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Labour market effects of retraining for the unemployed: The role of occupations

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The role of occupations

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Contents

Abstract

We analyse the impact of retraining for the unemployed on future labour market success, and estimate effects separately for different target occupations. We use German registry data and apply statistical matching methods. The results show that on average, after a period with strong lock-in effects, retraining increases the employment probability of women by more than 20 percentage points. Effects for male participants are somewhat weaker. Although we find differences in the effectiveness of retraining by target occupations, these differences cannot completely explain the observed gender differences. Healthcare occupations, which are the most important target occupations especially of female participants, are among those with the strongest effects. Despite differences between occupational fields, retraining in most of the considered occupations positively affects employment prospects of participants. Finally, sorting into different occupations seems to be present, as participants with different target professions also differ in their observable characteristics.

Zusammenfassung

In diesem Papier untersuchen wir die Wirkung von Weiterbildungen mit Abschluss in einem anerkannten Ausbildungsberuf (Umschulungen) unter Berücksichtigung unterschiedlicher Zielberufe der Teilnehmer. Dafür nutzen wir Prozessdaten der BA und verwenden Matchingmethoden. Die Ergebnisse zeigen, dass Umschulungen nach einer Periode mit starken Lock-in Effekten die Beschäftigungswahrscheinlichkeit für weibliche Teilnehmer um mehr als 20 Prozentpunkte erhöhen. Für Männer sind die Effekte etwas niedriger. Außerdem unterscheiden sich die Effekte je nach Zielberuf, auch wenn eine Umschulung sich für fast alle betrachteten Berufsfelder positiv auf die Beschäftigungschancen der Teilnehmer auswirkt. Gesundheitsberufe, die insbesondere für Frauen die bedeutendste Berufsgruppe darstellen, gehören zu den Berufen mit den stärksten positiven Effekten. Allerdings können Unterschiede nach Berufen die Unterschiede in den Effekten zwischen Männern und Frauen nicht vollständig erklären. Zudem zeigt die Untersuchung, dass sich Teilnehmer mit unterschiedlichen Zielberufen auch in ihren beobachtbaren Eigenschaften unterscheiden.

JEL classification: J24, J68, C14

Keywords: Evaluation of active labour market policies, retraining, occupations

1 Introduction

Although in Germany unemployment has decreased noticeably since 2005, the unemployment rate among the low-skilled is still quite high. Almost 20 % of those without a vocational qualification were unemployed in 2011 and among the unemployed the share of people without a vocational degree was about 45 % (Weber and Weber 2013). Instruments of active labour market policy which provide qualifications can be an effective tool to increase employment prospects especially for this group of the unemployed and are widely used in many countries (e. g. Eurostat 2012). Also in Germany there are several types of public sponsored training programmes for jobseekers which aim at increasing human capital of the participants and thus support reintegration into the labour market. Training measures include short-term training and longer further training which aims at improving existing and providing new skills or even, as in the case of retraining, at achieving a (new) vocational degree. Retraining for a new occupation, which is in the focus of this study, can last up to three years and thus, human capital investments are substantial. In principle, retraining is equivalent to vocational training within the German apprenticeship system and leads to the same vocational degrees. Thus, participants who completed retraining are quite likely to be absorbed by the labour market, just like people who finished apprenticeship training.

In light of demographic change, improving the skills of job-seekers may also mitigate a potential shortage of skilled labour which is present at least in certain regions and occupations, for example, in the field of care of the elderly or for certain technical professions.

Between 2003 and 2005 major labour market reforms in Germany, the so called Hartz reforms were implemented, which also had consequences for the use and design of training measures. One important modification was the introduction of a voucher system. At the same time there was a decline in the promotion of further training with fewest entries into training programmes in 2005. However, following a phase of low numbers of participants, the importance of (re)training not only reflects in increasing participation numbers but also in the introduction of special programmes by the federal government which promote retraining, for example, for young adults or in occupations with an increasing demand for skilled labour like geriatric nurses.

