

A Comprehensive Evaluation of ESF Financed Labour Market Policy in Germany

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- Preliminary, please do not quote -

Abstract

This paper evaluates the effectiveness of ESF financed labour market policy measures in Germany in the current programme period (2000 to 2006). Based on a survey of more than 50.000 participants and non-participants conducted in 2005, we estimate the effects of the ESF aid by using an optimal full matching algorithm with restrictions on the maximum number of treated and controls per stratum. While the principal matching algorithm is the same for each policy instrument, its application and the problems involved differ between the instruments. We pursue different strategies with respect to target variables and ways to control for unobserved heterogeneity. The overall results are mixed. While we find significant effects of full-time training for the unemployed, we cannot identify significant effects of the training for young people. Although this last result is in line with much of the literature, which shows it to be fairly difficult to increase the employment opportunities for young people in general, we are in doubt whether the least skilled young people would have reasonable chances to start a vocational programme without such a preparation. For the business start-ups, which are also addressed by several other programs in Germany, we can find no significant effect of the aid, whatsoever. Regarding the training for employees, we find that the state aid increases the probability of being employed later on. However, in this last case, additional questions arise as to whether it is possible to fully catch unobserved heterogeneity between participants and non-participants.

Key words. Optimal Full Matching, Labour Market Policy, European Social Fund.

JEL Classification. J 41, J 24, J 68

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1. Motivation and Research Questions

In the recent past, several contributions have analysed the effectiveness of active labour market policy in Germany (e. g. Fitzenberger/ Speckesser 2005, Hujer/ Blien/ Zeiss 2002, Lechner 1999, 2000, Lechner/ Miquel/ Wunsch 2004, Pischke 2001). Most empirical evaluations have focused on the labour market programmes financed by the Federal Labour Office (Bundesagentur für Arbeit). In addition to national labour market policies, labour market programs for specific target groups in Germany – like in other European countries – are co-financed by the European Social Funds (ESF). The ESF is the main instrument of the European Commission to bring forward the European Employment Strategy. Thus, the political sphere takes interest in the impulse of ESF financed programmes in addition to national aid measures – in wording of the official ESF programme documents: the “European Value Added” of European financed labour market spending.

Therefore, the effectiveness of the different policy measures promoted is in the focus of ESF evaluations. Until recently, not much was known about the effects of these programs for the individual participant and – accordingly – on the aggregate level. Two recent papers discuss the effectiveness ESF funded labour market policy in Saxony (Augurzky/ Fertig/ Kluge/ Rothgang 2006, Fertig 2004). Currently, the IAB evaluates the labour market aid within the framework of the ESF-BA-Programme which is conducted by the Federal Labour Office.

Against that background, our contribution provides evidence on impacts of four different kinds of ESF - financed labour market policy measures executed by the Federal *Länder* in West Germany: Full time training for unemployed persons, training courses for employees in small and medium-sized enterprises, aid for business start-ups (both financial and coaching measures), as well as courses that prepare young people for participation in vocational training programs.² We assess the effectiveness of the different policy instruments given the central targets they pursuit.

We use data from a survey of about 50.000 individuals, both participants of ESF-financed active labour market programs and comparison groups of non-participants for all four kinds of training measures conducted in 2005. Corresponding to the different target groups of the programs, the control groups were drawn from different data sources. Regarding full time training for the unemployed, the data base for unemployed individuals and job searchers at the Federal Labour Office (Bundesagentur für Arbeit) provides an adequate control group. The control group for employee training programs was drawn from the database of establishments and employees available at the Federal Labour Office. For business start-ups, several regional craft chambers and chambers of commerce were contacted. The suitable control group for courses for young people proved to be the applicants for vocational training at the “Compas”-Database at the Federal Labour Office.

The paper proceeds in five sections. Section 2 discusses the role of ESF funded labour market policy within the overall framework of active labour market policy in Germany. In section 3, the data set and estimation strategies we embark on are discussed. Section 4 sketches the matching procedure we employ to identify the net effect of the different labour market policy instruments. The empirical results are presented in section 5. A summary of our results is given in section 6.

² The results presented here were obtained in a study for the German Ministry of Labour and Social Affairs that was financed by the European Social Funds (for further details see Rothgang et al. 2004).

2. The European Social Fund and Active Labour Market Policy in Germany

Active labour market policy in Germany is mostly identified with the programmes which are executed through the Federal Employment office: Altogether, approximately 20 billion € were spent in 2003 (RWI/ SÖSTRA/ Ronning 2005: 122-123). About 14 billion € were spent by the Federal Labour Office within the budget for active labour market policy (Eingliederungstitel), while the rest was spent for different programmes and by different Federal ministries, but also by the Federal *Länder*. Within the total sum, the ESF funds spent amount to about 3 % of overall spending. These funds are divided up by the Federal Government and the *Länder*. While the ESF funds spent by the Federal Government only make up about 2 % of overall spending, ESF financing increases the possibilities of Federal *Länder* significantly: In the West *Länder* for which effectiveness of labour market aid is evaluated here (objective 3 area), ESF funds increase the sum available of about 300 million € by about 60 %, such that a total of approximately 500 million € were spent for active labour market policy by the West *Länder* in 2003.³

Within the context of national policy, the ESF financed policy pursues certain objectives determined by the Council regulations for each programme period and the European Employment Strategy. In General, the European Social Fund (ESF) aims at reducing the gap in living standards between regions and promoting economic and social cohesion. It complements the activities of the Member States by supporting the so-called National Action Plans for Employment, which is set up by the Member States every year as a part of the European Employment Strategy. In the period 2000-2006, the ESF is granting some €70 billion to people and projects across the EU (c.f. European Commission 2006). This money comes on top of Member State funding from public and/or private sectors in the country concerned.

The ESF-resources in Germany are allocated among the federal government and the federal states (*Länder*). For the case at hand - in West Germany (Objective 3) - the federal and states' governments set up a Single Programming Document regulating the disbursement of the 5 Billion Euros ESF-co-funding in the period 2000-2006. The federal government and the governments of the *Länder* share the resources roughly half-and-half. All activities are assigned to five main areas, so-called policy fields, which correspond to the general goals of ESF aid: (A) developing and promoting active labour market policies, (B) promoting equal opportunities for all in accessing the labour market, (C) promoting and improving training, education and counselling as part of a life-long learning policy, (D) promoting a skilled, trained and adaptable workforce, and (E) improving women's access to and participation in the labour market. Each policy field is subdivided into several measures which subsume the actual interventions (projects, individual promotion; see figure 1).

³ The exact amount depends on the definition of active labour market policy applied. This figure was calculated by including also labour market programmes which are not conducted by the *Länder* ministries that are immediately responsible for labour, such that programmes by the ministries for economic affairs or education were included as far as their aims are in accordance to the overall goals of ESF financing (RWI/SÖSTRA/Ronning 2005: 29-45).

Table 1

ESF policy fields and measures in Germany

A	Developing and promoting active labour market policies
1.	Combat youth unemployment and prevention of long term unemployment among younger persons
2.	Qualification, information and counselling
3.	Promoting employment
B.	Promoting equal opportunities for all in accessing the labour market
4.	Qualification, information and counselling
5.	Promoting employment
C	Promoting and improving training, education and counselling as part of a life-long learning policy
6.	Improving vocational training and measures to diminish school leaving without certificate
D	Promoting a skilled, trained and adaptable workforce
7.	Training, information, counselling, development of organisation and working hours
8.	Short-time and qualification
9.	Promoting entrepreneurial spirit
E	Improving women's access to and participation in the labour market
10.	Promoting equal opportunities

ESF financed labour market policy complements national policy mainly by filling gaps in national aid and by augmenting national programmes. Thereby, as also table 1 indicates, the field of promotion is rather broad. ESF financing often comprises individual measures for unemployed persons who are not eligible for promotion by law. In other fields like preparations for vocational training and start-up financing, ESF measures compete with or supplement other programmes. In still other fields like further training of employed persons in SMEs, there are only few smaller state financed programmes besides the ESF promotion.

Notwithstanding this rather broad range of different promotion fields, the ESF funds have their traditional roots in fostering the employability of target groups with problems in the labour market. However, both policies of single *Länder* and changing attitudes in the European Commission have resulted to a more intense promotion of measures which do not explicitly focus on persons with problems in the labour market. This increasing heterogeneity characterizes the ESF interventions under investigation in this paper. These measures cover a sizeable share of this broad overall programme. About 50% of the ESF participants and 60% of the ESF financial resources of the German *Länder* are represented by the kinds of policy instruments skrutinized here.

3. Data Sets and Estimation Strategy

3.1 Data Sets

In order to be able to give a comprehensive assessment of ESF funded labour market policy, we concentrated our analysis on four different ESF funded measures: (1) training measures for unemployed persons, (2) training measures for employed persons, (3) coaching, seminars and financial support for start-ups as well as (4) job orientation and preparation measures for young persons. Our datasets stem from questionnaire surveys among ESF-participants and non-participants respectively.

