
Not applicable	0.43	0.50	0.60	0.49	0.40	0.49	0.62	0.49
<i>Desired Occupation</i>								
Farming ⁷	0.08	0.28	0.03	0.17	0.10	0.30	0.03	0.17
Mining, mineral extraction	0.00	0.03	0.00	0.06	0.00	0.00	0.00	0.07
Manufacturing	0.34	0.47	0.34	0.47	0.34	0.47	0.35	0.48
Technical professions	0.02	0.15	0.04	0.18	0.02	0.13	0.03	0.18
Service Professions	0.55	0.50	0.56	0.50	0.53	0.50	0.55	0.50
Other occupations	0.00	0.07	0.03	0.16	0.01	0.10	0.02	0.15
Other	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02

n.a. = not available

¹ Unemployment duration until treatment start.

² Attendant for vocational rehabilitation.

³ Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

⁴ Schooling: CSE = Certificate of Secondary Education.

⁵ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁶ Ass. = assimilable

⁷ Farming comprises plant cultivation, breeding and fishery.

Tab. B.3: DESCRIPTIVE STATISTICS FOR SELECTED CHARACTERISTICS (EAST GERMANY)

	Unemployment duration ¹ ≤ 6 months				Unemployment duration ¹ > 6 and ≤ 12 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
No. of observations	8,089		241,092		6,984		84,108	
Programme duration	281.60	115.70	<i>n.a.</i>	<i>n.a.</i>	283.80	114.20	<i>n.a.</i>	<i>n.a.</i>
<i>Age</i>								
25 to 29 years	0.06	0.24	0.12	0.33	0.06	0.23	0.10	0.30
30 to 34 years	0.12	0.33	0.17	0.37	0.11	0.31	0.15	0.36
35 to 39 years	0.17	0.38	0.20	0.40	0.17	0.37	0.19	0.39
40 to 44 years	0.17	0.38	0.19	0.39	0.19	0.39	0.19	0.39
45 to 49 years	0.20	0.40	0.18	0.38	0.20	0.40	0.19	0.39
50 to 55 years	0.27	0.44	0.15	0.36	0.28	0.45	0.18	0.38
Foreigner	0.01	0.08	0.02	0.13	0.00	0.06	0.02	0.12
Asylum-seeker	0.01	0.08	0.02	0.15	0.01	0.08	0.02	0.13
Woman	0.51	0.50	0.48	0.50	0.50	0.50	0.55	0.50
No. of placement propositions	7.50	6.48	4.09	5.66	7.12	6.00	4.37	5.28
No. of children	0.77	1.01	0.77	0.99	0.74	0.99	0.81	1.03
Placement restrictions	0.12	0.33	0.10	0.29	0.10	0.30	0.10	0.31
Vocational rehabilitation ²	0.06	0.24	0.04	0.19	0.05	0.23	0.04	0.21
Health restrictions	0.22	0.41	0.17	0.37	0.19	0.39	0.18	0.38
Marriage/ cohabitation	0.67	0.47	0.64	0.48	0.67	0.47	0.64	0.48
Work experience	0.91	0.29	0.92	0.28	0.92	0.27	0.91	0.29
Programme bef. unemp. ³	0.57	0.49	0.24	0.43	0.57	0.49	0.34	0.48
Reception of UI	0.62	0.49	0.90	0.31	0.60	0.49	0.86	0.35
<i>Duration of last employment</i>								
up to 180 days	0.35	0.48	0.17	0.38	0.38	0.48	0.18	0.39
between 180 and 365 days	0.12	0.32	0.14	0.35	0.15	0.35	0.13	0.34
between 366 and 730 days	0.19	0.39	0.21	0.41	0.19	0.39	0.21	0.41
more than 730 days	0.34	0.48	0.48	0.50	0.29	0.45	0.47	0.50

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TABLE B.3: (CONTINUED)

	Unemployment duration ¹ <= 6 months				Unemployment duration ¹ > 6 and <= 12 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Pension</i>								
No pension	0.99	0.07	1.00	0.07	1.00	0.06	1.00	0.07
Vocational disability	0.00	0.05	0.00	0.03	0.00	0.04	0.00	0.04
Permanently unable to work	0.00	0.05	0.00	0.06	0.00	0.05	0.00	0.06
Social plan	0.00	0.00	0.00	0.00				
<i>Schooling⁴</i>								
No school	0.07	0.26	0.06	0.24	0.08	0.27	0.07	0.26
CSE	0.33	0.47	0.26	0.44	0.33	0.47	0.29	0.45
O-levels	0.53	0.50	0.60	0.49	0.53	0.50	0.57	0.50
Adv. technical college entrance ⁵	0.02	0.12	0.02	0.12	0.01	0.12	0.01	0.12
A-levels	0.05	0.23	0.07	0.25	0.05	0.22	0.06	0.23
<i>Assessment of individuals' qualification</i>								
Other	0.36	0.48	0.33	0.47	0.35	0.48	0.37	0.48
Unskilled employee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Skilled employee	0.56	0.50	0.59	0.49	0.57	0.50	0.56	0.50
Ass. to technical school ⁶	0.03	0.17	0.02	0.16	0.04	0.18	0.02	0.16
Ass. to adv. technical college	0.02	0.15	0.02	0.13	0.02	0.13	0.02	0.13
Ass. to university	0.02	0.15	0.03	0.17	0.02	0.15	0.02	0.15
Ass. to top-management	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.02
<i>Professional Training</i>								
Without compl. prof. training	0.15	0.36	0.14	0.34	0.15	0.35	0.17	0.37
Apprenticeship (on-the-job)	0.73	0.44	0.76	0.42	0.74	0.44	0.73	0.44
Apprenticeship (off-the job)	0.01	0.10	0.01	0.10	0.01	0.08	0.01	0.09
Full-time vocational school	0.01	0.10	0.01	0.09	0.01	0.11	0.01	0.10
Technical school	0.06	0.24	0.04	0.20	0.06	0.23	0.05	0.21
Advanced technical college	0.01	0.10	0.01	0.10	0.01	0.11	0.01	0.09
University	0.03	0.16	0.03	0.17	0.03	0.16	0.03	0.16
<i>Month of treatment start</i>								
July 2000	0.19	0.39	0.17	0.38	0.22	0.41	0.19	0.39
September 2000	0.21	0.41	0.19	0.39	0.23	0.42	0.23	0.42
November 2000	0.14	0.34	0.13	0.34	0.15	0.35	0.16	0.36
January 2001	0.06	0.24	0.12	0.33	0.05	0.22	0.11	0.31
March 2001	0.19	0.39	0.18	0.38	0.16	0.37	0.14	0.35
May 2001	0.22	0.41	0.21	0.40	0.19	0.39	0.18	0.38
<i>Regional Context Variable</i>								
Cluster Ia	0.17	0.38	0.15	0.36	0.16	0.37	0.17	0.38
Cluster Ib	0.70	0.46	0.67	0.47	0.70	0.46	0.67	0.47
Cluster Ic	0.12	0.32	0.15	0.36	0.12	0.32	0.13	0.34
Cluster II	0.01	0.11	0.03	0.17	0.02	0.13	0.03	0.17
<i>Desired work time</i>								
Full-time work	0.99	0.10	0.98	0.15	0.99	0.10	0.97	0.16
part-time work	0.01	0.10	0.02	0.15	0.01	0.10	0.03	0.16
Other (e.g. telework)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Work time (last occupation)</i>								
Full-time work	0.41	0.49	0.50	0.50	0.48	0.50	0.46	0.50
Part-time work	0.12	0.32	0.06	0.23	0.13	0.34	0.08	0.28
Not applicable	0.48	0.50	0.44	0.50	0.39	0.49	0.46	0.50
<i>Desired Occupation</i>								
Farming ⁷	0.09	0.29	0.06	0.23	0.09	0.28	0.07	0.25
Mining, mineral extraction	0.00	0.03	0.00	0.03	0.00	0.04	0.00	0.03
Manufacturing	0.40	0.49	0.41	0.49	0.40	0.49	0.37	0.48
Technical professions	0.04	0.19	0.04	0.20	0.04	0.20	0.04	0.20
Service Professions	0.47	0.50	0.47	0.50	0.46	0.50	0.50	0.50
Other occupations	0.01	0.08	0.02	0.14	0.00	0.07	0.02	0.14
Other	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01

n.a. = not available

¹ Unemployment duration until treatment start.

² Attendant for vocational rehabilitation.

³ Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

⁴ Schooling: CSE = Certificate of Secondary Education.

⁵ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁶ Ass. = assimilable

⁷ Farming comprises plant cultivation, breeding and fishery.