Numerous empirical studies analyse the effects of active labour market programmes for the unemployed. Cross country evidence shows that training programmes are modestly effective or more effective in the medium run (Card et al. 2010; Kluve 2010). For Germany results are mixed, also depending on the observation period or empirical approach, but the overall assessment of (re)training is rather positive.[1]

[1] See section 2.

Existing studies also often compare different types of training courses and the effects for different groups of unemployed people. In the case of retraining, the target occupation should play an important role for the future labour market success of the participants and considering occupations is crucial when talking about potential benefits for the demand side. Only very few studies, however, consider differences between occupations. Different occupations could also explain differences in the effects of training between different groups of participants, e. g., between men and women (see Lechner et al. 2007).

In this paper we take this aspect into account and analyse heterogeneous effects of retraining for different occupational fields which has rarely been considered so far. For our empirical analysis we use German administrative data, the Integrated Employment Biographies (IEB), which contain a rich set of information on socio-demographic characteristics and the employment histories of participants and non-participants. We consider retraining after the Hartz reforms and apply propensity score matching to estimate the effects of retraining on different labour market outcomes. As we can use data of all retraining participants between 2004 and 2007, we have a sufficient number of observations to split our treatment group and estimate effects according to target occupations. Our results show that there are substantial differences depending on the occupation for which participants are trained. These differences, however, can only partly explain gender differences in the effects of retraining. Moreover, we estimate effects of retraining separately for two groups of unemployed people who are eligible for public sponsored retraining: unemployment benefit II recipients (according to Social Code Book II) who are often long-term unemployed, and unemployed according to Social Code Book III (recipients of unemployment insurance benefits and unemployed or job-seeking non-recipients). We find that both groups of job-seekers benefit from retraining.

The rest of the paper is structured as follows: The next section gives an overview over the institutional background and the relevant empirical literature. Section 3 describes the data and econometric method used before the results are discussed in Section 4. The last section concludes.

2 Institutional background and related literature

Public sponsored training programmes play an important role in active labour market policies (ALMP) of many countries and a large number of empirical studies analyse the effects of training for the unemployed. In their meta-analyses Card et al. (2010) and Kluve (2010) consider studies from different countries and compare the effectiveness of different programmes of ALMP. Card et al. (2010) show that classroom and on-the-job training is more likely to have a positive impact in the medium run. Kluve (2010) only finds modest effects of training. Effects often differ by training programmes also depending on the length and intensity of training. For the US, for example, Dyke et al. (2006) and Hotz et al. (2006) show that more intensive training programmes witch aim at enhancing human capital have a negative impact in the

short run but positively affect employment and earnings in the longer run. Heinrich et al. (2013) analyse the effects of the US Workforce Investment Act which, among other things, also includes training provided through a voucher. The authors find positive effects on employment and earnings.

There is also much empirical evidence for European countries where expenditures on active labour market programmes are often much higher. Lalive et al. (2008), e. g., analyse different measures of ALMP in Switzerland and find no effect of training programmes on unemployment duration. Crépon et al. (2012) show that also in France training does not shorten unemployment duration but has a positive impact on the duration of the subsequent employment spell, where longer courses lead to longer unemployment but also to longer employment spells. Jespersen et al. (2008) analyse the effects of different types of training and other programmes in Denmark and also measure their net social benefits. Sianesi (2008) compares the effectiveness of different Swedish programmes and finds that classroom training courses perform relatively poorly compared to other ALMP measures. For Germany, heterogeneous effects of different training measures are e. g. reported by Lechner et al. (2007, 2011) or Biewen et al. (2007). One of these measures is retraining which is characterized by high human capital investments and its long duration of about two or even three years.[2] Retraining is intended for people who never completed vocational training or who have not worked in their learnt occupation for a certain period. Participants obtain a (new) vocational degree which is equivalent to a degree obtained in the German apprenticeship system.[3] Completing a vocational degree can increase people's employment prospects substantially. Especially low-skilled workers face a quite high unemployment risk. In 2011 45 % of the unemployed in Germany did not have a vocational degree. The unemployment rate among the low-skilled was almost 20 % whereas it was only 5.1 % for people with a vocational degree (Weber and Weber 2013). There is an excess supply of low-skilled workers in Germany (Bogai et al. 2014) and at the same time an increasing demand for skilled labour. Thus, retraining can be expected to have relatively strong effects on the job chances of participants.