The participant samples for our investigation are based on a comprehensive database of ESF financed labour market projects in the period at hand which had to be compiled from several datasets from the individual Länder.⁴ According to coherent criteria, a project sample was drawn from this database, while in most *Länder*, the individual addresses for the survey were obtained from the project executing organizations. The pre-selection guaranteed that the projects started in 2002 were finished before June 30th, 2004, and had a minimum duration of 60 hours. Additional restrictions made sure that the projects from different Länder were comparable in respect to target groups of the aid and content of the measures. For each of the ESF policy instruments, we selected a suitable comparison group which was similar to the participants.

For full time training of unemployed persons, the procedure resulted in about 4,600 postal addresses of participants. The comparison group was made up by almost 19,000 addresses of persons searching for a job from the Federal Employment Office. For choosing the best suitable way to draw a comparison group we could fall back on the experience of a previous analysis in Saxony (Augurzký et al. 2005): The requirements for an individual registered in this database to become a member of the comparison group was unemployment in at least one of the five quarters in which participants entered the measure. In order to reflect the time structure of participation in the treatment group, we drew five separate comparison groups – one for each quarter of treatment begin (see Appendix, figure A1)

Furthermore, to increase the likelihood of a balancing of both groups with respect to some core characteristics we stratified the sample (ex ante-matching) for the comparison group with respect to age, gender, education, state and citizenship. Finally, since members of the participant group comprise to a large extent individuals re-entering the labour market after a longer period of inactivity, the sample of non-participants was drawn primarily from workers registered as actively searching for work but not eligible for any form of unemployment compensation. As the descriptive table A5 in the appendix shows, both groups appear to be quite similar in respect to most personal characteristics. One notable difference which is important for the matching is that a somewhat higher share of the individuals in the comparison group was working full time (66 % compared with 42 %), while a higher share of individuals in the treatment group did never work before the training (18 % compared with 5 %).

For the measures aimed at employed persons, we gained a sample of about 3,900 participant addresses. The comparison group was drawn from the employment

⁴ We owe thanks to all ESF fund managements in the different Länder for their aid in constructing this database.

database of the Federal Employment Office. In this database which comprises core characteristics of all employees in Germany, it is possible to combine the information about employees and their employment status in the past to information about employers. This was important for our analysis because ESF funded training mainly focuses on employees small and medium sized enterprises. From the data set, almost 8,000 addresses of persons were drawn, who were employed at the time of the measure. A concentration on certain branches or sectors of the economy did not seem to be reasonable ex ante because the ESF funding also did not focus on employees from certain sectors. As no information about the distribution of ESF participants on the firm size was available, but the focus of the ESF promotion unambiguously lies on SMEs, we stratified the sample as follows: 70% of the employees of the comparison group worked for SME (10 to 250 employees) at the moment of the measure, 15% for large-scale enterprises and 15% for micro enterprises (less than 10 employees). As the descriptive variables in table A6 in the appendix show, treatment and comparison group are rather similar in respect to most characteristics. This is only partly the case for the sectoral distribution: While the share of manufacturing firms appears to be somewhat higher in the treatment group, a correspondingly larger share of the firms in our control group belongs to the trade sector. In respect to firm size, the table shows that – in contrast to the general aim of the programme – a rather high share of the participants was employed in larger firms.

Concerning the measures for business start-ups, the participant sample comprised about 2,800 postal addresses of ESF participants. ESF participants are made up by a rather broad range of entrepreneurs both from craft trades and the industry sector. Start-ups of formerly unemployed persons are important. However they do not dominate ESF funding. Therefore, we collected about 8,500 addresses of start-ups from craft chambers and chambers of commerce in the regions where ESF participants founded their firms. Of special interest in our analysis was the sustainability of the promotion. Thus, we drew firms which were aided at the beginning of the planning period - after the year 2000 and before 2003. Also our control group was chosen from firms which were founded in that period. Due to the broad focus of the promotion programmes at hand, we abstained from other restrictions. As the descriptive statistics (table A7 in the appendix) shows, both groups appear to be quite similar.

With regard to the job orientation and preparation measures we had about 3,300 postal addresses of participants from the ESF authorities at our disposal. The comparison group of about 8,700 persons was drawn from the COMPAS database of the Federal Employment Office. This database comprises young persons who registered in the database while looking for a vocational training place. Usually, quite a high share of all young people looking for a vocational training position in Germany register in that database which is frequently screened by their potential employers. In contrast to the other comparison groups, the drawing here could be based on the first results from the treatment group survey. Thus, the comparison group was drawn in a manner that for each member of the treatment group 25 “twins” with reference to state, gender, year of leaving school, and schooling degree could have been identified. This ensured that the comparison group was similar to the treatment group: While ESF participants appear to be a negative selection of all young people looking for a vocational training position (in respect to schooling performance and degrees), the COMPAS database reflects more the average structure of applicants for vocational trainings. Again, the descriptive statistics (table A8 in the appendix) confirms that the ex ante matching seemingly was successful.

3.2 Outcome Measures and Estimation Strategy

While the general matching method used was the same for all four policy instruments (section 4), we had to follow different estimation strategies in respect to outcome and control variables. This was due to the different targets of the labour market instruments. Also the different overall frameworks for labour market promotion made separate strategies necessary in order to be able to control for unobserved heterogeneity between treated and controls.

The explanatory variables for each instrument can be drawn from tables A1 to A4 in the appendix. The sets comprise primarily socio-demographic variables, i.e. age, gender, highest schooling degree, highest vocational degree, marital status, health status, immigrant status. Furthermore we included branch variables for the measures business start-up aid and further training for employees, and additionally in the later case variables for firm-size. In all cases we added the individuals' labour market history, i.e. indicator variables for the last activity of individuals prior to treatment (treatment group) or prior to unemployment/current employment (comparison group). This was of special importance for our identification strategy: Under the assumption that unobservable individual traits like motivation or cognitive ability are persistent over time, they will be reflected in individuals' labour market history. Hence, ignoring this issue would violate the unconfoundedness assumption and, thus, we would not identify the true causal effect of participation.

The outcome measures in our empirical application differ with the instruments under consideration and try to capture the most important aims of the aid measures (table 2). The full-time training measures for unemployed aim at helping the participants to find a new employment and to increase employment stability. Thus, outcome variables we focus on were employment at a later point in time (24 months after the training) and employment probability over a period of four quarters (i. e. the quarters 6 to 9 after the start of the training).

The further training of employees is first of all aiming to increase stability of employment and prevent unemployment. According to the programme principles, these trainings should – among others – focus on the group of less educated participants and also elder employees. Thus, the suitable outcome variable is on employment at a later point in time. Wage increases which we also scrutinized were not targeted directly with the funding.

The start-up aid partly aims at giving advice before the new firm is founded, partly at stabilizing the new firms. Therefore, the later survival of the firms is the central indicator of success of the measures. However, the survival rates of the firms answering the survey were rather high (see table A7 in the appendix). One possible reason is that many addresses of unsuccessful entrepreneurs had changed until the time of the survey. Additionally, it might be the case that less successful entrepreneurs were less motivated to answer our questionnaire. Therefore, we also concentrated our analysis on the effects of the aid on firm size (number of employees and turnover per employee) and employment growth. All these variables indicate the later success of the newly found firms, allowing us to analyse whether the ESF funded start-ups were more successful than other firms later on.

Table 2
Outcome Variables

Training of Unemployed	Training of Employees	Start-up aid	Preparation for vocational training
Employed 24 months (eight quarters) after begin of the training – nine after the quarter of drawing (1 or 0) Average probability of employment 6 to 9 quarters after begin of the training (0, 0.25, 0.5, 0.75 to 1)	Employment in 1/ 2005 (1 or 0) Wage increase (1 or 0) since participation (ESF group) or January 2003 (comparison group)	Survival rate: Self-employment 12/ 24 months after founding, at time of interview (1 or 0) Number of employees 12/ 24 months after founding, at time of interview Turnover per employee 12/ 24 months after founding, at time of interview Employment growth rate between 2002 and 2004	Initial vocational training scheme (1 or 0) in 2/ 2005 (both ESF and control group)

Preparation courses for vocational training mainly try to help their young participants to start a vocational training scheme. Employment itself is not aimed at with this kind of measure. The main reason for this is that young people with difficulties to find an employment who haven't gone through an apprenticeship program usually have higher risks to become unemployment again. Therefore, these training programmes mainly try to make employment more stable and long-term for the participants.

Each of the instruments we scrutinize comprehends different kinds of measures which are displayed in tables A9 to A12 in the appendix. This variety allowed us to evaluate the effects of the aid not merely in respect to different target groups but also to the variety of different measures.