Tab. B.4: DESCRIPTIVE STATISTICS FOR SELECTED CHARACTERISTICS (EAST GERMANY)

	Unemployment duration ¹ > 12 months and <= 18 months				Unemployment duration ¹ > 18 and <= 24 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
No. of observations	4,619		36,050		2,123		20,714	
Programme duration	298.10	100.10			295.50	103.40		

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TABLE B.4: (CONTINUED)

	Unemployment duration ¹ > 12 months and ≤ 18 months				Unemployment duration ¹ > 18 and ≤ 24 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Age</i>								
25 to 29 years	0.05	0.21	0.08	0.27	0.05	0.22	0.07	0.25
30 to 34 years	0.10	0.30	0.15	0.35	0.12	0.32	0.13	0.34
35 to 39 years	0.17	0.37	0.19	0.39	0.15	0.36	0.19	0.39
40 to 44 years	0.18	0.38	0.19	0.39	0.18	0.39	0.20	0.40
45 to 49 years	0.23	0.42	0.21	0.40	0.23	0.42	0.21	0.41
50 to 55 years	0.29	0.45	0.19	0.39	0.27	0.44	0.20	0.40
<i>Foreigner</i>								
Foreigner	0.01	0.08	0.01	0.12	0.01	0.07	0.02	0.13
Asylum-seeker	0.01	0.07	0.02	0.12	0.00	0.07	0.02	0.13
Woman	0.59	0.49	0.60	0.49	0.62	0.48	0.64	0.48
No. of placement propositions	6.91	5.69	3.90	4.67	6.98	5.97	3.40	4.09
No. of children	0.79	1.01	0.84	1.04	0.81	1.05	0.87	1.07
Placement restrictions	0.10	0.30	0.11	0.31	0.10	0.29	0.11	0.32
Vocational rehabilitation ²	0.06	0.23	0.04	0.20	0.05	0.22	0.04	0.21
Health restrictions	0.18	0.39	0.18	0.38	0.17	0.38	0.18	0.39
Marriage/ cohabitation	0.67	0.47	0.64	0.48	0.67	0.47	0.65	0.48
Work experience	0.92	0.27	0.90	0.29	0.91	0.28	0.90	0.30
Programme bef. unemp. ³	0.62	0.49	0.36	0.48	0.59	0.49	0.35	0.48
Reception of UI	0.58	0.49	0.91	0.29	0.61	0.49	0.90	0.29
<i>Duration of last employment</i>								
up to 180 days	0.36	0.48	0.15	0.36	0.35	0.48	0.15	0.35
between 180 and 365 days	0.23	0.42	0.21	0.41	0.26	0.44	0.21	0.41
between 366 and 730 days	0.14	0.35	0.16	0.37	0.10	0.30	0.13	0.34
more than 730 days	0.26	0.44	0.47	0.50	0.29	0.45	0.51	0.50
<i>Pension</i>								
No pension	1.00	0.07	1.00	0.07	1.00	0.07	0.99	0.08
Vocational disability	0.00	0.04	0.00	0.03	0.00	0.02	0.00	0.04
Permanently unable to work	0.00	0.05	0.00	0.06	0.00	0.06	0.00	0.06
Social plan	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00
<i>Schooling⁴</i>								
No school	0.09	0.29	0.09	0.28	0.11	0.32	0.10	0.29
CSE	0.33	0.47	0.31	0.46	0.35	0.48	0.33	0.47
O-levels	0.52	0.50	0.55	0.50	0.50	0.50	0.52	0.50
Adv. technical college entrance ⁵	0.01	0.12	0.01	0.11	0.01	0.08	0.01	0.11
A-levels	0.05	0.21	0.05	0.21	0.04	0.19	0.05	0.21
<i>Assessment of individuals' qualification</i>								
Other	0.39	0.49	0.40	0.49	0.44	0.50	0.43	0.49
Unskilled employee	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Skilled employee	0.54	0.50	0.54	0.50	0.52	0.50	0.52	0.50
Ass. to technical school ⁶	0.03	0.17	0.02	0.14	0.02	0.14	0.02	0.14
Ass. to adv. technical college	0.02	0.14	0.01	0.12	0.01	0.11	0.01	0.11
Ass. to university	0.02	0.14	0.02	0.14	0.01	0.11	0.02	0.14
Ass. to top-management	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01
<i>Professional Training</i>								
Without compl. prof. training	0.16	0.37	0.19	0.39	0.20	0.40	0.20	0.40
Apprenticeship (on-the-job)	0.73	0.44	0.73	0.45	0.72	0.45	0.72	0.45
Apprenticeship (off-the job)	0.01	0.08	0.01	0.08	0.01	0.08	0.01	0.07
Full-time vocational school	0.01	0.10	0.01	0.10	0.01	0.09	0.01	0.10
Technical school	0.06	0.24	0.04	0.20	0.04	0.20	0.04	0.20
Advanced technical college	0.01	0.09	0.01	0.09	0.01	0.09	0.01	0.08
University	0.02	0.14	0.02	0.15	0.02	0.13	0.02	0.15
<i>Month of treatment start</i>								
July 2000	0.19	0.39	0.19	0.39	0.16	0.37	0.17	0.38
September 2000	0.22	0.42	0.23	0.42	0.21	0.41	0.22	0.41
November 2000	0.14	0.35	0.14	0.35	0.15	0.36	0.15	0.35
January 2001	0.06	0.24	0.10	0.31	0.07	0.26	0.12	0.32
March 2001	0.16	0.37	0.14	0.35	0.19	0.39	0.15	0.36
May 2001	0.22	0.41	0.19	0.39	0.21	0.41	0.19	0.39
<i>Regional Context Variable</i>								
Cluster Ia	0.21	0.41	0.17	0.37	0.22	0.42	0.16	0.37
Cluster Ib	0.66	0.47	0.67	0.47	0.64	0.48	0.67	0.47
Cluster Ic	0.11	0.32	0.14	0.34	0.12	0.32	0.14	0.34
Cluster II	0.02	0.13	0.03	0.17	0.02	0.13	0.03	0.17
<i>Desired work time</i>								
Full-time work	0.99	0.10	0.97	0.17	0.99	0.12	0.97	0.18
part-time work	0.01	0.10	0.03	0.17	0.01	0.12	0.03	0.18
Other (e.g. telework)								
<i>Work time (last occupation)</i>								
Full-time work	0.49	0.50	0.43	0.49	0.46	0.50	0.39	0.49
Part-time work	0.17	0.38	0.09	0.29	0.15	0.36	0.09	0.28
Not applicable	0.34	0.47	0.48	0.50	0.39	0.49	0.52	0.50
<i>Desired Occupation</i>								
Farming ⁷	0.10	0.30	0.07	0.26	0.10	0.30	0.07	0.26
Mining, mineral extraction	0.00	0.03	0.00	0.04	0.00	0.04	0.00	0.04
Manufacturing	0.36	0.48	0.35	0.48	0.36	0.48	0.34	0.47
Technical professions	0.04	0.20	0.04	0.19	0.03	0.17	0.03	0.18
Service Professions	0.50	0.50	0.52	0.50	0.51	0.50	0.53	0.50

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TABLE B.4: (CONTINUED)

	Unemployment duration ¹ > 12 months and ≤ 18 months				Unemployment duration ¹ > 18 and ≤ 24 months			
	Part.		Non-Part.		Part.		Non-Part.	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Other occupations	0.00	0.07	0.02	0.14	0.00	0.05	0.02	0.14
Other	0.00	0.00	0.00	0.01				

n.a. = not available

¹ Unemployment duration until treatment start.

² Attendant for vocational rehabilitation.

³ Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

⁴ Schooling: CSE = Certificate of Secondary Education.

⁵ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁶ Ass. = assimilable

⁷ Farming comprises plant cultivation, breeding and fishery.

C Propensity Score Estimation

Tab. C.1: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER $u = 1$ TO $u = 4$ (MEN IN WEST GERMANY)