Although this type of training is quite specific to German active labour market policies, also in other countries there are programmes which lead to the achievement of a formal qualification or have a long duration of e. g. one year (see Dorsett 2006 for the UK) or up to two years (see Jespersen 2008 for Denmark). Winter-Ebmer (2006)

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[2] The duration of retraining is usually shorter than the duration of regular initial vocational training, as adult retraining participants are expected to conceive the learning content easier than youths, given their skills and experience. In most cases, regular training duration is reduced by one third.

[3] The relevance of this programme is also given by the success of the German apprenticeship system, which is sometimes seen as a model for other countries (e. g. Cahuc et al. 2013).

analyses a specific Austrian programme which also can involve occupational reorientation and apprenticeship training.

The majority of studies on (re)training for Germany consider entries during the 1990s or early 2000s. Lechner et al. (2007, 2011) apply matching and analyse various training measures starting between 1993 and 1994. Employment and wage effects are measured up to eight years after the start of the programme, which is sufficiently long for retraining to unfold a positive impact on the employability of participants. For West Germany they report higher employment effects for women and for people who never completed vocational training before (Lechner et al., 2011). In their analysis for East Germany, Lechner et al. (2007) find that retraining strongly increases the employment probability of female participants by 25.5 percentage points but has no significant effect for men. They suppose that such strong gender differences can be explained by different target occupations. The target professions of the majority of men in their sample were construction-related, whereas women mainly had office-related target occupations, followed by health-, social- and education-related professions. They show that, at the time people were assigned to courses, the caseworkers' assessment was plausible, as unemployment in the construction sector was quite low, but it rose strongly until the participants completed their retraining. Thus, gender differences can be caused by the wrong choice of occupations for male participants. As we use data of all retraining participants in a four-year period and thus have a much higher number of treated individuals, we can estimate employment effects separately for participants with different target occupations and also compare effects by gender within some occupational fields.

The studies by Fitzenberger and Völter (2007) and Fitzenberger et al. (2008) are based on the same administrative data but their methodology differs. They also show that for West Germany retraining generally has a quite strong positive impact on the employment prospects of participants (Fitzenberger et al. 2008). For East Germany the effects of retraining are mostly insignificant (Fitzenberger and Völter 2007). However, despite the fact that they also report gender differences in target occupations, they do not find gender differences in the estimated effects.[4]

Besides, only very few studies on (re)training also consider specific occupations. Osikominu (2013), for example, reports differences in the labour market effects between different occupational groups and argues that these can also explain gender differences. However, she considers original occupations before getting unemployed. This is appropriate especially for such training measures which provide gen-

[4] Other studies on retraining are by Biewen et al. (2007), Wunsch and Lechner (2008) and Lechner and Wunsch (2009) who analyse different types of training starting in the early 2000s. Their results show no positive employment effects of retraining. However, as they all consider a relatively short time window of only 30 months after treatment start, the remaining observation period after retraining is very short, and in some cases retraining might even not have been completed yet.

eral or job specific skills which can help job-seekers to find a job in their former profession again. In the case of retraining, however, labour market prospects rather depend on the future profession. Kleinert and Dietrich (2006) concentrate on care professions and analyse the subsequent labour market success of unemployed who participated in training or retraining in this occupational field. They find that many participants found a job quite fast after completing training and also three to four years later most of them were employed.

The above mentioned analyses all consider retraining starting in the 1990s and early 2000s. Instruments of active labour market policies, however, are regularly subject to change. In Germany, many programmes of ALMP were reorganized and new measures were implemented as part of the Hartz reforms which were realised between 2003 and 2005.[5] Until 2003, participants were assigned to courses by their caseworker. This procedure was replaced by a voucher system. Participants now get a voucher which indicates the objective and duration of training and can choose an appropriate training course within a certain period (Kruppe 2009). This new procedure should increase self-responsibility of the participants and also initiate market mechanisms on the supply side. Moreover, a certification system was introduced to assure a certain quality of the courses.