4. Identification and Matching Procedure

Our aim is to estimate treatment effects for the different policy instruments in respect to the different outcome measures.⁵ The theoretical framework for our analysis corresponds to the general matching framework: Assume that Y_i^1 denotes a response of individual i to a labour market programme and that Y_i^0 gives the state of individual i with no treatment. If the binary variable T_i indicates the treatment status of individual i , then the observed outcome is $Y_i = T_i Y_i^1 + (1 - T_i) Y_i^0$. This approach to the evaluation problem is known as the potential outcome approach to causality (e. g. Rubin 1974, Holland 1986, Kluve 2004). In order to identify the treatment effect in that framework would require the response of one individual to be independent from all other individuals. This framework assumes that there is only one of two potential outcomes for each individual (Y_i^0 and Y_i^1) depending on the two treatment states and that there are no further potential outcomes depending on the treatment assignment of the individual (stable unit treatment assumption – Rubin 1986).

Within this framework, the individual treatment effect is given by $\delta_i = Y_i^1 - Y_i^0$. The individual treatment effect is never observable because for each individual either the

⁵ The same identification strategy is followed for ESF funded individuals in Saxony in Augurzky/ Fertig/ Kluve/ Rothgang 2006.

observation Y_i^0 or Y_i^1 is missing. Within the evaluation framework given in programme evaluation, we would be interested in the average treatment effect, which is given by

$$E(\delta_i | T_i = 1) = E(Y_i^1 | T_i = 1) - E(Y_i^0 | T_i = 1)$$

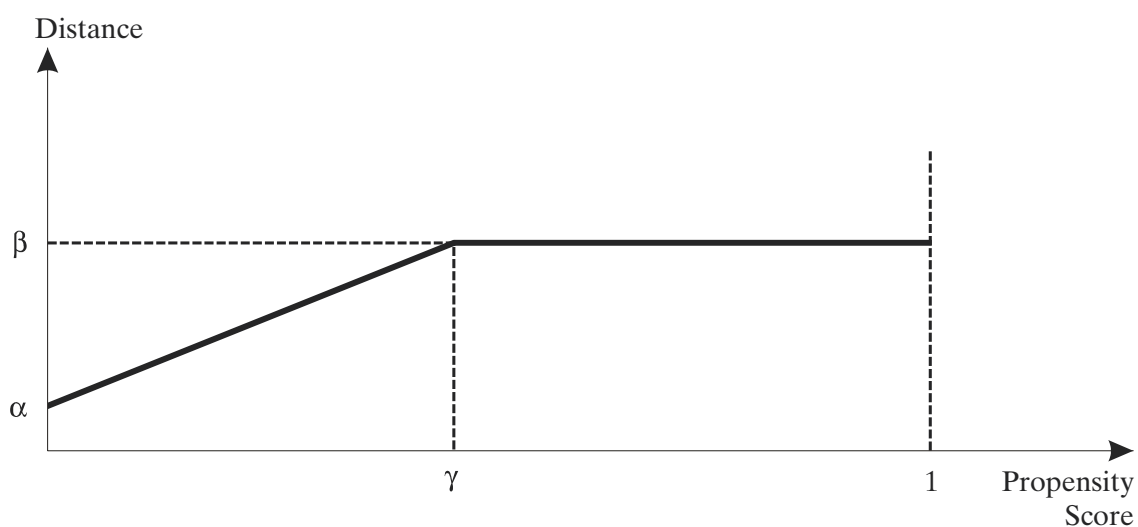
While we can observe $E(Y_i^1 | T_i = 1)$ for the individuals in the treatment group, the counterfactual $E(Y_i^0 | T_i = 1)$ cannot be directly observed. If treated individuals differ systematically from non-treated individuals, because selection into the treatment group is non-random, the counterfactual expected value differs from the observation for non-treated individuals $E(Y_i^0 | T_i = 0)$. If the vector of variables X which determines selection into treatment is known, the conditional expectation $E(Y_i^0 | X, T_i = 1)$ is equal to $E(Y_i^0 | X, T_i = 0)$. In this case, selection into treatment can be controlled for by conditioning on X (conditional independence assumption).

However, exact matching will be impossible if X is of high dimension. Therefore, Rosenbaum and Rubin suggest matching on the one-dimensional propensity score. The propensity score denotes the probability to participate in treatment given the vector X , $p(x) = \Pr(T = 1 | X = x)$, where \Pr denotes the probability. They show that in case X removes selection bias, then matching on $p(X)$ will do so either.

We use optimal full matching on the propensity score with restrictions on the cell size (Augurzky, Kluve 2004, Rosenbaum 1995). This algorithm restricts matching to the close vicinity of each individual by introducing a calliper with $\tau > 0$. Our algorithm utilizes all untreated units with a finite distance to a treated individual. In our calibration, an individual in the comparison group must not be matched to more than 10 treated, while one treated is not matched to more than 30 untreated individuals. By these restrictions, we make sure that individual cells do not contain too many individuals. The calliper width is illustrated by figure 1.

Figure 1

Caliper Width for Propensity Score Matching



Calliper width varies with the estimated value for the propensity score. In our estimates, we set $\alpha = 0.01$, $\beta = 0.04$ and $\gamma = 0.6$. We chose the matching parameters

to balance between matched pairs and number of matches found. While the distance between the propensity score of treated and controls were allowed to be somewhat larger with higher propensity scores, the programme requires differences to be rather small in case of small propensity scores. We also did some sensitivity checks (not reported in the annex). However, our results in general were rather robust to changes of these three parameters. In addition, we match exactly on variables that seem rather important for catching unobserved heterogeneity (labour market histories for unemployed and sector variables for start-up aid – see section 4).

5. Empirical Results

The empirical results concerning the effects of the various ESF-measures are presented as follows: For every kind of ESF-measure we first estimate the “Average Treatment Effect on the Treated” (ATET) for the full sample. Second, we divide participants and controls into different subgroups and evaluate them separately in order to investigate whether and to what extent treatment differs across target groups.

5.1 Full-time training for unemployed persons

The impact of the full-time training for unemployed persons is estimated on the basis of two different outcome variables. On the one hand, we use "employment after 24 months" to identify the medium-term job-creating effects. On the other hand, we estimate the "average probability of employment over time" to investigate the stability of the employment after the training. The estimation results of exact matching the labour market history of full-time training on employment status 24 month after the measure are presented in table 3.

Table 3

Full-time training for the unemployed: results „Employed after 24 month“ – exact matching

	Full Sample	Women	Adaptation and re-education measures	Foreigner, German resettler	Measures with practical training
ATET (Standard error)	0.119*** (0.043)	0.126*** (0.050)	0.261*** (0.031)	0.087 (0.074)	0.142*** (0.046)
Number of treated before matching	280	213	67	68	239
Number of untreated before matching	645	423	577	138	639
Mean outcome of matched treated	0.393	0.380	0.522	0.338	0.406
Mean outcome of matched untreated	0.274	0.255	0.261	0.251	0.264
Mean outcome of unmatched untreated	0.297	0.298	0.311	0.210	0.293

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p = 0.01, **p = 0.05, *p = 0.1.

In addition to the full sample, the subgroups considered are: a) women b) participants in adaptation and re-education measures c) foreign persons and German resettlers as well as d) participants in measures with practical training. For the whole sample we find a significant positive ATET. The full-time training measures seem to increase the probability to be employed 24 months after the measure for about 12 percentage points. The employment probability in the matched sample was 39% for the participants and 27% for the individuals in the control group. For women, the estimated effect of 13 percentage points is still a little higher. Participants in adaptation and re-education measures and measures with practical training exhibit rather high values. For these two groups participation increases the probability to be

employed by 26 respectively 14 percentage points, while the estimated effects for foreigners and German resettlers are not significant.

Analogue to the effect in respect to “employment after 24 month”, the results in respect to the target variable “probability of employment over time” for the full sample as well as for the subgroups are significantly positive except for the foreign persons and German resettlers, as shown in table 4. Compared with table 3, the estimated effects differ only to some extent in their magnitude, whereby the outcome in respect to employment stability is somewhat lower than the employment probability measured after 24 month.

The positive results of ESF full-time training for the unemployed are in line with other recent evaluations of public sponsored training programs in West Germany without ESF financing. Lechner et al. (2004) found in their long-term analysis that gains in employment probabilities of more than 10 percentage points appear to be sustainable for training programmes with duration of two years, but come at the price of large negative lock-in effects. Using a dynamic panel approach with regional data, Hujer et al. (2002) also found positive effects of preparation for vocational training on the labour market situation in West Germany. The available estimations of labour market treatment effects of ESF programmes in Saxony in this programming period were somewhat lower than the effects presented here (Augurzky et al. 2006). Simultaneously to our analysis, the Institute for Employment Research (IAB) evaluates the effects of ESF-financed aid (training modules and ESF-financed subsistence payment) in context of the full-time training for unemployed (Förderung Beruflicher Weiterbildung) executed by the German Federal Employment Office in the current program period 2000-2006. So far no final results have been obtained.