	$u = 1$		$u = 2$		$u = 3$		$u = 4$	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-2.247	0.111	-2.163	0.144	-1.746	0.155	-1.547	0.172
<i>Age</i>								
25 to 29 years	Reference		Reference		Reference		Reference	
30 to 34 years	0.023	0.052	-0.067	0.069	0.122	0.076	-0.046	0.087
35 to 39 years	0.033	0.075	-0.012	0.096	0.150	0.105	-0.012	0.118
40 to 44 years	-0.015	0.108	0.019	0.138	0.032	0.152	-0.066	0.169
45 to 49 years	-0.090	0.150	0.113	0.190	0.015	0.208	-0.121	0.230
50 to 55 years	-0.069	0.198	0.102	0.252	0.063	0.275	-0.210	0.303
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	-0.188	0.038	-0.181	0.048	-0.231	0.051	-0.191	0.058
Asylum-seeker	-0.117	0.059	-0.328	0.085	-0.092	0.076	-0.021	0.081
No. of placement propositions	0.015	0.001	0.017	0.001	0.017	0.001	0.020	0.002
No. of children	0.009	0.013	0.030	0.017	0.031	0.017	0.030	0.020
Placement restrictions	0.173	0.045	0.071	0.058	-0.111	0.062	0.003	0.071
Vocational rehabilitation ¹	0.005	0.050	-0.001	0.066	0.165	0.073	0.048	0.086
Health restrictions	0.051	0.041	0.062	0.052	0.106	0.053	-0.008	0.063
Marriage/ cohabitation	-0.088	0.029	-0.032	0.037	0.001	0.040	-0.017	0.045
Work experience	-0.013	0.048	-0.062	0.059	0.008	0.066	0.028	0.071
Programme bef. unemp. ²	0.902	0.030	0.819	0.038	0.690	0.042	0.631	0.046
Reception of UI	-0.106	0.033	-0.187	0.043	-0.308	0.046	-0.456	0.048
<i>Duration of last employment</i>								
up to 180 days	0.071	0.030	0.185	0.037	0.137	0.041	0.197	0.045
between 180 and 365 days	-0.104	0.038	-0.141	0.055	0.040	0.054	-0.001	0.064
between 366 and 730 days	-0.047	0.035	-0.032	0.045	0.006	0.049	0.039	0.056
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>								
No pension	Reference		Reference		Reference		Reference	
Vocational disability	-0.141	0.273	-0.140	0.354	-	-	-	-
Permanently unable to work	0.028	0.229	-	-	0.301	0.314	-0.180	0.452
Social plan	-	-	-	-	-	-	-	-
<i>Schooling³</i>								
No school	Reference		Reference		Reference		Reference	
CSE	-0.114	0.033	-0.102	0.043	-0.054	0.046	-0.017	0.052
O-levels	-0.138	0.050	-0.141	0.065	-0.169	0.074	-0.267	0.087
Adv. technical college entrance ⁴	-0.153	0.080	-0.260	0.112	0.081	0.100	-0.174	0.126
A-levels	-0.137	0.073	-0.163	0.099	0.027	0.091	-0.038	0.108
<i>Professional Training</i>								
Without compl. prof. training	Reference		Reference		Reference		Reference	
Apprenticeship (on-the-job)	-0.090	0.033	0.000	0.043	-0.102	0.047	0.054	0.052
Apprenticeship (off-the job)	0.027	0.103	0.239	0.126	0.288	0.131	0.177	0.175
Full-time vocational school	-0.071	0.108	0.026	0.142	-0.366	0.198	0.217	0.155
Technical school	-0.115	0.091	-0.041	0.121	0.077	0.106	-0.030	0.148
Advanced technical college	-0.259	0.137	0.125	0.173	-0.135	0.165	0.254	0.187
University	-0.131	0.116	0.179	0.149	0.003	0.145	0.178	0.161
<i>Assessment of individual's qualification</i>								
Other	Reference		Reference		Reference		Reference	
Unskilled employee	-	-	-	-	-	-	-	-
Skilled employee	-0.080	0.033	-0.090	0.043	-0.097	0.048	-0.091	0.053
Ass. to technical school ⁵	0.008	0.082	0.119	0.101	0.081	0.110	0.076	0.133
Ass. to adv. technical college	0.295	0.110	0.147	0.149	0.171	0.136	0.159	0.162
Ass. to university	0.241	0.111	0.147	0.144	-0.089	0.143	0.039	0.158
Ass. to top-management	-	-	-	-	-	-	-	-
<i>Month of treatment start</i>								
July 2000	Reference		Reference		Reference		Reference	
September 2000	-0.068	0.041	0.091	0.053	0.047	0.053	-0.128	0.058
November 2000	0.034	0.042	0.156	0.057	0.156	0.057	-0.005	0.062
January 2001	0.096	0.041	0.246	0.057	0.126	0.065	0.022	0.069
March 2001	-0.025	0.040	0.167	0.054	0.173	0.057	0.113	0.061
May 2001	-0.049	0.040	0.170	0.050	0.122	0.052	0.051	0.059
<i>Regional Context Variables</i>								
Cluster Ia	-	-	-	-	-	-	-	-
Cluster Ib	-	-	-	-	-	-	-	-
Cluster Ic	-	-	-	-	-	-	-	-
Cluster II	Reference		Reference		Reference		Reference	
Cluster III	-0.126	0.028	-0.093	0.036	-0.088	0.038	-0.118	0.042
Cluster IV	-0.267	0.048	-0.224	0.062	-0.149	0.064	-0.209	0.073
Cluster V	-0.155	0.034	-0.146	0.045	-0.067	0.050	-0.070	0.056
<i>Work time (last occupation)</i>								
Full-time work	Reference		Reference		Reference		Reference	
Part-time work	0.146	0.158	-0.155	0.261	0.231	0.179	0.206	0.204
Not applicable	0.028	0.025	-0.028	0.032	-0.167	0.035	-0.088	0.039
<i>Desired work time</i>								
Full-time work	Reference		Reference		Reference		Reference	
part-time work	-0.371	0.203	-0.447	0.285	-0.107	0.203	-0.255	0.248

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TABLE C.1: (CONTINUED)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Other (e.g. telework)	–	–	–	–	–	–	–	–
<i>Desired Occupation</i>								
Farming ⁶	Reference		Reference		Reference		Reference	
Mining, mineral extraction	-0.490	0.264	-0.483	0.361	-0.341	0.285	–	–
Manufacturing	-0.283	0.043	<i>-0.151</i>	0.061	-0.311	0.060	-0.295	0.069
Technical professions	-0.374	0.079	-0.460	0.110	-0.501	0.109	-0.619	0.129
Service Professions	-0.374	0.045	-0.309	0.063	-0.397	0.062	-0.321	0.070
Other occupations	-0.739	0.126	-0.470	0.137	-0.970	0.212	-1.248	0.327
Other	–	–	–	–	–	–	–	–
<i>N</i>	161,629		69,520		36,904		22,874	
<i>Log-Likelihood</i>	-5,849.89		-3,564.27		-3,175.23		-2,596.73	
<i>R</i> ²	0.136		0.133		0.114		0.123	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

– Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.2: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER *u* = 5 TO *u* = 8 (MEN IN WEST GERMANY)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-0.548	0.186	-1.763	0.269	-1.340	0.291	-1.172	0.338
<i>Age</i>								
25 to 29 years	Reference		Reference		Reference		Reference	
30 to 34 years	-0.049	0.094	-0.046	0.134	-0.216	0.162	-0.128	0.187
35 to 39 years	0.112	0.129	-0.213	0.184	-0.011	0.200	-0.018	0.231
40 to 44 years	0.184	0.185	-0.128	0.259	-0.089	0.277	-0.065	0.320
45 to 49 years	0.307	0.255	-0.262	0.355	-0.204	0.379	-0.053	0.426
50 to 55 years	0.533	0.334	-0.377	0.470	-0.046	0.495	-0.065	0.563
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	-0.302	0.065	-0.147	0.084	-0.056	0.091	-0.495	0.121
Asylum-seeker	0.028	0.090	-0.113	0.136	0.072	0.133	<i>-0.429</i>	0.212
No. of placement propositions	0.022	0.002	0.027	0.003	0.026	0.003	0.020	0.004
No. of children	0.079	0.021	0.048	0.031	-0.041	0.035	0.060	0.034
Placement restrictions	0.118	0.080	0.212	0.122	0.025	0.125	-0.142	0.149
Vocational rehabilitation ¹	0.134	0.090	0.332	0.124	0.361	0.133	0.207	0.177
Health restrictions	-0.035	0.072	-0.156	0.112	-0.082	0.111	-0.058	0.128
Marriage/ cohabitation	<i>-0.100</i>	0.051	-0.129	0.072	-0.007	0.076	0.132	0.086
Work experience	-0.017	0.075	0.167	0.121	-0.050	0.118	0.063	0.147
Programme bef. unemp. ²	0.775	0.050	0.638	0.072	0.580	0.076	0.332	0.092
Reception of UI	-0.636	0.054	-0.412	0.082	-0.320	0.097	-0.364	0.108
<i>Duration of last employment</i>								
up to 180 days	0.125	0.051	0.280	0.070	0.225	0.077	0.188	0.090
between 180 and 365 days	-0.052	0.069	0.005	0.097	0.158	0.099	0.206	0.110
between 366 and 730 days	0.046	0.061	0.051	0.088	0.091	0.097	0.169	0.107
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>								
No pension	Reference		Reference		Reference		Reference	
Vocational disability	-0.416	0.395	-0.091	0.486	–	–	–	–
Permanently unable to work	-0.046	0.548	–	–	0.274	0.475	–	–
Social plan	–	–	–	–	–	–	–	–
<i>Schooling</i> ³								
No school	Reference		Reference		Reference		Reference	
CSE	-0.002	0.058	-0.097	0.075	0.025	0.084	-0.170	0.095
O-levels	0.046	0.087	-0.139	0.130	<i>-0.361</i>	0.164	-0.655	0.214
Adv. technical college entrance ⁴	-0.095	0.141	-0.078	0.205	<i>-0.598</i>	0.297	-0.154	0.238
A-levels	0.004	0.125	-0.158	0.179	-0.197	0.195	0.147	0.179
<i>Professional Training</i>								
Without compl. prof. training	Reference		Reference		Reference		Reference	
Apprenticeship (on-the-job)	0.048	0.058	-0.113	0.084	0.007	0.087	0.020	0.100
Apprenticeship (off-the-job)	<i>0.425</i>	0.169	-0.258	0.443	<i>0.689</i>	0.328	<i>0.737</i>	0.366
Full-time vocational school	0.252	0.165	-0.355	0.329	0.108	0.311	0.075	0.335
Technical school	0.067	0.153	0.215	0.203	0.193	0.244	-0.023	0.278
Advanced technical college	0.121	0.219	0.258	0.319	0.529	0.351	-0.337	0.382
University	0.109	0.189	0.146	0.291	-0.013	0.322	-0.351	0.321
<i>Assessment of individual's qualification</i>								
Other	Reference		Reference		Reference		Reference	
Unskilled employee	–	–	–	–	–	–	–	–
Skilled employee	-0.109	0.058	<i>-0.180</i>	0.089	-0.163	0.092	-0.123	0.103