Training for job-seekers should not only improve their individual labour market chances, but can also help to meet an economy's labour demand. In 2004 yearly agency-specific training plans were introduced which should explicitly take into account the demand side of local labour markets. Retraining for the unemployed should concentrate on occupations and industries with an increasing demand for skilled labour, so that labour demand can be compensated and participants will likely find a new job after they have finished their course. Positive effects of retraining should be more pronounced if these training plans are appropriate and caseworkers make a correct assessment of the future demand for certain professions. This forecasting may be complicated by the fact that the duration of retraining for a vocational degree is quite long. Moreover, not only the occupation-specific labour market situation is relevant for the success of retraining. Also the participant's suitability for the new occupation plays an important role.

Between 2003 and 2005 also the selection criteria for participants were stricter and employment agencies additionally had to make a forecast about the potential success of participants. This could have affected access to training, because caseworkers had a strong incentive to give vouchers to people with a high reemployment probability, which implies cream skimming effects (Rinne et al. 2013). Besides, it is

[5] Four laws – Hartz I to Hartz IV - were implemented between January 2003 and January 2005. While Hartz I to Hartz III reorganized public employment services and measures of active labour market policy, Hartz IV combined unemployment benefits for long-term unemployed and social assistance benefits to means-tested unemployment benefit II (Jacobi and Kluve 2007).

also likely that unemployed who are far from the labour market are disadvantaged when it comes to the redemption of the training voucher, e. g., because of a lack of information with regard to course offers and greater difficulties to inform themselves about suitable courses (Kruppe 2009). Unemployed without a vocational degree may belong to this group and selection effects induced by the reforms may well affect the effectiveness of retraining. However, only few studies analyse the effects of retraining after the Hartz reforms so far.

Stephan and Pahnke (2011) show that retraining which started in 2003, after the introduction of training vouchers has a strong impact on the employment probability 3.5 years after its start, but accumulated time in employment is relatively low because of the long lock-in period. Doerr et al. (2013) focus on the effect of obtaining a training voucher and among other things also consider retraining. They come to the conclusion that participants experience lock-in effects for more than three years, but 48 months after the start of retraining they have a higher employment probability of 8 percentage points than non-participants and also significantly higher monthly earnings. They also find that retraining performs better than shorter courses and that low-skilled benefit most from receiving a training voucher (although this group has a lower redemption probability, see Kruppe 2009).

In the course of the Hartz reforms, Book II of the Social Code (SGB II) was introduced in 2005 and involved major changes in the organization of unemployment benefits. Unemployment benefits for long-term unemployed and social assistance benefits were combined to means-tested unemployment benefit II. Unemployment benefit II is intended for long-term unemployed people who have exhausted unemployment insurance benefits or people with no or only short employment before registering as unemployed as well as workers with low income below a certain threshold. This group of unemployment benefit II recipients differ from those unemployed receiving unemployment insurance benefits and falling under Book III of the Social Code (SGB III)[6], and retraining might have different effects for these hard-to-place job-seekers. Bernhard and Kruppe (2012) analyse the effects of training for participants according to SGB II and find positive effects on the employment rate of participants of up to 13 percentage points. We also consider the group of unemployment benefit II recipients in our analysis of the effectiveness of retraining.

3 Data description and method

We analyse differences in labour market outcomes between retraining participants and non-participants applying statistical matching techniques. We use data from the Integrated Employment Biographies (IEB)[7] of the Institute for Employment Research

[6] E. g. they are on average less skilled and a higher proportion of women under SGB II are single mothers.

[7] We use version V10.00 of the IEB. For detailed information on (a sample of) the data see Dorner et al. (2010).

(IAB), which is a merged database combining individual records of four different administrative sources of the Federal Employment Agency. The IEB contain information from the IAB Employment History, the IAB Benefit Recipient History, the participants-in-measures data and data on job search originating from the applicants pool database. Besides daily information on employment episodes subject to social security contributions, job search episodes, receipt of transfer payments during unemployment and episodes of programme participation, the data include a wide range of individual characteristics which are essential for the matching procedure. In case of employment spells there is also information on job characteristics and earnings.[8]

The treatment group includes all participants who started retraining between January 2004 and December 2007. As the used version of the IEB contains information up to December 2011 we can follow the participants for at least four years after programme start. Moreover, we draw an inflow sample into unemployment and the resulting control group consists of people who were unemployed at least once between 2004 and 2007 (and whose unemployment spell started after 1999). We include individuals with transitions from employment to unemployment but also, e. g., from vocational training to unemployment or individuals who register as unemployed after a period without information in the data (for example, after times of self-employment or after a period out of the labour force).