Table 4
Full-time training for the unemployed: results „Average probability of employment over time“– exact matching

	Full Sample	Women	Adaptation and re-education measures	Foreigner, German resettler	Measures with practical training
ATET (Standarderror)	0.080** (0.040)	0.082* (0.046)	0.219*** (0.063)	0.093 (0.062)	0.112*** (0.042)
Number of treated before matching	260	198	59	63	221
Number of untreated before matching	630	412	559	134	625
Mean outcome of matched treated	0.361	0.344	0.471	0.337	0.375
Mean outcome of matched untreated	0.281	0.262	0.252	0.244	0.262
Mean outcome of unmatched untreated	0.296	0.298	0.304	0.203	0.292

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p= 0.01, **p = 0.05, *p = 0.1.

5.2 Preparation for Vocational Training for Young People

While training measures for unemployed adults seem to be successful in regard of the specified outcomes, the effects of the training especially for young people were not easy to isolate. Table 5 present the results of the propensity score matching on the outcome variable “initial vocational training scheme in the 2nd Quarter 2005” for the full sample and further subgroups. In column a) we compare the young people of the ESF-group with the complete control group. The propensity score was estimated by taking individual statements toward life priorities into account. In contrast, the propensity score for the estimation results in column b) was estimated without these

statements. Investigations for the subgroups c) to g), which are also presented in the table 5, refer to the first variant (consideration of the personal statements). Subgroup c) compares the ESF participants with that young people from the control group, who did not participate in another further training. Subgroup d) comprises ESF-participants and young people from the control group who participated in a measure not evaluated here (e.g. financed by the Federal Employment Office). The subgroup e) in the ESF as well as in the control group covers only "low qualified" young people who have no school leaving certification or just a secondary school graduation (Hauptschulabschluss). The last two groups are to be seen as subgroups of e) while the group f) consists of only low qualified young people in the control group who did not participate in a preparational training. The group g) contains likewise low qualified young people whose success was compared to individuals from the control group who participated in another measure.

The estimation results do not indicate that the training does significantly raise young peoples' probability to find an initial vocational training scheme. The results generally confirm the difficulties observed in other investigations to facilitate the entrance to a vocational training place. Factors like a low level of education and missing basic skills (Artelt et al. 2001); job specifications risen by structural and information-technological change (Kloes, 1997; Krugman 1994; Schüssler et al.1999) as well as a tensed market for vocational training (Dietrich et al. 2004) offer possible explanations why even specific target group measures are not able to produce clearly positive effects.

Table 5

Preparation for Vocational training for Young People: Results „Initial Vocational Training Scheme in the 2nd Quarter 2005“

	a)	b)	c)	d)	e)	f)	g)
ATET (Standarderror)	-0.065 (0.061)	-0.081* (0.055)	0.044 (0.072)	-0.027 (0.070)	-0.045 (0.070)	0.0079 (0.085)	-0.075 (0.078)
Number of treated before matching	96	153	79	83	78	63	86
Number of untreated before matching	241	417	129	123	169	91	98
Mean outcome of matched treated	0.458	0.542	0.633	0.470	0.436	0.619	0.465
Mean outcome of matched untreated	0.523	0.623	0.589	0.497	0.481	0.540	0.540
Mean outcome of unmatched untreated	0.577	0.609	0.612	0.545	0.509	0.539	0.500

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p= 0.01, **p = 0.05, *p = 0.1.

Nevertheless, it would be conceivable that positive measure effects exist which were not captured by the matching procedure. As the data indicate, the share of young people who take part in some kind of preparation for vocational training increases as the school performance decreases. After all, about 65% of the low-skilled individuals (secondary school or no school certificate) in the comparison group had taken part in a preparation course before starting their vocational training. It is conceivable that the individuals in treatment and control group differ in respect to characteristics that are not caught by our explanatory variables that determine access, motivation, and success chances of looking for a vocational training position. Also negative signalling effects of these preparation courses for employers could have influenced our results.⁶

5.3 Business start-up aid

The ESF promoted business start-up aid comprehends tutorials and coaching measures for founders, but also financial assistance. Table 6 displays the estimation

⁶ These are hypotheses that we are trying to test in the future.

results of the measure effects on the four outcome variables “survival rate”, “number of employees”, “turnover per employee” and “employment growth rate”, subdivided in three groups: full sample, business start-ups out of previous unemployment and measures of financial assistance. As expected, we cannot observe significant effects for the outcome *survival rate*, because the survival rates for all groups are rather high.

Regarding the number of employees, no significant differences can be determined. For each group, the outcome variable always takes on a value of about two employees per start-up and achieves the lowest value with 1.49 for the ESF financed start-ups out of previous unemployment, where we also cannot identify significant differences between the ESF- and the control group.

The ATET for the outcome variable "turnover per employee" is also not significant. Significantly negative differences show up regarding employment growth for all subgroups.

Table 6
Business Start-Up Aid: Results of Propensity Score Matching

	Survival rate			Number of employees		
	Full sample	Previous unemployed	Financial assistance	Full sample	Previous unemployed	Financial assistance
ATET (Standarderror)	-0.003 (0.034)	-0.050 (0.056)	-0.004 (0.705)	-0.430 (0.705)	-0.613 (0.520)	0.512 (1.648)
Number of treated before matching	411	170	266	436	184	277
Number of untreated before matching	397	115	402	643	184	614
Mean outcome of matched treated	0.922	0.894	0.917	1.962	1.495	2.507
Mean outcome of matched untreated	0.925	0.944	0.921	2.392	2.124	2.179
Mean outcome of unmatched untreated	0.947	0.957	0.945	2.359	2.087	2.369
	Turnover per employee			Employment growth rate		
	Full sample	Previous unemployed	Financial assistance	Full sample	Previous unemployed	Financial assistance
ATET (Standarderror)	-21927 (23346)	-122174 (102950)	-57797 (54842)	-18.66** (9.454)	-24.68* (13.15)	-21.08** (9.534)
Number of treated before matching	239	86	159	426	178	276
Number of untreated before matching	440	115	395	562	155	548
Mean outcome of matched treated	63100	34427	52101	2.502	-6.303	-3.762
Mean outcome of matched untreated	81949	156505	108794	21.17	18.38	17.32
Mean outcome of unmatched untreated	82960	88676	93427	47.11	27.86	47.31

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p= 0.01, **p = 0.05, *p = 0.1.

Applying matching has proved to be more difficult for firms than for individuals because the heterogeneity is often much higher and more difficult to control for. Concerning start-ups huge differences exist, among others also especially respect to the sector at hand. In order to control for these differences, we also estimate ATETs based on exact matching in addition to the propensity score matching. In this estimation, we assign a start-up from the control group to an ESF financed start-up only if it corresponds directly in respect to sector variables. In our case the variables are: a) the business starter was previously registered as job-seeking or job-less b) industrial sector: founding of the enterprise in the building or manufacturing industry,

c) craft firm yes/no, d) freelancer. The results of the exact matching for all four outcome variables are presented in table 7.

While the start ups of the control group exhibit throughout positive and high employment growth rates (approximately 20% after matching), the rates for the total sample of the ESF promoted start ups are clearly smaller, and are found to be negative for the subgroups "start ups out of previous unemployment" and "with financial assistance". Besides we can show, that the matching succeeds in identifying the better comparable (less successful) start ups within the control group: before matching the control group still exhibits growth rates of nearly 50%. As can be seen from the table, a significant ATET can be recognized for none of the outcome variables. Altogether no significant effects can be identified.

Table 7
Business Start-Up Aid: Results of Exact Matching

	Survival rate	Number of employees	Turnover per employee	Employment growth rate
ATET (Standarderror)	0.026 (0.033)	1.386 (1.639)	-11429 (24241)	-8.361 (9.714)
Number of treated before matching	288	330	178	329
Number of untreated before matching	287	466	289	412
Mean outcome of matched treated	0.931	4.592	63749	7.435
Mean outcome of matched untreated	0.904	3.050	76309	15.796
Mean outcome of unmatched untreated	0.930	2.939	85274	47.194

Notes: Significance level: ***p= 0.01, **p = 0.05, *p = 0.1.

How can the results be interpreted in respect to the ESF promotional targets? In particular the start up tutorials and coaching measures (also due to the on average small range of the aid) affects probably rather the long term stability of the start up as the later turnover, employment or employment growth. With the variable "survival rate" it has to be accepted that the insignificant effects can be explained by the too small number of not successful founders in the questionnaire return, thus for statistic reasons. Unfortunately, a reliable statement for the effect of the measures on the stability of the start up is not possible on the basis of the available data.