continued on next page

TABLE C.2: (CONTINUED)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Ass. to technical school ⁵	0.058	0.146	0.194	0.207	0.015	0.264	-0.011	0.292
Ass. to adv. technical college	0.273	0.181	-0.060	0.282	0.119	0.298	0.459	0.313
Ass. to university	-0.040	0.184	-0.033	0.276	0.162	0.309	0.044	0.313
Ass. to top-management	–	–	–	–	–	–	–	–
<i>Month of treatment start</i>								
July 2000	Reference		Reference		Reference		Reference	
September 2000	-0.106	0.063	0.040	0.097	-0.124	0.097	0.074	0.104
November 2000	-0.070	0.070	0.178	0.101	-0.060	0.108	-0.072	0.127
January 2001	0.035	0.074	0.320	0.105	0.018	0.118	0.004	0.134
March 2001	<i>0.135</i>	0.067	0.128	0.102	0.033	0.103	0.146	0.118
May 2001	-0.073	0.067	0.147	0.096	0.048	0.095	-0.020	0.117
<i>Regional Context Variables</i>								
Cluster Ia	–	–	–	–	–	–	–	–
Cluster Ib	–	–	–	–	–	–	–	–
Cluster Ic	–	–	–	–	–	–	–	–
Cluster II	Reference		Reference		Reference		Reference	
Cluster III	-0.103	0.046	-0.116	0.064	-0.122	0.070	-0.177	0.077
Cluster IV	-0.171	0.078	-0.172	0.110	-0.167	0.121	-0.431	0.153
Cluster V	-0.123	0.067	-0.201	0.100	-0.181	0.109	-0.363	0.134
<i>Work time (last occupation)</i>								
Full-time work	Reference		Reference		Reference		Reference	
Part-time work	0.166	0.223	0.261	0.345	-0.389	0.534	-0.198	0.497
Not applicable	-0.290	0.043	-0.192	0.061	-0.324	0.068	-0.311	0.075
<i>Desired work time</i>								
Full-time work	Reference		Reference		Reference		Reference	
part-time work	-0.091	0.244	–	–	-0.059	0.418	–	–
Other (e.g. telework)	–	–	–	–	–	–	–	–
<i>Desired Occupation</i>								
Farming ⁶	Reference		Reference		Reference		Reference	
Mining, mineral extraction	-0.702	0.395	–	–	–	–	–	–
Manufacturing	-0.322	0.075	-0.098	0.105	-0.370	0.111	-0.294	0.125
Technical professions	-0.802	0.151	-0.554	0.226	-0.794	0.258	-0.749	0.290
Service Professions	-0.423	0.077	-0.234	0.110	-0.364	0.114	-0.337	0.130
Other occupations	-1.059	0.265	-0.842	0.408	-0.174	0.220	-0.649	0.403
Other	–	–	–	–	–	–	–	–
<i>N</i>	15,328		10,789		8,682		6,782	
<i>Log-Likelihood</i>	-2,200.29		-1,076.05		-919.70		-724.68	
<i>R</i> ²	0.169		0.155		0.143		0.135	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

– Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.3: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER *u* = 1 TO *u* = 4 (WOMEN IN WEST GERMANY)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-2.863	0.172	-2.981	0.223	-2.540	0.249	-1.976	0.257
<i>Age</i>								
25 to 29 years	Reference		Reference		Reference		Reference	
30 to 34 years	-0.034	0.073	0.060	0.094	0.094	0.111	-0.113	0.116
35 to 39 years	-0.032	0.104	-0.030	0.131	0.206	0.146	0.094	0.152
40 to 44 years	-0.170	0.151	-0.129	0.187	0.335	0.203	0.097	0.217
45 to 49 years	-0.233	0.208	-0.059	0.253	0.302	0.276	-0.036	0.297
50 to 55 years	-0.244	0.273	-0.206	0.336	0.232	0.363	-0.095	0.393
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	-0.148	0.064	-0.203	0.079	-0.211	0.087	-0.167	0.090
Asylum-seeker	-0.055	0.081	-0.318	0.108	-0.301	0.125	-0.226	0.117
No. of placement propositions	0.016	0.001	0.020	0.002	0.021	0.002	0.024	0.002
No. of children	0.094	0.019	0.090	0.023	0.003	0.027	0.035	0.028
Placement restrictions	0.098	0.066	0.006	0.081	0.091	0.098	-0.078	0.113
Vocational rehabilitation ¹	0.051	0.086	0.063	0.109	0.197	0.119	0.595	0.128
Health restrictions	<i>0.128</i>	0.058	<i>0.164</i>	0.069	-0.011	0.084	-0.067	0.094
Marriage/ cohabitation	-0.169	0.036	-0.029	0.045	-0.019	0.049	-0.056	0.054
Work experience	-0.012	0.058	<i>0.165</i>	0.081	0.056	0.084	0.119	0.091
Programme bef. unemp. ²	1.029	0.045	0.908	0.057	0.827	0.060	0.900	0.063
Reception of UI	0.055	0.043	-0.007	0.052	-0.036	0.057	-0.193	0.058
<i>Duration of last employment</i>								

continued on next page

TABLE C.3: (CONTINUED)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
up to 180 days	0.070	0.039	0.166	0.047	0.137	0.053	0.169	0.056
between 180 and 365 days	-0.217	0.065	-0.253	0.088	-0.145	0.090	-0.228	0.097
between 366 and 730 days	-0.011	0.048	-0.088	0.063	<i>0.125</i>	0.062	-0.049	0.074
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>								
No pension	Reference		Reference		Reference		Reference	
Vocational disability	-	-	-	-	-	-	-	-
Permanently unable to work	-	-	-	-	-	-	-	-
Social plan	-	-	-	-	-	-	-	-
<i>Schooling</i> ³								
No school	Reference		Reference		Reference		Reference	
CSE	-0.017	0.066	0.069	0.083	-0.073	0.087	-0.056	0.092
O-levels	0.022	0.075	0.072	0.095	0.012	0.099	-0.043	0.106
Adv. technical college entrance ⁴	0.070	0.098	0.217	0.121	0.186	0.127	-0.053	0.141
A-levels	0.054	0.091	0.297	0.108	0.139	0.117	-0.014	0.126
<i>Professional Training</i>								
Without compl. prof. training	Reference		Reference		Reference		Reference	
Apprenticeship (on-the-job)	-0.048	0.049	-0.026	0.059	-0.035	0.064	-0.052	0.070
Apprenticeship (off-the job)	0.200	0.108	0.183	0.146	0.210	0.164	-0.256	0.251
Full-time vocational school	-0.239	0.126	0.142	0.114	0.127	0.126	-0.069	0.153
Technical school	0.098	0.081	0.006	0.104	<i>0.257</i>	0.102	0.070	0.113
Advanced technical college	0.227	0.116	0.080	0.143	0.095	0.150	-0.124	0.168
University	-0.013	0.105	-0.117	0.130	0.086	0.136	-0.393	0.158
<i>Assessment of individual's qualification</i>								
Other	Reference		Reference		Reference		Reference	
Unskilled employee	-	-	-	-	-	-	-	-
Skilled employee	0.023	0.048	-0.038	0.058	-0.022	0.062	0.050	0.069
Ass. to technical school ⁵	0.251	0.137	0.306	0.163	0.249	0.167	0.360	0.189
Ass. to adv. technical college	0.381	0.107	0.515	0.128	0.427	0.131	0.657	0.150
Ass. to university	0.411	0.099	0.341	0.127	0.121	0.135	0.484	0.152
Ass. to top-management	-	-	-	-	-	-	-	-
<i>Month of treatment start</i>								
July 2000	Reference		Reference		Reference		Reference	
September 2000	0.033	0.054	0.092	0.068	<i>0.159</i>	0.071	0.128	0.074
November 2000	<i>0.123</i>	0.056	0.211	0.071	0.284	0.076	0.258	0.079
January 2001	0.103	0.060	0.313	0.070	0.318	0.081	0.289	0.085
March 2001	0.027	0.057	<i>0.166</i>	0.070	0.129	0.080	0.281	0.082
May 2001	-0.053	0.057	0.057	0.070	0.076	0.076	0.097	0.083
<i>Regional Context Variables</i>								
Cluster Ia	-	-	-	-	-	-	-	-
Cluster Ib	-	-	-	-	-	-	-	-
Cluster Ic	-	-	-	-	-	-	-	-
Cluster II	Reference		Reference		Reference		Reference	
Cluster III	-0.071	0.040	<i>-0.103</i>	0.048	-0.062	0.051	-0.100	0.056
Cluster IV	-0.179	0.061	-0.261	0.080	-0.303	0.090	-0.055	0.086
Cluster V	-0.141	0.047	-0.150	0.058	-0.208	0.066	-0.040	0.068
<i>Work time (last occupation)</i>								
Full-time work	Reference		Reference		Reference		Reference	
Part-time work	-0.052	0.066	0.116	0.075	0.113	0.074	-0.063	0.088
Not applicable	0.030	0.037	0.003	0.045	-0.080	0.050	-0.217	0.052
<i>Desired work time</i>								
Full-time work	Reference		Reference		Reference		Reference	
part-time work	<i>-0.101</i>	0.045	-0.254	0.055	-0.086	0.057	-0.081	0.060
Other (e.g. telework)	-	-	-	-	-	-	-	-
<i>Desired Occupation</i>								
Farming ⁶	Reference		Reference		Reference		Reference	
Mining, mineral extraction	-	-	-	-	-	-	-	-
Manufacturing	-0.255	0.097	-0.165	0.126	-0.083	0.162	-0.439	0.151
Technical professions	-0.385	0.135	-0.686	0.204	-0.642	0.238	<i>-0.397</i>	0.193
Service Professions	-0.251	0.089	-0.218	0.118	-0.125	0.155	<i>-0.284</i>	0.140
Other occupations	<i>-0.389</i>	0.163	<i>-0.622</i>	0.257	-0.510	0.299	<i>-0.765</i>	0.319
Other	-	-	-	-	-	-	-	-
<i>N</i>	127,322		60,015		33,442		21,771	
<i>Log-Likelihood</i>	-2,993.25		-2,049.47		-1,795.58		-1,593.86	
<i>R</i> ²	0.143		0.156		0.153		0.178	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

- Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.4: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER $u = 5$ TO $u = 8$ (WOMEN IN WEST GERMANY)

	$u = 5$		$u = 6$		$u = 7$		$u = 8$	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-2.040	0.290	-2.666	0.461	-3.378	0.533	-0.838	0.436
<i>Age</i>	Reference		Reference		Reference		Reference	
25 to 29 years								
30 to 34 years	0.077	0.129	-0.106	0.216	0.373	0.281	-0.165	0.209
35 to 39 years	0.115	0.167	0.252	0.259	0.312	0.332	-0.388	0.290
40 to 44 years	0.191	0.230	0.373	0.351	0.109	0.426	-0.080	0.400
45 to 49 years	0.151	0.310	0.565	0.467	-0.080	0.559	-0.237	0.554
50 to 55 years	0.140	0.409	0.506	0.612	-0.409	0.714	-0.229	0.729
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	0.040	0.091	-0.079	0.136	-0.116	0.157	-0.301	0.159
Asylum-seeker	-0.283	0.126	-0.349	0.197	-0.031	0.176	-0.077	0.162
No. of placement propositions	0.023	0.003	0.023	0.004	0.027	0.004	0.031	0.005
No. of children	0.017	0.032	0.084	0.047	0.071	0.051	0.198	0.046
Placement restrictions	0.051	0.111	0.011	0.174	0.269	0.197	-0.526	0.225
Vocational rehabilitation ¹	<i>0.301</i>	0.138	<i>0.497</i>	0.218	0.767	0.209	0.943	0.257
Health restrictions	0.060	0.096	-0.030	0.148	-0.196	0.176	0.078	0.163
Marriage/ cohabitation	-0.150	0.057	-0.139	0.087	-0.230	0.097	-0.185	0.102
Work experience	0.019	0.092	0.062	0.148	0.099	0.162	-0.061	0.146
Programme bef. unemp. ²	1.045	0.068	0.884	0.103	0.943	0.111	0.670	0.127
Reception of UI	-0.284	0.061	-0.045	0.105	-0.010	0.120	-0.275	0.110
<i>Duration of last employment</i>	Reference		Reference		Reference		Reference	
up to 180 days	0.153	0.061	0.090	0.097	0.250	0.104	-0.129	0.114
between 180 and 365 days	-0.001	0.091	0.222	0.125	0.133	0.144	0.112	0.154
between 366 and 730 days	-0.113	0.087	0.050	0.126	-0.025	0.149	-0.023	0.141
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>	Reference		Reference		Reference		Reference	
No pension								
Vocational disability	-	-	-	-	-	-	-	-
Permanently unable to work	-	-	-	-	-	-	-	-
Social plan	-	-	-	-	-	-	-	-
<i>Schooling³</i>	Reference		Reference		Reference		Reference	
No school								
CSE	0.136	0.107	0.034	0.152	0.048	0.154	-0.125	0.149
O-levels	0.146	0.122	0.054	0.179	0.013	0.185	-0.032	0.181
Adv. technical college entrance ⁴	0.289	0.151	0.282	0.224	0.393	0.232	0.060	0.267
A-levels	0.230	0.143	0.212	0.206	0.201	0.217	0.089	0.231
<i>Professional Training</i>	Reference		Reference		Reference		Reference	
Without compl. prof. training								
Apprenticeship (on-the-job)	0.041	0.075	-0.048	0.114	-0.238	0.125	-0.054	0.126
Apprenticeship (off-the job)	0.380	0.198	-0.060	0.357	0.247	0.330	0.346	0.399
Full-time vocational school	<i>0.300</i>	0.138	0.175	0.211	-0.079	0.250	0.075	0.255
Technical school	0.256	0.120	0.032	0.187	-0.129	0.213	0.266	0.205
Advanced technical college	0.211	0.175	-0.926	0.313	-0.299	0.353	-0.519	0.415
University	0.016	0.164	-0.417	0.267	-0.383	0.292	0.212	0.331
<i>Assessment of individual's qualification</i>	Reference		Reference		Reference		Reference	
Other								
Unskilled employee	-	-	-	-	-	-	-	-
Skilled employee	0.057	0.073	0.099	0.113	0.072	0.124	-0.173	0.125
Ass. to technical school ⁵	-0.212	0.270	0.347	0.341	0.356	0.324	-	-
Ass. to adv. technical college	0.494	0.159	0.940	0.244	-0.025	0.344	0.055	0.318
Ass. to university	0.268	0.161	0.487	0.265	0.365	0.274	-0.390	0.330
Ass. to top-management	0.166	0.405	-	-	-	-	-	-
<i>Month of treatment start</i>	Reference		Reference		Reference		Reference	
July 2000								
September 2000	0.135	0.077	0.235	0.121	0.204	0.132	0.091	0.125
November 2000	0.089	0.086	0.208	0.136	0.327	0.140	0.020	0.147
January 2001	0.281	0.090	0.345	0.136	0.337	0.153	0.033	0.162
March 2001	0.109	0.090	0.213	0.136	0.102	0.158	0.185	0.142
May 2001	-0.021	0.090	0.004	0.145	0.046	0.152	-0.242	0.160
<i>Regional Context Variables</i>	Reference		Reference		Reference		Reference	
Cluster Ia								
Cluster Ib								
Cluster Ic								
Cluster II	Reference		Reference		Reference		Reference	
Cluster III	-0.136	0.060	-0.136	0.089	-0.090	0.095	-0.285	0.098
Cluster IV	-0.092	0.088	-0.256	0.153	-0.187	0.162	-0.488	0.202
Cluster V	-0.056	0.074	-0.144	0.115	-0.506	0.156	-0.307	0.134
<i>Work time (last occupation)</i>	Reference		Reference		Reference		Reference	
Full-time work								
Part-time work	-0.053	0.089	0.127	0.137	0.013	0.149	0.080	0.174
Not applicable	-0.250	0.057	-0.123	0.087	-0.297	0.096	-0.227	0.100
<i>Desired work time</i>	Reference		Reference		Reference		Reference	
Full-time work								
part-time work	-0.164	0.067	-0.171	0.101	-0.132	0.114	-0.320	0.119
Other (e.g. telework)	-	-	-	-	-	-	-	-
<i>Desired Occupation</i>	Reference		Reference		Reference		Reference	
Farming ⁶								
Mining, mineral extraction	-	-	-	-	-	-	-	-

continued on next page

TABLE C.4: (CONTINUED)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Manufacturing	-0.259	0.192	0.195	0.302	0.202	0.323	-0.577	0.239
Technical professions	-0.434	0.256	-0.116	0.400	0.232	0.414	-0.745	0.436
Service Professions	-0.082	0.181	0.189	0.291	0.282	0.312	-0.455	0.225
Other occupations	-0.352	0.290	0.041	0.481	–	–	–	–
Other	–	–	–	–	–	–	–	–
<i>N</i>	14,668		10,466		8,159		6,268	
Log-Likelihood	-1,428.03		-590.06		-491.94		-467.90	
<i>R</i> ²	0.220		0.182		0.224		0.179	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

– Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.5: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER *u* = 1 TO *u* = 4 (MEN IN EAST GERMANY)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-2.080	0.105	-1.832	0.120	-1.555	0.125	-1.507	0.142
<i>Age</i>								
25 to 29 years	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
30 to 34 years	0.038	0.054	0.040	0.061	-0.048	0.064	0.051	0.077
35 to 39 years	-0.004	0.071	0.035	0.080	-0.089	0.084	-0.045	0.099
40 to 44 years	-0.069	0.098	-0.013	0.112	-0.073	0.115	-0.053	0.134
45 to 49 years	-0.146	0.133	-0.090	0.151	-0.164	0.156	-0.189	0.181
50 to 55 years	-0.120	0.172	0.071	0.196	-0.109	0.202	-0.093	0.235
Age (squared)	0.000	0.000	<i>0.000</i>	0.000	<i>0.000</i>	0.000	0.000	0.000
Foreigner	-0.395	0.112	-0.402	0.126	-0.702	0.168	<i>-0.304</i>	0.138
Asylum-seeker	-0.426	0.110	-0.444	0.118	-0.250	0.132	<i>-0.296</i>	0.151
No. of placement propositions	0.020	0.001	0.024	0.002	0.024	0.002	0.024	0.002
No. of children	0.011	0.014	-0.002	0.015	-0.022	0.016	-0.010	0.019
Placement restrictions	0.014	0.047	-0.039	0.055	-0.073	0.059	-0.259	0.069
Vocational rehabilitation ¹	0.191	0.051	0.098	0.061	0.210	0.065	0.387	0.075
Health restrictions	0.102	0.038	0.073	0.044	0.050	0.046	0.082	0.052
Marriage/ cohabitation	0.012	0.027	0.091	0.031	0.092	0.031	-0.003	0.037
Work experience	-0.001	0.042	-0.081	0.046	0.085	0.053	-0.011	0.056
Programme bef. unemp. ²	0.492	0.024	0.299	0.028	0.173	0.029	0.126	0.034
Reception of UI	-0.677	0.026	-0.590	0.030	-0.691	0.031	-0.607	0.036
<i>Duration of last employment</i>								
up to 180 days	0.337	0.029	0.326	0.033	0.307	0.035	0.394	0.042
between 180 and 365 days	0.054	0.035	0.049	0.040	0.160	0.041	0.202	0.049
between 366 and 730 days	0.013	0.031	0.041	0.035	0.060	0.037	0.126	0.044
more than 730 days	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
<i>Pension</i>								
No pension	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Vocational disability	0.254	0.188	0.264	0.220	-0.047	0.291	-0.119	0.319
Permanently unable to work	-0.386	0.203	-0.175	0.221	-0.094	0.226	-0.303	0.278
Social plan	–	–	–	–	–	–	–	–
<i>Schooling</i> ³								
No school	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
CSE	0.029	0.042	0.027	0.048	0.003	0.048	-0.021	0.054
O-levels	-0.094	0.044	-0.060	0.050	-0.056	0.050	-0.113	0.057
Adv. technical college entrance ⁴	-0.242	0.131	0.009	0.133	-0.357	0.176	-0.326	0.174
A-levels	-0.222	0.088	-0.165	0.101	-0.093	0.106	-0.267	0.120
<i>Professional Training</i>								
Without compl. prof. training	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Apprenticeship (on-the-job)	-0.020	0.035	-0.008	0.039	0.077	0.041	0.078	0.046
Apprenticeship (off-the job)	0.182	0.124	0.292	0.127	-0.122	0.190	0.133	0.205
Full-time vocational school	0.005	0.157	-0.329	0.226	-0.115	0.184	0.060	0.210
Technical school	0.183	0.089	0.037	0.101	0.150	0.110	-0.025	0.124
Advanced technical college	0.255	0.154	0.148	0.171	0.367	0.195	0.249	0.211
University	0.138	0.125	0.087	0.146	0.110	0.150	-0.150	0.181
<i>Assessment of individual's qualification</i>								
Other	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Unskilled employee	–	–	–	–	–	–	–	–
Skilled employee	-0.026	0.026	-0.018	0.029	0.002	0.030	-0.019	0.035
Ass. to technical school ⁵	-0.131	0.088	-0.001	0.094	-0.151	0.106	0.183	0.113
Ass. to adv. technical college	0.071	0.119	-0.055	0.130	0.030	0.141	0.175	0.171
Ass. to university	0.028	0.110	-0.119	0.131	-0.140	0.141	0.384	0.162
Ass. to top-management	–	–	–	–	–	–	–	–

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TABLE C.5: (CONTINUED)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
<i>Month of treatment start</i>								
July 2000	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
September 2000	0.028	0.035	-0.017	0.039	-0.030	0.036	-0.054	0.045
November 2000	0.014	0.038	-0.004	0.045	-0.244	0.044	-0.092	0.050
January 2001	-0.355	0.047	-0.303	0.059	-0.649	0.065	-0.636	0.070
March 2001	-0.020	0.035	0.036	0.043	-0.101	0.044	-0.205	0.051
May 2001	-0.081	0.035	0.148	0.037	-0.031	0.038	-0.027	0.047
<i>Regional Context Variables</i>								
Cluster Ia	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Cluster Ib	-0.038	0.030	-0.012	0.034	0.023	0.035	0.019	0.039
Cluster Ic	-0.236	0.042	-0.130	0.046	-0.028	0.048	-0.142	0.058
Cluster II	-0.210	0.086	-0.325	0.103	-0.163	0.092	-0.197	0.106
Cluster III	-	-	-	-	-	-	-	-
Cluster IV	-	-	-	-	-	-	-	-
Cluster V	-	-	-	-	-	-	-	-
<i>Work time (last occupation)</i>								
Full-time work	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Part-time work	0.243	0.046	0.135	0.050	0.023	0.053	0.160	0.056
Not applicable	0.149	0.024	0.081	0.028	-0.047	0.029	-0.040	0.033
<i>Desired work time</i>								
Full-time work	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
part-time work	-0.573	0.406	-	-	-	-	-0.449	0.466
Other (e.g. telework)	-	-	-	-	-	-	-	-
<i>Desired Occupation</i>								
Farming ⁶	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Mining, mineral extraction	-0.296	0.312	-0.013	0.318	-0.245	0.317	-0.130	0.345
Manufacturing	-0.098	0.044	-0.107	0.049	-0.058	0.051	-0.077	0.058
Technical professions	-0.330	0.086	-0.196	0.093	-0.419	0.105	-0.306	0.111
Service Professions	-0.224	0.047	-0.195	0.052	-0.165	0.055	-0.177	0.062
Other occupations	-0.599	0.110	-0.437	0.115	-0.590	0.134	-0.883	0.195
Other	-	-	-	-	-	-	-	-
<i>N</i>	81,278		41,717		26,182		17,188	
<i>Log-Likelihood</i>	-7,455.41		-5,957.89		-5,772.97		-4,327.78	
<i>R</i> ²	0.177		0.130		0.126		0.133	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

- Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.6: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER *u* = 5 TO *u* = 8 (MEN IN EAST GERMANY)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-0.984	0.160	-0.667	0.206	-0.980	0.262	-1.048	0.312
<i>Age</i>								
25 to 29 years	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
30 to 34 years	-0.027	0.089	-0.111	0.115	-0.131	0.145	-0.063	0.165
35 to 39 years	0.021	0.112	0.008	0.143	-0.273	0.180	-0.119	0.214
40 to 44 years	-0.046	0.152	-0.003	0.194	-0.555	0.248	0.125	0.287
45 to 49 years	-0.076	0.205	0.069	0.261	-0.396	0.330	0.263	0.388
50 to 55 years	0.040	0.267	0.222	0.337	-0.534	0.431	0.330	0.504
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	-0.410	0.163	-0.129	0.181	-0.273	0.274	-0.416	0.276
Asylum-seeker	-0.506	0.204	-0.433	0.218	-0.479	0.338	0.164	0.270
No. of placement propositions	0.034	0.003	0.044	0.004	0.055	0.004	0.060	0.005
No. of children	-0.017	0.021	-0.008	0.027	0.024	0.034	0.046	0.037
Placement restrictions	-0.187	0.077	0.036	0.100	-0.267	0.121	0.025	0.140
Vocational rehabilitation ¹	0.433	0.083	0.508	0.109	0.374	0.139	0.687	0.146
Health restrictions	0.097	0.060	-0.075	0.081	0.163	0.092	-0.084	0.118
Marriage/ cohabitation	0.062	0.041	0.036	0.053	0.050	0.068	0.085	0.078
Work experience	0.079	0.066	0.041	0.081	-0.019	0.098	0.412	0.131
Programme bef. unemp. ²	0.176	0.038	0.086	0.050	0.222	0.063	0.021	0.075
Reception of UI	-0.940	0.042	-0.974	0.057	-0.899	0.073	-0.879	0.081
<i>Duration of last employment</i>								
up to 180 days	0.434	0.048	0.334	0.062	0.319	0.079	0.360	0.091
between 180 and 365 days	0.147	0.053	0.043	0.068	0.038	0.085	0.180	0.099
between 366 and 730 days	0.086	0.052	0.071	0.068	0.022	0.087	-0.130	0.112
more than 730 days	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
<i>Pension</i>								