As mentioned above, Book II of the Social Code (SGB II) was introduced in 2005 and the resulting new group of unemployment benefit II recipients is very different from those unemployed falling under Book III of the Social Code (SGB III). Thus, we split our sample into three different subsamples and within these subsamples we run separate estimations for male and female participants. The number of retraining participants in the samples can be found in Table 1. The first sample consists of people who were unemployed at least once in 2004 before SGB II was implemented. For the period from 2005 to 2007 we differentiate between retraining for unemployed according to SGB II and SGB III. Out of about 57,000 retraining participants we can use for our estimations almost the half started retraining in 2004. For the period 2005 to 2007 we observe about 19,000 participants according to SGB II and about 10,000 according to SGB III. About 45 % of all participants are women.

Table 1
Participants in different samples

	Male participants	Female participants
2004	14485	12795
2005-2007 SGB II	11011	8124
2005-2007 SGB III	5624	4811

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

[8] In addition to the variables in standard version of the IEB we use additional variables taken from the participants-in-measures data (MTH version V06.02-201204).

We apply propensity score matching separately for men and women within each of the three samples. Let D(t)=1 indicate the start of retraining and D(t)=0 that an unemployed individual did not enter a labour market programme during a certain calendar month t. The variable $Y_h^{D(t)}$ measures the outcome Y (employment, unemployment or earnings) h months after programme start for participants and non-participants. Matching methods identify the average treatment effect on the treated (ATT) by assuming that, given all relevant observable variables X which determine treatment participation and the success of the programme, the outcome without participation $Y_h^{D(t)=0}$ is independent of the treatment status (Conditional Independence Assumption, CIA). In the case of propensity score matching (Rosenbaum and Rubin 1983) the CIA is $Y_h^{D(t)=0} \perp P(X)$ with P(X) indicating the probability to start retraining given observable characteristics X. If this condition holds, the ATT h months after the start of treatment in calendar month t is given by

$$\Delta_{ATT}^{h,t} = E\left(Y_h^{D(t)=1} \middle| P(X), D(t)=1\right) - E\left(Y_h^{D(t)=0} \middle| P(X), D(t)=0\right). \qquad (1)$$

For the 2004 sample we exactly match on 12 calendar months, for the other two samples on 36 calendar months (2005-2007), but we report aggregated mean effects on Y for all t calendar months in which unemployed people may start retraining.

We do not limit our analysis to the first participation in a measure during an unemployment spell but our treatment group also includes retraining participants who participated in other programmes before. Otherwise, we would lose a considerable share of observations as many of the retraining participants in our sample took part in shorter training before they take up a retraining course. These shorter courses before retraining often aim at testing aptitudes of the potential participants. The fact that unemployed individuals could have participated in other courses before is taken into account by using variables for the estimation of the propensity score which control for prior participation in training programmes in the same unemployment spell.

Fredriksson and Johansson (2008) argue that a static matching approach with a classification window conditioning on future outcomes of the comparison group results in biased estimates of the treatment effect. Stephan (2008) also shows that the choice of the comparison group with respect to potential future treatment participation has a strong impact on the matching results. Therefore, we do not restrict the control group to future non-treatment but all unemployed belonging to the comparison group can participate in retraining or any other measure in the following period. The only restriction we impose is that unemployed belonging to the potential control group do not participate in any programme in the month they are matched to a treated individual who starts retraining in this month.