In the case of the other outcome variables insignificant effects result throughout. It seems as if the promotion did not have influence on the subsequent turn-over per employee, number of employees and employment growth rate. The negatively significant ATET of the employment growth rate disappears with the "exact matching". There are good reasons to give the highest confidence this specification. It controls best for the obvious differences, which exist between start-ups in different economic sectors (for instance craft trades and non-craft trades).

Likewise to our results, the evaluation of the ESF-BA-Programme by the IAB could not find significant effects of the supplementary ESF financed start-up aid (in combination with bridging money) in respect to the probability of not being self-employed any more within a two years period (Oberschachtsiek 2005).

5.4 Further Training for Employees

The crucial question concerning the effect of the preventively aligned further training of employees reads as follows: Could unemployment actually be prevented by the measure? Table 8 displays the estimation results for the outcome variable "unemployed in the 1st quarter 2005". In order to observe, whether the estimated treatment effects depend on branch structure and firm size, we estimate our model both without (model 1) and with branch and sector variables (model 2). Again, we compute effects for the full sample and for different subgroups. The subgroups we consider are a) women, b) low-qualified (employees without or with simple professional training), c) older employees, i.e. born before 1965 and additionally within the kind of measures: individuals participating in d) IT measures and/or e) work organization measures. Table 8 shows a significant positive effect for the full sample. The ESF further training participants on average appear to have an unemployment risk which is about 5 percentage points lower than the risk for the control group (the mean outcome is about 3% for the ESF participants compared to approximately 8% for the individuals from the control group).

The ATET of model 1 for the subgroup women is with 14 percentage points nearly twice as high (4% the unemployment risk of the ESF participants opposite 18% of the women from the control group). However, the average unemployment risk of women in comparison with the full sample is altogether clearly higher.

For model 1 the ATET of the low-qualified employees does not differ significantly from the full sample effect. In contrast, the ATET of the further training is highly significant on the unemployment risk within the older participants. With nearly 9 percentage points it lies also clearly above the ATET of the full sample (approximately 1% unemployment risk of the ESF-Group versus approximately 10% of the control group). Regarding the participation in special contents, only the topic work organization exhibits a significant ATET, which does not differ substantially from the effect in the full sample. The results of model 2 do not diverge significantly from model 1.

The estimates imply that the ESF aid significantly reduces the probability of being unemployed through the measures in the short run. There are quite a number of evaluations of further training schemes for employees for West Germany which also find that further training reduces unemployment risk in general. Data pools of investigations are the socio-economic panel (SOEP) of the German Institute for Economic Research (DIW) starting from 1984, the Berlin study of the live curse of the Max Planck Institute for Human Development from 1950 to 1983 for West Germany and the micro census (Becker 2002; Christensen 2001; Pannenberg 2001; Pfeiffer/Reize 2000; Pischke 2001; Schoemann/Becker 2002).

However, like many other studies of this subject, we cannot be certain about the causality between future employment and the training scheme: From perspective of the enterprise it is surely rational to train those people it would like to keep. The decision over the vocational future of the promoted person employed would already be made before the further training. The desired continued employment can lead

accordingly to the further training. We cannot be sure that the matching procedure definitely controls this case.⁷

Table 8
Further Training for Employees: Results „Unemployed in the 1st Quarter 2005“

	Full Sample	Woman	Low-qualified individuals	Older individuals	IT measures	Work organisation measures
Model 1: without branch and firm size variables						
ATET (Standard error)	-0.053** (0.023)	-0.140** (0.024)	-0.051 (0.039)	-0.089*** (0.027)	-0.046 (0.036)	-0.073** (0.030)
Number of treated before matching	320	74	107	139	126	90
Number of untreated before matching	254	90	147	148	239	233
Mean outcome of matched treated	0.031	0.040	0.037	0.007	0.046	0.011
Mean outcome of matched untreated	0.084	0.181	0.089	0.096	0.092	0.084
Mean outcome of unmatched untreated	0.118	0.133	0.122	0.122	0.110	0.104
Model 2: with branch and firm size variables						
ATET (Standard error)	-0.058** (0.025)	-0.115* (0.058)	-0.053** (0.028)	-0.113*** (0.029)	-0.045 (0.036)	-0.082** (0.035)
Number of treated before matching	257	68	96	133	119	94
Number of untreated before matching	251	83	142	144	234	202
Mean outcome of matched treated	0.012	0.015	0.010	0.000	0.025	0.011
Mean outcome of matched untreated	0.070	0.130	0.063	0.113	0.070	0.092
Mean outcome of unmatched untreated	0.112	0.133	0.120	0.111	0.107	0.119

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p = 0.01, **p = 0.05, *p = 0.1.

The stabilization of the vocational position of the ESF promotions was estimated on the basis of wage increases. The results for the influence of ESF-further training on the probability of a wage increase for model 1 and 2 and the same subgroups as in table 8 are given in table 9. In contrast to the outcome “unemployment probability” we now can observe different results for model 1 and 2. While the ATETs in model 1 are strongly negative for nearly all groups and only insignificant within the subgroup of low-qualified, the significant negative effects disappear if the branch and firm size variables are included. Only for the subgroup “older individuals”, the effect remains strongly negative.

A possible cause for the overall absence of positive effects is the reward and motivation function of further training, i.e. further training could have been used instead of a wage increase for motivational and/or rewarding reasons. A further possible explanation is the preventive target of the ESF-measure to increase the competitive ability of the enterprises. If the enterprises do not pass the productivity increases to the employees, this could be judged positive in the sense of an increased competitive ability. To isolate the causality of the effect, we have to include the employer’s perspective in our investigation, which is planned for future analysis.

⁷ In order to answer this question, a long-term analysis of job careers would have been necessary, which was not possible in the context of our investigation.

There are various studies on the effects of further training on wages (for a survey see Büchel/ Pannenberg 2004). The results of these studies, which were attained with quite different methods, can be summarized as follows: Further training correlates with higher wages, whereby there is a large range of results concerning the significance and the size of the effect. Our findings in general appear to be in line with the literature on this subject.

Table 9
Further Training for Employees: Results „Wage Increase“

	Full Sample	Woman	Low-qualified individuals	Older individuals	IT measures	Work organisation measures
Model 1: without branch and firm size variables						
ATET (Standard error)	-0.177*** (0.001)	-0.198*** (0.058)	-0.169* (0.094)	-0.083 (0.066)	-0.251*** (0.071)	-0.194*** (0.073)
Number of treated before matching	287	64	98	118	120	84
Number of untreated before matching	223	75	120	112	221	215
Mean outcome of matched treated	0.206	0.222	0.188	0.214	0.152	0.258
Mean outcome of matched untreated	0.383	0.420	0.357	0.297	0.404	0.451
Mean outcome of unmatched untreated	0.354	0.372	0.373	0.308	0.330	0.376
Model 2: with branch and firm size variables						
ATET (Standard error)	-0.069 (0.068)	-0.110 (0.089)	0.003 (0.088)	-0.194*** (0.073)	0.030 (0.077)	0.018 (0.096)
Number of treated before matching	236	51	87	112	110	85
Number of untreated before matching	216	69	116	109	204	174
Mean outcome of matched treated	0.242	0.157	0.218	0.151	0.281	0.317
Mean outcome of matched untreated	0.311	0.267	0.215	0.345	0.251	0.299
Mean outcome of unmatched untreated	0.361	0.362	0.293	0.321	0.353	0.385

Notes: Matching parameters: $\alpha = 0.01$, $\beta = 0.04$, $\gamma = 0.6$. Significance level: ***p= 0.01, **p = 0.05, *p = 0.1.

6. Conclusions

Our evaluation displays some very concrete results about the effectiveness of ESF-financed labour market programs which are executed by the Länder in Germany. In general, we observe that ESF financed policy seems to be no more or less effective than active labour market policy financed by the federal government. This is the case although both administrative bodies involved (Länder administrations versus the Federal Labour Office) and target groups are quite different. Because our analysis is focused on the West Länder altogether, our conclusions do not take into account differences in effectiveness between different Länder programmes. Also the changes in labour market policy that resulted from the Hartz reforms have to be taken into account when discussing the consequences of our results for ESF financed labour market policy in the future.

According to our results, full-time training for unemployed persons which is the most important ESF financed labour market instrument appears to significantly increase employment probability. When discussing the future of this policy

instrument, one has to bear in mind that full-time training is not a cheap way to increase employment opportunities of unemployed persons. According to our estimations, with employment probability 24 months after the training being increased by 12 per cent, it costs about 74.000 € to bring one additional unemployed person into employment (the average cost per unemployed in the programmes under consideration was about 8.900 €). After the Hartz reforms, more short-term programmes are carried out by the Federal Labour Office. Due to the problem of co-financing, the reform is probably also going to lead to a decreasing length of ESF financed training. For these more-short-term measures, the question about effectiveness has to be analysed newly.