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TABLE C.6: (CONTINUED)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
No pension	Reference		Reference		Reference		Reference	
Vocational disability	0.143	0.360	0.171	0.486	–	–	–	–
Permanently unable to work	-0.388	0.292	0.146	0.313	0.283	0.389	–	–
Social plan	–	–	–	–	–	–	–	–
<i>Schooling</i> ³								
No school	Reference		Reference		Reference		Reference	
CSE	-0.039	0.059	0.008	0.073	-0.208	0.089	-0.036	0.106
O-levels	-0.077	0.063	-0.011	0.078	-0.274	0.097	-0.179	0.117
Adv. technical college entrance ⁴	-0.138	0.193	-0.128	0.289	-1.124	0.461	-0.723	0.421
A-levels	-0.124	0.129	-0.196	0.182	-0.372	0.229	0.106	0.249
<i>Professional Training</i>								
Without compl. prof. training	Reference		Reference		Reference		Reference	
Apprenticeship (on-the-job)	0.163	0.052	0.008	0.064	0.145	0.082	0.103	0.096
Apprenticeship (off-the job)	0.240	0.217	-0.331	0.359	0.028	0.427	0.764	0.366
Full-time vocational school	-0.030	0.250	0.175	0.290	0.123	0.320	-0.632	0.639
Technical school	0.022	0.142	0.039	0.194	0.204	0.224	-0.263	0.326
Advanced technical college	-0.112	0.241	-0.166	0.406	0.702	0.436	0.631	0.610
University	-0.150	0.204	0.235	0.289	0.203	0.349	-0.693	0.426
<i>Assessment of individual's qualification</i>								
Other	Reference		Reference		Reference		Reference	
Unskilled employee	–	–	–	–	–	–	–	–
Skilled employee	-0.168	0.040	-0.046	0.051	-0.012	0.063	-0.108	0.076
Ass. to technical school ⁵	-0.061	0.135	-0.193	0.191	-0.110	0.231	0.091	0.310
Ass. to adv. technical college	0.072	0.184	0.054	0.240	0.102	0.317	-1.192	0.584
Ass. to university	0.111	0.185	-0.789	0.308	-0.331	0.327	0.206	0.404
Ass. to top-management	–	–	–	–	–	–	–	–
<i>Month of treatment start</i>								
July 2000	Reference		Reference		Reference		Reference	
September 2000	-0.064	0.053	-0.061	0.068	-0.039	0.087	-0.008	0.113
November 2000	-0.165	0.060	-0.152	0.077	-0.063	0.098	0.063	0.118
January 2001	-0.411	0.070	-0.533	0.102	-0.342	0.115	-0.302	0.147
March 2001	-0.081	0.057	-0.090	0.075	-0.063	0.094	-0.039	0.116
May 2001	-0.058	0.053	-0.069	0.067	-0.012	0.087	0.120	0.108
<i>Regional Context Variables</i>								
Cluster Ia	Reference		Reference		Reference		Reference	
Cluster Ib	-0.085	0.044	-0.088	0.058	-0.237	0.069	-0.190	0.083
Cluster Ic	-0.237	0.063	-0.187	0.083	-0.332	0.102	-0.427	0.125
Cluster II	-0.343	0.121	-0.256	0.141	-0.528	0.204	-0.719	0.244
Cluster III	–	–	–	–	–	–	–	–
Cluster IV	–	–	–	–	–	–	–	–
Cluster V	–	–	–	–	–	–	–	–
<i>Work time (last occupation)</i>								
Full-time work	Reference		Reference		Reference		Reference	
Part-time work	0.062	0.063	0.292	0.082	0.129	0.103	0.163	0.126
Not applicable	-0.169	0.039	-0.187	0.051	-0.090	0.064	-0.176	0.076
<i>Desired work time</i>								
Full-time work	Reference		Reference		Reference		Reference	
part-time work	-0.440	0.513	-0.728	0.633	–	–	0.006	0.675
Other (e.g. telework)	–	–	–	–	–	–	–	–
<i>Desired Occupation</i>								
Farming ⁶	Reference		Reference		Reference		Reference	
Mining, mineral extraction	-1.167	0.588	-0.313	0.537	-0.131	0.425	–	–
Manufacturing	-0.064	0.065	-0.130	0.079	-0.054	0.105	-0.015	0.127
Technical professions	-0.050	0.125	-0.321	0.173	-0.202	0.220	-0.008	0.303
Service Professions	-0.116	0.069	-0.332	0.086	-0.119	0.111	-0.005	0.132
Other occupations	-0.533	0.168	-1.202	0.311	-0.817	0.321	-0.450	0.313
Other	–	–	–	–	–	–	–	–
<i>N</i>	10,946		7,060		4,909		3,587	
<i>Log-Likelihood</i>	-3,486.02		-2,090.46		-1,293.34		-932.51	
<i>R</i> ²	0.183		0.187		0.196		0.208	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

– Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.7: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER $u = 1$ TO $u = 4$ (WOMEN IN EAST GERMANY)

	$u = 1$		$u = 2$		$u = 3$		$u = 4$	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-1.937	0.108	-2.150	0.131	-1.946	0.133	-1.865	0.144
<i>Age</i>	Reference		Reference		Reference		Reference	
25 to 29 years	0.079	0.054	0.093	0.065	0.057	0.069	0.041	0.078
30 to 34 years	0.090	0.071	0.013	0.084	0.060	0.087	0.093	0.096
35 to 39 years	0.031	0.097	-0.058	0.115	0.028	0.116	0.102	0.126
40 to 44 years	0.122	0.130	-0.052	0.155	0.074	0.155	0.071	0.169
45 to 49 years	0.221	0.169	0.032	0.201	0.198	0.201	0.228	0.218
50 to 55 years	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Age (squared)	-0.370	0.144	-0.290	0.155	-0.594	0.220	-0.646	0.287
Foreigner	-0.539	0.113	-0.666	0.141	-0.506	0.153	-0.520	0.172
Asylum-seeker	0.029	0.002	0.031	0.002	0.031	0.002	0.040	0.003
No. of placement propositions	0.040	0.012	0.026	0.014	0.017	0.015	0.005	0.016
No. of children	-0.031	0.053	0.008	0.061	-0.079	0.067	-0.058	0.073
Placement restrictions	0.132	0.064	0.198	0.071	0.247	0.080	0.204	0.087
Vocational rehabilitation ¹	0.072	0.039	0.110	0.046	0.095	0.048	0.136	0.052
Health restrictions	-0.033	0.024	-0.071	0.028	0.050	0.030	-0.057	0.032
Marriage/ cohabitation	0.008	0.035	-0.099	0.039	0.019	0.044	0.034	0.047
Work experience	0.454	0.023	0.305	0.028	0.263	0.028	0.170	0.032
Programme bef. unemp. ²	-0.637	0.025	-0.551	0.029	-0.552	0.029	-0.529	0.032
Reception of UI	Reference		Reference		Reference		Reference	
<i>Duration of last employment</i>	Reference		Reference		Reference		Reference	
up to 180 days	0.314	0.028	0.309	0.033	0.313	0.035	0.377	0.038
between 180 and 365 days	0.046	0.038	0.013	0.049	0.120	0.046	0.209	0.047
between 366 and 730 days	-0.079	0.031	-0.055	0.036	0.073	0.036	0.038	0.042
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>	Reference		Reference		Reference		Reference	
No pension	-0.108	0.387	0.534	0.319	-0.024	0.416	-	-
Vocational disability	-0.274	0.216	-0.250	0.236	-0.433	0.341	0.011	0.278
Permanently unable to work	-	-	-	-	-	-	-	-
Social plan	Reference		Reference		Reference		Reference	
<i>Schooling³</i>	Reference		Reference		Reference		Reference	
No school	0.011	0.053	0.065	0.066	0.018	0.065	0.038	0.070
CSE	-0.003	0.054	0.092	0.067	0.043	0.066	0.099	0.071
O-levels	0.104	0.103	-0.047	0.145	0.007	0.137	0.024	0.153
Adv. technical college entrance ⁴	-0.015	0.080	0.073	0.099	0.075	0.100	0.065	0.111
A-levels	Reference		Reference		Reference		Reference	
<i>Professional Training</i>	Reference		Reference		Reference		Reference	
Without compl. prof. training	0.027	0.036	0.060	0.042	0.078	0.043	0.109	0.047
Apprenticeship (on-the-job)	0.060	0.112	0.122	0.129	0.222	0.140	0.138	0.171
Apprenticeship (off-the job)	0.052	0.094	0.057	0.117	0.281	0.101	0.171	0.114
Full-time vocational school	0.184	0.057	0.298	0.068	0.226	0.068	0.256	0.076
Technical school	-0.133	0.135	0.075	0.171	0.199	0.171	0.590	0.172
Advanced technical college	0.115	0.102	0.136	0.126	0.224	0.126	0.192	0.149
University	Reference		Reference		Reference		Reference	
<i>Assessment of individual's qualification</i>	Reference		Reference		Reference		Reference	
Other	-	-	-	-	-	-	-	-
Unskilled employee	0.003	0.026	0.031	0.030	0.014	0.031	0.000	0.033
Skilled employee	0.081	0.068	0.079	0.084	0.199	0.078	0.083	0.089
Ass. to technical school ⁵	0.127	0.091	0.236	0.103	-0.006	0.116	-0.276	0.124
Ass. to adv. technical college	0.033	0.090	0.053	0.115	0.023	0.115	0.111	0.132
Ass. to university	-	-	-	-	-	-	0.633	0.775
Ass. to top-management	Reference		Reference		Reference		Reference	
<i>Month of treatment start</i>	Reference		Reference		Reference		Reference	
July 2000	0.024	0.034	-0.050	0.039	-0.012	0.039	-0.056	0.043
September 2000	-0.038	0.037	0.072	0.044	-0.152	0.043	0.068	0.046
November 2000	-0.197	0.043	-0.095	0.052	-0.231	0.053	-0.349	0.059
January 2001	0.117	0.034	0.210	0.042	0.229	0.043	0.075	0.045
March 2001	-0.054	0.034	0.203	0.040	0.030	0.042	0.061	0.046
May 2001	Reference		Reference		Reference		Reference	
<i>Regional Context Variables</i>	Reference		Reference		Reference		Reference	
Cluster Ia	-0.104	0.028	-0.051	0.034	0.055	0.035	-0.007	0.036
Cluster Ib	-0.258	0.039	-0.103	0.045	-0.009	0.047	-0.092	0.051
Cluster Ic	-0.325	0.090	-0.212	0.102	-0.272	0.111	-0.188	0.114
Cluster II	-	-	-	-	-	-	-	-
Cluster III	-	-	-	-	-	-	-	-
Cluster IV	-	-	-	-	-	-	-	-
Cluster V	-	-	-	-	-	-	-	-
<i>Work time (last occupation)</i>	Reference		Reference		Reference		Reference	
Full-time work	0.134	0.035	0.078	0.043	0.033	0.039	0.111	0.042
Part-time work	0.121	0.024	0.239	0.029	0.013	0.029	0.050	0.032
Not applicable	Reference		Reference		Reference		Reference	
<i>Desired work time</i>	Reference		Reference		Reference		Reference	
Full-time work	-0.341	0.072	-0.273	0.081	-0.135	0.075	-0.273	0.088
part-time work	-	-	-	-	-	-	-	-
Other (e.g. telework)	-	-	-	-	-	-	-	-
<i>Desired Occupation</i>	Reference		Reference		Reference		Reference	
Farming ⁶	-	-	0.377	0.449	0.190	0.516	0.459	0.535
Mining, mineral extraction	-	-	-	-	-	-	-	-

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TABLE C.7: (CONTINUED)

	<i>u</i> = 1		<i>u</i> = 2		<i>u</i> = 3		<i>u</i> = 4	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Manufacturing	-0.147	0.042	-0.133	0.050	<i>-0.106</i>	0.051	-0.075	0.055
Technical professions	-0.196	0.066	-0.205	0.079	-0.113	0.080	-0.074	0.084
Service Professions	-0.158	0.038	-0.144	0.045	<i>-0.109</i>	0.045	-0.141	0.050
Other occupations	-0.988	0.201	-0.611	0.160	-0.691	0.220	-0.606	0.206
Other	–	–	–	–	–	–	–	–
<i>N</i>	70,162		41,910		30,400		22,476	
<i>Log-Likelihood</i>	-8,071.49		-5,809.19		-5,829.70		-5,040.28	
<i>R</i> ²	0.146		0.123		0.117		0.124	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

– Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.