Sianesi (2004) implements a dynamic matching approach where unemployed can be treated at any point in time during their unemployment spell and are matched with unemployed non-participants with the same unemployment duration. As effects

are estimated depending on elapsed unemployment duration, the timing of treatment is taken into account. Fitzenberger et al. (2008) and Biewen et al. (forthcoming), for example, also follow this approach and estimate treatment effects separately for different durations of elapsed unemployment. As we do not find strong differences for individuals with differences in unemployment duration we do not exactly match on elapsed unemployment but include it in the estimation of the propensity score.

The CIA implies that all factors which determine participation in retraining and labour market outcomes are used for matching. Lechner and Wunsch (2013) discuss the importance of different control variables and show that besides personal characteristics, information on the current unemployment spell, regional information, pre-treatment outcomes as well as short-term labour market histories play an important role in successfully controlling for selection. Thus, we include a rich set of explanatory variables in the estimation of the propensity score, which are listed in Table A1 in the appendix.

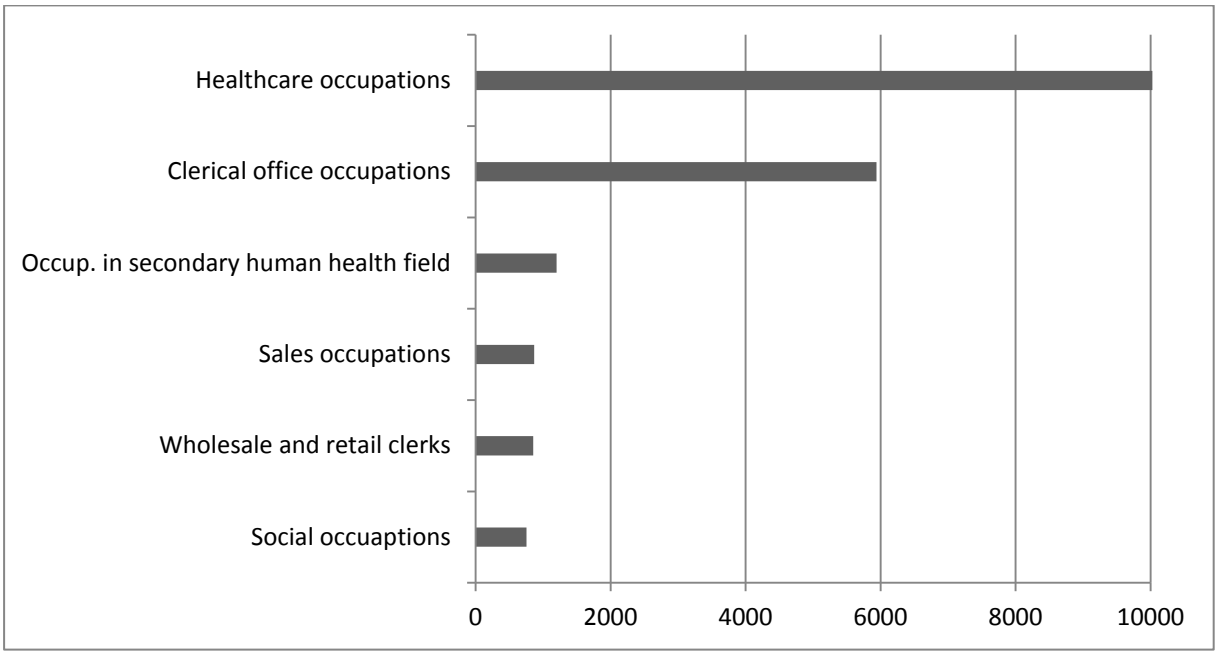
After estimating logit models we match on the predicted propensity score and exactly on calendar month. We apply different matching algorithms like nearest neighbour matching without and with replacement and different numbers of neighbours with and without ties as well as radius matching, which lead to very similar estimated effects. The results reported here are based on nearest neighbour matching with five neighbours with caliper 0.005 and ties, as this algorithm produces the best balancing, especially in the cases where we have relatively few treatment observations. To check the matching quality with respect to balancing, we calculate the standardized bias for all control variables which is always smaller than five (in many cases even smaller than one). If we do not achieve sufficient balancing with our basic specification, we additionally add interaction terms and/or quadratic terms of selected covariates.