About the possible increase in stability of the newly founded firms associated with ESF-financed start-up aid, no definitive results could be obtained. However, it seems that the promotion had no effect whatsoever on the latter firm size and growth prospects of the start-ups. For the promotion of young people to start a vocational training scheme, no effect could be found. This finding is in line with the literature result that it proves to be very difficult to enhance the employment opportunities of young people by state measures. Anyhow, further analysis seems to be necessary in respect to this topic. In contrast, our results indicate that the training of employees – in line with other studies on the subject - seemingly has increased the employment stability of the treated individuals. We are planning to analyse this topic further in the future by combining the perspectives from employers and employees.

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Appendix

Figure A1

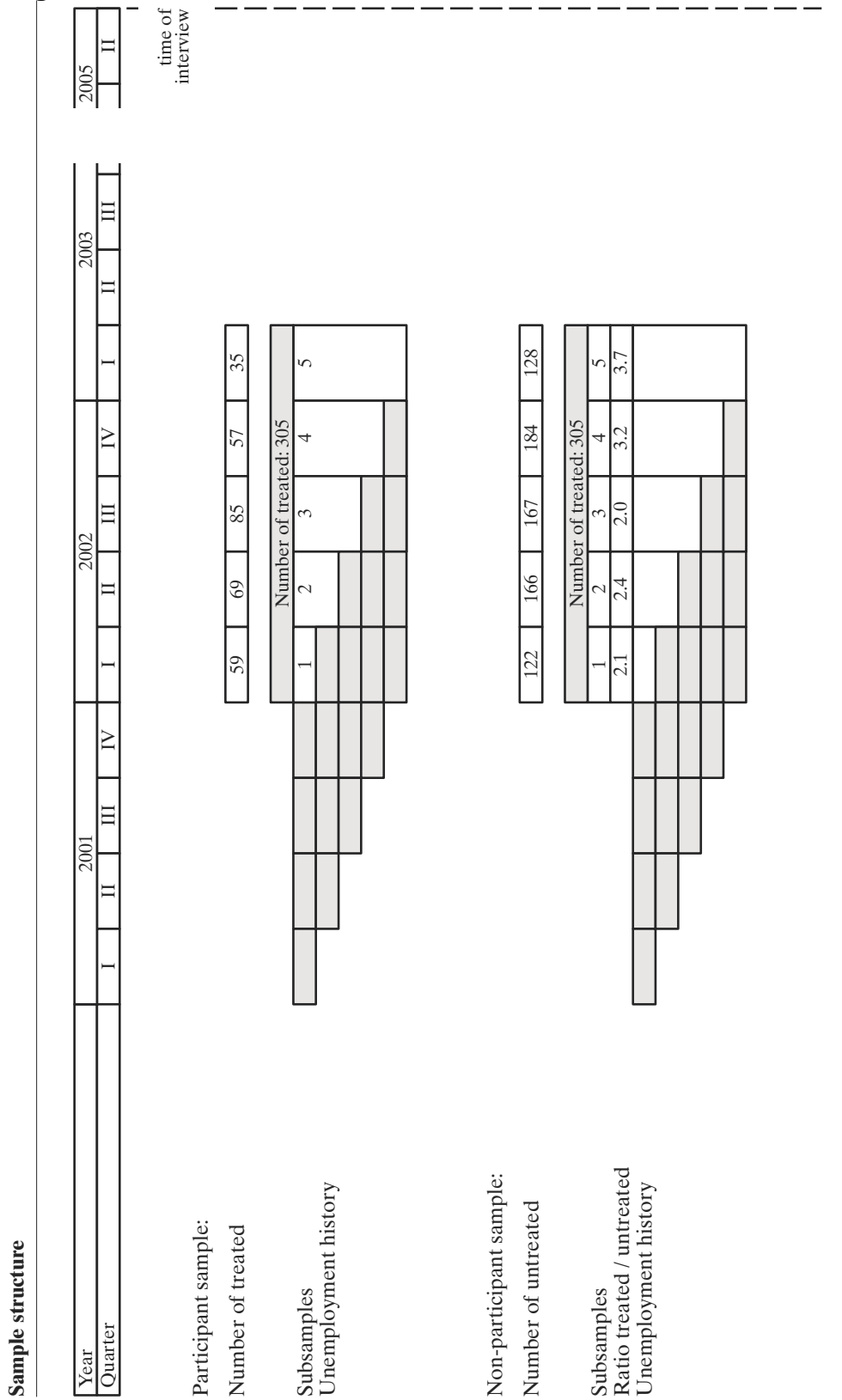


Table A1

Description of variables: Full-time Training for the Unemployed

Variable	Description
Socio-demographic characteristics	
Female	Dummy variable: 1 if individual is female; 0 otherwise.
Year of birth	Year of birth of individual.
Not living with a partner	Dummy variable: 1 if individual does not live with a partner; 0 otherwise.
Children in household	Dummy variable: 1 if children under 15 live in individual's household; 0 otherwise.
Number of children in household	Number of children in individual's household
Poor health status	Dummy variable: 1 if individual is disabled or has health problems; 0 otherwise.
German resettlers	Dummy variable: 1 if individual is a German resettler; 0 otherwise.
Foreigner	Dummy variable: 1 if individual is non-citizen; 0 otherwise.
Social welfare	Dummy variable: 1 if individual is on welfare; 0 otherwise.
No schooling degree	Dummy variable: 1 if individual has not completed schooling; 0 otherwise.
Low schooling degree	Dummy variable: 1 if individual has a low secondary degree; 0 otherwise.
Medium schooling degree	Dummy variable: 1 if individual has a medium secondary degree; 0 otherwise.
High schooling degree	Dummy variable: 1 if individual has a high secondary degree; 0 otherwise.
Other schooling degree	Dummy variable: 1 if individual has other secondary degree; 0 otherwise.
No vocational training	Dummy variable: 1 if individual has not completed vocational training; 0 otherwise.
Completed vocational training	Dummy variable: 1 if individual has completed vocational training; 0 otherwise.
University degree	Dummy variable: 1 if individual holds a university degree; 0 otherwise.
Labor market history	
Last employment: full-time	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment (comparison group) was full-time; 0 otherwise.
Last employment: part-time	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment (comparison group) was part-time; 0 otherwise.
Last employment: never employed	Dummy variable: 1 if individual's was never employed prior to participation (treatment group) or prior to unemployment (comparison group); 0 otherwise.
Last employment: vocational training	Dummy variable: 1 if individual was in school or vocational training prior to participation (treatment group) or prior to unemployment (comparison group); 0 otherwise.
Last employment: no formal training	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment (comparison group) required no formal training; 0 otherwise.
Last employment: formal training	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment (comparison group) required formal training; 0 otherwise.
Last employment: high qualification	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment

	(comparison group) comprised management functions; 0 otherwise.
Last employment: Other	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to unemployment (comparison group) required other training or comprised other functions; 0 otherwise.
Employed t-1	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t was registered as unemployed or actively searching for work in quarter t - 1; 0 otherwise.
Training measure t-1	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t participated in a training measure in quarter t - 1; 0 otherwise.
Employed t-2	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t was registered as unemployed or actively searching for work in quarter t - 2; 0 otherwise.
Training measure t-2	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t participated in a training measure in quarter t - 2; 0 otherwise.
Employed t-3	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t was registered as unemployed or actively searching for work in quarter t - 3; 0 otherwise.
Training measure t-3	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t participated in a training measure in quarter t - 3; 0 otherwise.
Employed t-4	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t was registered as unemployed or actively searching for work in quarter t - 4; 0 otherwise.
Training measure t-4	Dummy variable: 1 if individual entering the measure (treatment group) or being unemployed (comparison group) in quarter t participated in a training measure in quarter t - 4; 0 otherwise.
Outcome measures	
Employed after 24 month	Dummy variable: 1 if individual is employed 24 month after the measure, 0 otherwise
Average probability of employment over time	Average probability of employment 6 to 9 quarters after begin of the training (0, 0.25, 0.5, 0.75 to 1)