Tab. C.8: ESTIMATION RESULTS OF THE PROBIT-MODELS FOR THE PROPENSITY SCORES FOR TREATMENT STARTING IN QUARTER *u* = 5 to *u* = 8 (WOMEN IN EAST GERMANY)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
Constant	-1.084	0.149	-0.867	0.189	-1.035	0.218	-1.017	0.264
<i>Age</i>								
25 to 29 years	Reference		Reference		Reference		Reference	
30 to 34 years	0.057	0.082	-0.055	0.109	0.024	0.122	0.185	0.155
35 to 39 years	0.106	0.101	-0.014	0.131	-0.159	0.151	-0.058	0.185
40 to 44 years	0.120	0.133	-0.126	0.171	-0.232	0.199	0.094	0.239
45 to 49 years	0.227	0.175	-0.081	0.224	-0.201	0.264	0.018	0.311
50 to 55 years	0.411	0.225	-0.072	0.287	-0.169	0.337	0.308	0.397
Age (squared)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foreigner	-0.118	0.176	-0.117	0.249	-0.496	0.317	-0.248	0.343
Asylum-seeker	-0.557	0.155	-0.761	0.228	-1.244	0.363	<i>-1.046</i>	0.427
No. of placement propositions	0.057	0.003	0.079	0.004	0.087	0.005	0.072	0.005
No. of children	0.023	0.016	0.054	0.021	0.003	0.024	0.028	0.027
Placement restrictions	-0.008	0.080	-0.022	0.102	0.180	0.131	-0.099	0.147
Vocational rehabilitation ¹	0.420	0.096	<i>0.293</i>	0.125	0.540	0.146	<i>0.392</i>	0.189
Health restrictions	0.064	0.058	0.066	0.075	<i>-0.204</i>	0.101	0.090	0.103
Marriage/ cohabitation	0.015	0.034	0.032	0.043	0.028	0.050	-0.040	0.060
Work experience	<i>0.106</i>	0.051	-0.012	0.062	0.035	0.074	0.080	0.089
Programme bef. unemp. ²	0.286	0.033	0.175	0.042	0.175	0.048	0.175	0.058
Reception of UI	-0.922	0.034	-0.996	0.045	-0.926	0.051	-0.857	0.061
<i>Duration of last employment</i>								
up to 180 days	0.465	0.042	0.345	0.054	0.491	0.061	0.438	0.074
between 180 and 365 days	0.161	0.046	-0.031	0.057	0.100	0.067	0.103	0.079
between 366 and 730 days	<i>0.095</i>	0.045	0.000	0.062	0.100	0.072	0.085	0.088
more than 730 days	Reference		Reference		Reference		Reference	
<i>Pension</i>								
No pension	Reference		Reference		Reference		Reference	
Vocational disability	0.454	0.607	–	–	-0.211	0.675	–	–
Permanently unable to work	–	–	0.230	0.318	0.642	0.450	0.203	0.438
Social plan	–	–	–	–	–	–	–	–
<i>Schooling</i> ³								
No school	Reference		Reference		Reference		Reference	
CSE	0.088	0.069	-0.060	0.079	-0.031	0.089	0.008	0.107
O-levels	0.075	0.070	-0.070	0.081	0.041	0.092	-0.077	0.112
Adv. technical college entrance ⁴	-0.001	0.159	0.306	0.196	-0.272	0.303	-0.767	0.427
A-levels	0.137	0.115	0.000	0.151	-0.008	0.190	-0.251	0.225
<i>Professional Training</i>								
Without compl. prof. training	Reference		Reference		Reference		Reference	
Apprenticeship (on-the-job)	<i>0.104</i>	0.047	0.092	0.058	-0.031	0.065	0.034	0.077
Apprenticeship (off-the-job)	<i>0.370</i>	0.165	0.143	0.268	<i>0.397</i>	0.257	–	–
Full-time vocational school	0.088	0.130	-0.164	0.182	-0.877	0.286	-0.103	0.232
Technical school	0.325	0.081	-0.087	0.116	-0.121	0.132	0.089	0.151
Advanced technical college	0.056	0.213	-0.273	0.283	0.478	0.361	0.825	0.431
University	0.204	0.161	<i>-0.599</i>	0.235	0.214	0.277	0.620	0.333
<i>Assessment of individual's qualification</i>								
Other	Reference		Reference		Reference		Reference	
Unskilled employee	–	–	–	–	–	–	–	–
Skilled employee	-0.006	0.034	-0.048	0.043	-0.043	0.050	-0.013	0.058
Ass. to technical school ⁵	-0.050	0.100	0.182	0.141	0.001	0.161	-0.317	0.226
Ass. to adv. technical college	-0.031	0.132	0.255	0.187	-0.343	0.277	0.212	0.238
Ass. to university	-0.126	0.146	<i>0.434</i>	0.195	-0.432	0.257	-0.595	0.336
Ass. to top-management	–	–	–	–	–	–	–	–

continued on next page

TABLE C.8: (CONTINUED)

	<i>u</i> = 5		<i>u</i> = 6		<i>u</i> = 7		<i>u</i> = 8	
	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.	Coeff.	Std. Err.
<i>Month of treatment start</i>								
July 2000	Reference		Reference		Reference		Reference	
September 2000	-0.056	0.044	0.050	0.057	0.035	0.067	0.059	0.087
November 2000	-0.003	0.049	0.065	0.063	0.131	0.073	0.063	0.094
January 2001	-0.226	0.061	<i>-0.187</i>	0.080	<i>-0.188</i>	0.086	<i>-0.230</i>	0.113
March 2001	<i>0.115</i>	0.048	<i>0.159</i>	0.064	0.224	0.072	0.233	0.088
May 2001	0.052	0.046	0.073	0.061	0.080	0.071	-0.031	0.090
<i>Regional Context Variables</i>								
Cluster Ia	Reference		Reference		Reference		Reference	
Cluster Ib	-0.190	0.036	-0.280	0.046	-0.264	0.054	-0.260	0.063
Cluster Ic	-0.285	0.050	-0.382	0.065	-0.381	0.076	-0.425	0.090
Cluster II	<i>-0.278</i>	0.110	-0.497	0.142	-0.211	0.159	-0.373	0.203
Cluster III	-	-	-	-	-	-	-	-
Cluster IV	-	-	-	-	-	-	-	-
Cluster V	-	-	-	-	-	-	-	-
<i>Work time (last occupation)</i>								
Full-time work	Reference		Reference		Reference		Reference	
Part-time work	-0.138	0.040	<i>0.135</i>	0.054	0.094	0.063	0.001	0.078
Not applicable	-0.157	0.035	-0.142	0.045	-0.061	0.052	<i>-0.154</i>	0.061
<i>Desired work time</i>								
Full-time work	Reference		Reference		Reference		Reference	
part-time work	-0.419	0.094	-0.529	0.125	<i>-0.241</i>	0.116	-0.447	0.166
Other (e.g. telework)	-	-	-	-	-	-	-	-
<i>Desired Occupation</i>								
Farming ⁶	Reference		Reference		Reference		Reference	
Mining, mineral extraction	-0.088	0.621	-0.379	0.665	-	-	0.348	0.798
Manufacturing	-0.179	0.056	-0.225	0.070	<i>-0.180</i>	0.080	-0.181	0.093
Technical professions	-0.153	0.091	<i>-0.282</i>	0.121	-0.006	0.140	-0.578	0.208
Service Professions	<i>-0.124</i>	0.050	-0.289	0.065	-0.192	0.074	<i>-0.196</i>	0.086
Other occupations	-0.669	0.214	-0.773	0.272	-	-	-	-
Other	-	-	-	-	-	-	-	-
<i>N</i>	16,036		10,878		8,646		6,432	
<i>Log-Likelihood</i>	-4,906.48		-2,954.95		-2,205.00		-1,526.45	
<i>R</i> ²	0.212		0.208		0.213		0.197	

Bold letters indicate significance at 1% level, *italic* letters refer to the 5% level.

- Variables not included in estimation due to collinearity to other variables, perfect prediction of participation decision or missing.

¹ Attendant for vocational rehabilitation.

² Similar programme before unemployment, e.g. job creation or structural adjustment scheme.

³ Schooling: CSE = Certificate of Secondary Education.

⁴ Advanced technical college entrance qualification (*Fachhochschulreife*)

⁵ Ass. = assimilable

⁶ Farming comprises plant cultivation, breeding and fishery.