In this study heterogeneous treatment effects for different target occupations are taken into account. We aggregate occupations according to the BIBB occupational fields of the Federal Institute for Vocational Education and Training (BIBB). This classification contains 54 categories and aggregates occupations according to their similarity in tasks or work activities (see Tiemann et al. 2008). Aggregating occupations increases the number of observations in the different subgroups and thus the number of occupational groups that we can analyse separately. Figure 1 and Figure 2 show the most important target occupations of male and female participants. Figure 1 indicates that women are strongly concentrated in two occupational fields, healthcare occupations and clerical office occupations. About 40 % of all female participants get retraining in the field of healthcare (mainly as nurse for the elderly[9])

[9] More than 60 % of all participants in the field of healthcare are trained as nurse for the elderly. Other occupations in this field are, for example, physiotherapists, nurses or doctor's assistants.

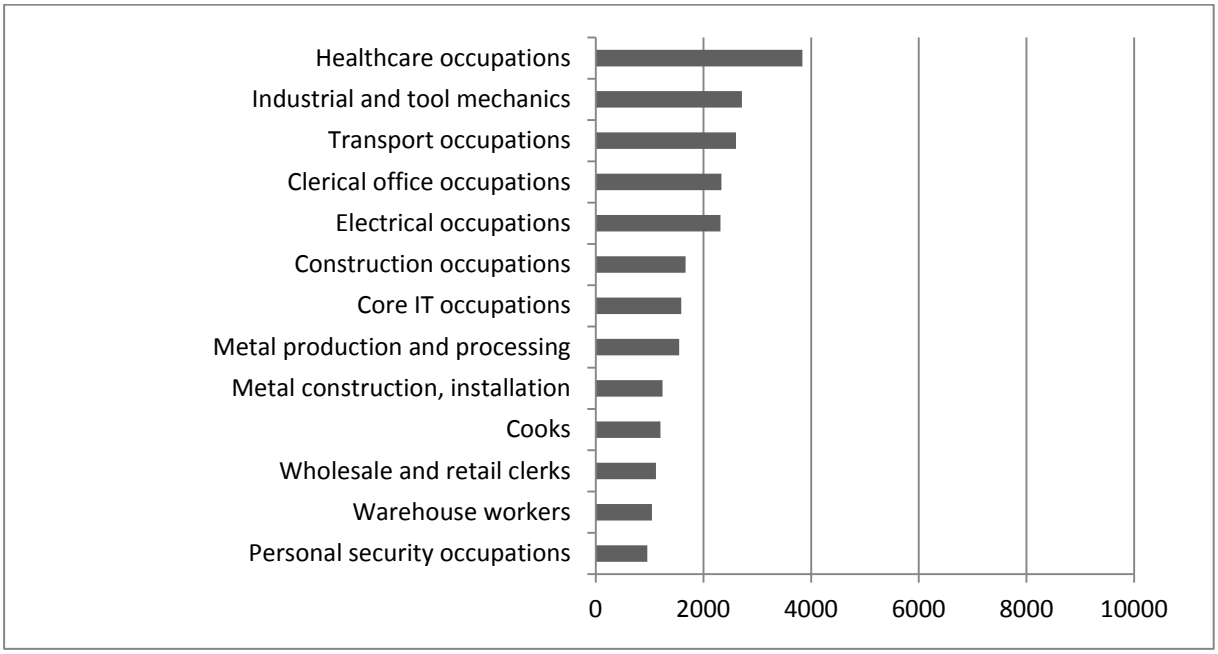
and about 24 % in clerical office occupations. The third most important target occupations are those in the secondary human health field which include occupations like hairdressers, cosmeticians and pedicurists, followed by sales occupations, wholesale and retail clerks and social occupations.

Figure 1
Main target occupations of female participants



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Figure 2
Main target occupations of male participants



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

For men we do not find such a strong accumulation in particular occupations, but participants are much more spread over different target occupations (see Figure 2).[10] Just like for women the most important occupational field is healthcare but the share of male participants with target occupations in this field is less than 13 %. The second most important occupational field is industrial and tool mechanics with about 9 %, followed by transport, office, electrical and construction occupations.