Table A2
Description of variables: Further Training for Employees

Variable	Description
Socio-demographic characteristics	
Female	Dummy variable: 1 if individual is female; 0 otherwise.
Age	Age of the individual
Poor health status	Dummy variable: 1 if individual is disabled or has health problems; 0 otherwise.
German resettler	Dummy variable: 1 if individual is German resettler; 0 otherwise.
Foreigner	Dummy variable: 1 if individual is non-citizen; 0 otherwise.
Not living with a partner	Dummy variable: 1 if individual does not live with a partner; 0 otherwise.
Children in household	Dummy variable: 1 if children under 15 live in individual's household; 0 otherwise.
Low schooling degree	Dummy variable: 1 if individual has a low secondary degree; 0 otherwise.
Medium schooling degree	Dummy variable: 1 if individual has a medium secondary degree; 0 otherwise.
High schooling degree	Dummy variable: 1 if individual has a high secondary degree; 0 otherwise.
Completed vocational training	Dummy variable: 1 if individual has completed vocational training; 0 otherwise.
University degree	Dummy variable: 1 if individual holds a university degree; 0 otherwise.
Labor market history	
Last employment: formal training	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to current employment (comparison group) required formal training; 0 otherwise.
Last employment: high qualification	Dummy variable: 1 if individual's last job prior to participation (treatment group) or prior to current employment (comparison group) comprised management functions; 0 otherwise.
Unemployed before t	Dummy variable: 1 if individual was registered as unemployed or actively searching for work in a quarter before t; 0 otherwise.
Branch or sector of industry	
Branch: other	Dummy variable: 1 if individual's branch of economic activity is another branch; 0 otherwise.
Branch: construction	Dummy variable: 1 if individual's branch of economic activity is construction; 0 otherwise.
Branch: energy	Dummy variable: 1 if individual's branch of economic activity is energy; 0 otherwise.
Branch: education	Dummy variable: 1 if individual's branch of economic activity is education; 0 otherwise.
Branch: gastronomy	Dummy variable: 1 if individual's branch of economic activity is gastronomy; 0 otherwise.
Branch: health	Dummy variable: 1 if individual's branch of economic activity is health; 0 otherwise.
Branch: real estate	Dummy variable: 1 if individual's branch of economic activity is real estate; 0 otherwise.
Branch: trade	Dummy variable: 1 if individual's branch of economic activity is trade; 0 otherwise.
Branch: banking	Dummy variable: 1 if individual's branch of economic activity is banking; 0 otherwise.
Branch: manufacturing	Dummy variable: 1 if individual's branch of economic activity is manufacturing; 0 otherwise.
Firm size classes	
Micro firm	Dummy variable: 1 if individual's firm has 1 to 10 employees; 0 otherwise.
Small or medium firm	Dummy variable: 1 if individual's firm has 10 to 250 employees; 0 otherwise.
Outcome measures	

Unemployed in the 1th quarter 2005	Dummy variable: 1 if individual was registered as unemployed in 1/2005; 0 otherwise.
Wage increase	Dummy variable: 1 if individual got a wage increase; 0 otherwise.

Table A3

Description of variables: Business Start-Up Aid

Variable	Description
Socio-demographic characteristics	
Female	Dummy variable: 1 if individual is female; 0 otherwise.
Age	Age of the individual.
No schooling degree	Dummy variable: 1 if individual has not completed schooling; 0 otherwise.
Low schooling degree	Dummy variable: 1 if individual has a low secondary degree; 0 otherwise.
Medium schooling degree	Dummy variable: 1 if individual has a medium secondary degree; 0 otherwise.
High schooling degree	Dummy variable: 1 if individual has a high secondary degree; 0 otherwise.
No vocational training	Dummy variable: 1 if individual has not completed vocational training; 0 otherwise.
Vocational training	Dummy variable: 1 if individual has completed vocational training; 0 otherwise.
High vocational training	Dummy variable: 1 if individual has completed high vocational training (Fachhochschule); 0 otherwise.
University degree	Dummy variable: 1 if individual holds a university degree; 0 otherwise.
Health status	Dummy variable: 1 if individual has no health problems; 0 otherwise.
German resettler	Dummy variable: 1 if individual is a German resettler; 0 otherwise.
Foreigner	Dummy variable: 1 if individual is non-citizen; 0 otherwise.
Living with a partner	Dummy variable: 1 if individual lives with a partner; 0 otherwise.
Children in household	Dummy variable: 1 if children under 15 live in individual's household; 0 otherwise.
Branch or sector of industry	
Branch: construction	Dummy variable: 1 if individual's branch of economic activity is construction; 0 otherwise.
Branch: energy	Dummy variable: 1 if individual's branch of economic activity is energy; 0 otherwise.
Branch: education	Dummy variable: 1 if individual's branch of economic activity is education; 0 otherwise.
Branch: gastronomy	Dummy variable: 1 if individual's branch of economic activity is gastronomy; 0 otherwise.
Branch: health	Dummy variable: 1 if individual's branch of economic activity is health; 0 otherwise.
Branch: real estate	Dummy variable: 1 if individual's branch of economic activity is real estate; 0 otherwise.
Branch: trade	Dummy variable: 1 if individual's branch of economic activity is trade; 0 otherwise.
Branch: banking	Dummy variable: 1 if individual's branch of economic activity is banking; 0 otherwise.
Branch: agriculture	Dummy variable: 1 if individual's branch of economic activity is agriculture; 0 otherwise.
Branch: public	Dummy variable: 1 if individual's branch of economic activity is public service; 0 otherwise.
Branch: manufacturing	Dummy variable: 1 if individual's branch of economic activity is manufacturing; 0 otherwise.
Branch: other	Dummy variable: 1 if individual's branch of economic activity is another branch; 0 otherwise.
No craft	Dummy variable: 1 if individual's business is not a craft; 0 otherwise.

Craft firm	Dummy variable: 1 if individual's business is a full craft; 0 otherwise.
Labour market history	
Last activity: unemployed	Dummy variable: 1 if individual was employed prior to self-employment; 0 otherwise.
Last activity: vocational training	Dummy variable: 1 if individual was apprentice prior to self-employment; 0 otherwise.
Last activity: social welfare	Dummy variable: 1 if individual was on welfare prior to self-employment; 0 otherwise.
Last employment: no formal training	Dummy variable: 1 if individual's last job prior to self-employment required no formal training; 0 otherwise.
Last employment: formal training	Dummy variable: 1 if individual's last job prior to self-employment required formal training; 0 otherwise.
Last employment: high qualification	Dummy variable: 1 if individual's last job prior to self-employment comprised management functions; 0 otherwise.
Last employment: self-employed	Dummy variable: 1 if individual was self-employed prior to current self-employment; 0 otherwise.
Outcome measures	
Survival rate	Dummy variable: 1 if start-up was still operating; 0 otherwise.
Number of employees	Number of employees
Turnover per employee	Turnover per employee
Employment growth rate	$\text{Employment in 2002 minus Employment in 2004} / \text{Employment in 2002}$

Table A4

Description of variables: Preparation for Vocational Training for Young People

Variable	Description
Socio-demographic characteristics	
Female	Dummy variable: 1 if individual is female; 0 otherwise.
Age	Age of the individual.
Foreigner	Dummy variable: 1 if individual is non-citizen; 0 otherwise.
Poor health status	Dummy variable: 1 if individual is disabled or has health problems; 0 otherwise.
Vocational training	Dummy variable: 1 if individual has completed vocational training; 0 otherwise.
Social welfare	Dummy variable: 1 if individual is on welfare; 0 otherwise.
Living with a partner	Dummy variable: 1 if individual lives with a partner; 0 otherwise.
Problems with alcohol, etc	Dummy variable: 1 if individual has problems with alcohol
No schooling degree	Dummy variable: 1 if individual has not completed schooling; 0 otherwise.
Low schooling degree	Dummy variable: 1 if individual has a low secondary degree; 0 otherwise.
Medium schooling degree	Dummy variable: 1 if individual has a medium secondary degree; 0 otherwise.
High schooling degree	Dummy variable: 1 if individual has a high secondary degree; 0 otherwise.
School grade: german	Dummy variable: 1 if individual's school grade in german is bad; 0 otherwise.
School grade: maths	Dummy variable: 1 if individual's school grade in maths is bad; 0 otherwise.
Family background	
Father: vocational training	Dummy variable: 1 if individual's father has completed vocational training; 0 otherwise.
Mother: vocational training	Dummy variable: 1 if individual's mother has completed vocational training; 0 otherwise.
Personal preferences	
Important: family	Dummy variable: 1 if individual ranks family as important or very important; 0 otherwise.
Important: friends	Dummy variable: 1 if individual ranks friends as important or very important; 0 otherwise.
Important: job	Dummy variable: 1 if individual ranks job as important or very important; 0 otherwise.
Important: income	Dummy variable: 1 if individual ranks income as important or very important; 0 otherwise.
Important: leisure time	Dummy variable: 1 if individual ranks leisure time as important or very important; 0 otherwise.
Important: media	Dummy variable: 1 if individual ranks media (cinema, television, internet, etc.) as important or very important; 0 otherwise.
Important: independence	Dummy variable: 1 if individual ranks independence as important or very important; 0 otherwise.
Outcome measure	
Initial vocational training 2/2005	Dummy variable: 1 if individual has an initial vocational training place in 2/2005; 0 otherwise.

Table A5
Descriptive Statistics: Full-time Training for the Unemployed

Variable	Comparison group		Treatment group	
	Mean	Standard deviation	Mean	Standard deviation
Outcome measure				
Employed after 24 month	0.25	0.44	0.37	0.48
Average probability of employment over time	0.25	0.40	0.36	0.44
Socio-demographic characteristics				
Female	0.56	0.50	0.73	0.44
Age	46	11	41	9
Not living with a partner	0.67	0.58	0.63	0.53
Children in household	0.36	0.48	0.58	0.49
Number of children in household	0.53	0.90	0.89	0.97
Poor health status	0.28	0.45	0.14	0.34
German resettler	0.12	0.33	0.18	0.38
Foreigner	0.13	0.34	0.20	0.40
Social welfare	0.70	0.46	0.50	0.50
No schooling degree	0.12	0.33	0.05	0.22
Low schooling degree	0.32	0.47	0.24	0.42
Medium schooling degree	0.29	0.45	0.32	0.47
High schooling degree	0.15	0.36	0.21	0.41
Other schooling degree	0.03	0.16	0.16	0.36
No vocational training	0.25	0.43	0.21	0.41
Completed vocational training	0.51	0.50	0.56	0.50
University degree	0.14	0.34	0.20	0.40
Labour market history				
Last employment: full time	0.66	0.48	0.42	0.49
Last employment: part time	0.16	0.36	0.22	0.42
Last employment: never employed	0.05	0.23	0.18	0.39
Last employment: vocational training	0.04	0.19	0.04	0.20
Last employment: no formal training	0.26	0.44	0.23	0.42
Last employment: formal training	0.39	0.49	0.35	0.48
Last employment: high qualification	0.14	0.35	0.09	0.29
Last employment: Other	0.02	0.15	0.04	0.19
Employed t-1	0.14	0.35	0.15	0.36
Measure t-1	0.12	0.32	0.07	0.25
Employed t-2	0.22	0.41	0.16	0.37
Measure t-2	0.10	0.30	0.07	0.26
Employed t-3	0.26	0.44	0.19	0.39
Measure t-3	0.09	0.28	0.08	0.28
Employed t-4	0.28	0.45	0.19	0.39
Measure t-4	0.08	0.27	0.07	0.26

Table A6
Descriptive Statistics: Further Training for Employees

Variable	Comparison group		Treatment group	
	Mean	Standard deviation	Mean	Standard deviation
Outcome measure				
Unemployed 1/2005	0.12	0.32	0.02	0.15
Wage increase	0.37	0.48	0.22	0.41
Socio-demographic characteristics				
Female	0.38	0.49	0.31	0.46
Age	42	10	40	9
Poor health status	0.12	0.33	0.06	0.24
German resettler	0.03	0.17	0.02	0.13
Foreigner	0.02	0.15	0.02	0.14
Not living with a partner	0.23	0.42	0.19	0.39
Children in household	0.33	0.47	0.45	0.50
Low schooling degree	0.32	0.47	0.26	0.44
Medium schooling degree	0.31	0.47	0.43	0.50
High schooling degree	0.31	0.46	0.25	0.43
Completed vocational training	0.62	0.49	0.45	0.50
University degree	0.28	0.45	0.39	0.49
Labour market history				
Last employment: formal training	0.62	0.49	0.65	0.48
Last employment: high qualification	0.25	0.43	0.31	0.47
Unemployed before treatment	0.05	0.21	0.05	0.21
Branch or sector of industry	Comparison group		Treatment group	
	%		%	
Branch: other	18.28		7.18	
Branch: construction	8.60		7.18	
Branch: energy	2.15		1.54	
Branch: education	0.54		3.08	
Branch: gastronomy	2.15		1.54	
Branch: health	9.14		14.87	
Branch: real estate	5.91		1.54	
Branch: trade	19.89		4.10	
Branch: banking	5.91		2.05	
Branch: manufacturing	27.42		56.92	
Total	100.0		100.0	
Firm size classes	%		%	
	%		%	
1 to 10	16.1		12.2	
10 to 250	61.9		45.7	
more than 250	22.0		42.1	
Total	100.0		100.0	
N	218		278	

Table A7
Descriptive Statistics: Business Start-up Aid

Variable	Comparison group		Treatment group	
	Mean	Standard deviation	Mean	Standard deviation
Outcome measure				
Survival rate	0.94	0.24	0.90	0.30
Number of employees	2.72	5.75	1.59	4.72
Turnover per employee	84.472.52	239.019.30	41.346.39	73.611.23
Employment growth rate	45.22	139	-3.09	141.63
Socio-demographic characteristics				
Female	0.26	0.44	0.56	0.50
Age	42	9	43	8
No schooling degree	0.01	0.12	0.01	0.12
Low schooling degree	0.28	0.45	0.21	0.41
Medium schooling degree	0.37	0.48	0.29	0.46
High schooling degree	0.28	0.45	0.42	0.49
No vocational training	0.05	0.22	0.10	0.30
Vocational training	0.38	0.49	0.42	0.49
High vocational training	0.16	0.37	0.14	0.35
University degree	0.20	0.40	0.30	0.46
Health status	0.93	0.26	0.80	0.41
German	0.03	0.18	0.03	0.18
Foreigner	0.05	0.21	0.06	0.25
Living with a partner	0.81	0.39	0.81	0.39
Children in household	0.42	0.49	0.56	0.50
Branch or sector of industry				
Branch: other	0.29	0.45	0.24	0.43
Branch: construction	0.25	0.43	0.06	0.24
Branch: energy	0.03	0.18	0.01	0.08
Branch: education	0.00	0.04	0.04	0.19
Branch: gastronomy	0.03	0.16	0.03	0.16
Branch: health	0.03	0.16	0.04	0.20
Branch: real estate	0.02	0.15	0.05	0.21
Branch: trade	0.16	0.37	0.26	0.44
Branch: banking	0.04	0.19	0.03	0.17
Branch: agriculture	0.01	0.11	0.01	0.12
Branch: public	0.16	0.37	0.21	0.41
Branch: manufacturing	0.07	0.25	0.08	0.28
No craft	0.49	0.50	0.82	0.39
Craft firm	0.37	0.48	0.08	0.27
Labour market history				
Last activity: unemployed	0.29	0.45	0.42	0.49
Last activity: vocational training	0.10	0.30	0.13	0.34
Last activity: social welfare	0.00	0.05	0.05	0.22
Last employment: no formal training	0.05	0.22	0.11	0.31
Last employment: formal training	0.42	0.49	0.42	0.49
Last employment: high qualification	0.40	0.49	0.21	0.41
Last employment: self-employed	0.06	0.24	0.04	0.20

Table A8
Descriptive Statistics: Preparation for Vocational Training for Young People

Variable	Comparison group		Treatment group	
	Mean	Standard deviation	Mean	Standard deviation
Outcome measure				
Initial vocational training 2/2005	0.57	0.49	0.48	0.50
Socio-demographic characteristics				
Female	0.56	0.50	0.43	0.50
Age	21	2	21	3
Foreigner	0.24	0.43	0.20	0.40
Poor health status	0.09	0.29	0.13	0.34
Living with a partner	0.12	0.32	0.14	0.34
No schooling degree	0.11	0.31	0.29	0.46
Low schooling degree	0.48	0.50	0.44	0.50
Medium schooling degree	0.26	0.44	0.12	0.33
High schooling degree	0.09	0.29	0.01	0.12
Low school grade: german	0.29	0.46	0.37	0.48
Low school grade: maths	0.41	0.49	0.49	0.50
Family background				
Father: employed	0.78	0.42	0.71	0.46
Mother: employed	0.62	0.48	0.58	0.49
Personal attributes				
Personal preference: family	0.68	0.47	0.66	0.47
Personal preference: friends	0.80	0.40	0.83	0.38
Personal preference: job	0.75	0.44	0.76	0.42
Personal preference: income	0.73	0.45	0.77	0.42
Personal preference: leisure time	0.41	0.49	0.50	0.50
Personal preference: media	0.24	0.43	0.28	0.45
Personal preference: independence	0.80	0.40	0.79	0.41
Problems with alcohol, etc	0.23	0.42	0.25	0.43
Labour market history				
Vocational training	0.10	0.30	0.08	0.26
Social welfare	0.21	0.41	0.30	0.46

Table A9

Preparation for Vocational Training for Young People

	Percent
Combined Measure "Work and Learning"	29.0
Voluntary social year	1.1
Training of the Federal Employment Office	40.5
Basic vocational education schooling year	27.4
Entrance qualification	2.1

Table A10

Full-Time Training for the Unemployed

	Percent
Re-education measures	6.2
Adaptation measures	13.9
Measures for German resettlers	6.7
Measures for foreigners	9.5
Measures for university graduates	8.2
Measures for re-entry in employment	23.7
Measures for women	26.7
Environmental protection measures	1.5
Measures for technical graduation	3.6

Table A11

Business Start-up Aid

	Percent
General information	9.5
Workshops	16.5
Individual coaching	18.4
Financial assistance	55.6

Table A12

Further Training for Employees

	Percent
Commercial training	7.8
Environmental protection training	1.5
Work organization training	17.8
Cooperation training	1.3
IT training	44.0
Production process training	11.8
Language training	15.8