Table 2 shows that men participate in retraining which lasts on average more than 600 days whereas the average duration for female participants is even more than 700 days. This difference can be attributed to different target occupations of men and women, as, similar to initial vocational training, the duration of retraining varies with occupations. Except for sales occupations, all frequent occupations of female participants are among those with relatively long durations. Retraining in the field of healthcare occupations takes the longest. Within this occupational field, many women train as nurses for the elderly which lasts three years.[11] Retraining in the field of transport occupations has the shortest duration.

Table 2
Mean actual and planned duration of retraining (in days)

	Mean (median) actual duration	Mean (median) planned duration
Male participants	612 (698)	659 (726)
Female participants	709 (730)	752 (730)
Transport occupations	488 (593)	515 (626)
Sales occupations	519 (535)	575 (635)
Cooks	532 (638)	609 (640)
Personal security occupations	549 (656)	606 (702)
Construction occupations	566 (698)	609 (730)
Industrial and tool mechanics	578 (699)	630 (724)
Warehouse workers	586 (663)	637 (668)
Core IT occupations	600 (715)	645 (726)
Wholesale and retail clerks	606 (684)	663 (730)
Metal production and processing occupation	609 (726)	668 (730)
Occupations in secondary human health field	611 (712)	654 (726)
Metal construction, installation	629 (730)	688 (730)
Clerical office occupations	649 (700)	692 (729)
Electrical occupations	650 (730)	692 (730)
Social occupations	794 (726)	819 (730)
Healthcare occupations	829 (1088)	872 (1093)

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

[10] A similar pattern can be found for occupational choice of men and women in the case of initial vocational training (see e. g. BMBF 2012).

[11] As mentioned before the duration of retraining is shortened by 1/3 compared to initial vocational training. However, in the case of retraining as a nurse for the elderly which regularly lasts three years, training duration could not be reduced in our observation period, but a reduction of the training period has only been possible again since April 2013.

The success of retraining depends on whether there is a demand for certain professions and the labour market can absorb these trained employees. Figure A1 to Figure A6 in the appendix show employment and unemployment trends during the observation period for the most important target occupational fields of participants. Besides the overall trend of decreasing unemployment and only modest negative effects of the crisis, in most production-related occupations (Figure A1 and Figure A4), which are important target occupations of men, this decreasing trend in unemployment is somewhat more pronounced than in other occupational fields and employment is almost constant. Within the field of production-related professions, the highest unemployment rate and a negative employment trend can be found for construction occupations.

Most of the considered primary service occupations show moderate employment growth (see Figure A5). Among these occupations, the unemployment rate is the lowest for clerical office occupations, followed by wholesale and retail clerks and transport occupations, and it is the highest for cooks (see Figure A2). Especially secondary service occupations like healthcare and social occupations which are mainly chosen by female participants, are characterized by strong employment growth and a low unemployment rate (see Figure A3 and Figure A6). Given the demand for skilled labour varies with occupations, differences between main target occupations of men and women may well explain differences in the effectiveness of retraining.

For the interpretation of our results it is important to keep in mind that participants with different target occupations also differ with respect to other characteristics. Table A2 and Table A3 in the appendix present the mean values of the observable characteristics by gender and occupational fields.[12] Participants in the field of healthcare or social occupations, for example, are relatively old but also more often had obtained a vocational degree before. More than 93 % of all participants with retraining in the field of healthcare or social occupations are German, whereas the share is about 85 % in the field of secondary human healthcare occupations, industrial and tool mechanics and electrical occupations. There are a lot of other differences between treated individuals with different target occupations. Thus, sorting into specific occupations seems to be present. In our estimations we compare participants with a specific target occupation with untreated individuals who are very similar to the subsample of participants, but we cannot compare treated individuals

[12] The previous major occupational field before the beginning of the unemployment spell in Tables A2 and A3 indicates that there is a correlation between former and future occupational field and in some cases a considerable share of participants already had a job in his/her future occupational field before.

with different target occupations.[13] Still, as we have a very high number of control group observations without retraining, we can find very similar matching partners when we compared participants within a certain occupation with non-participants.

4 Results

4.1 Aggregated effects on labour market outcomes

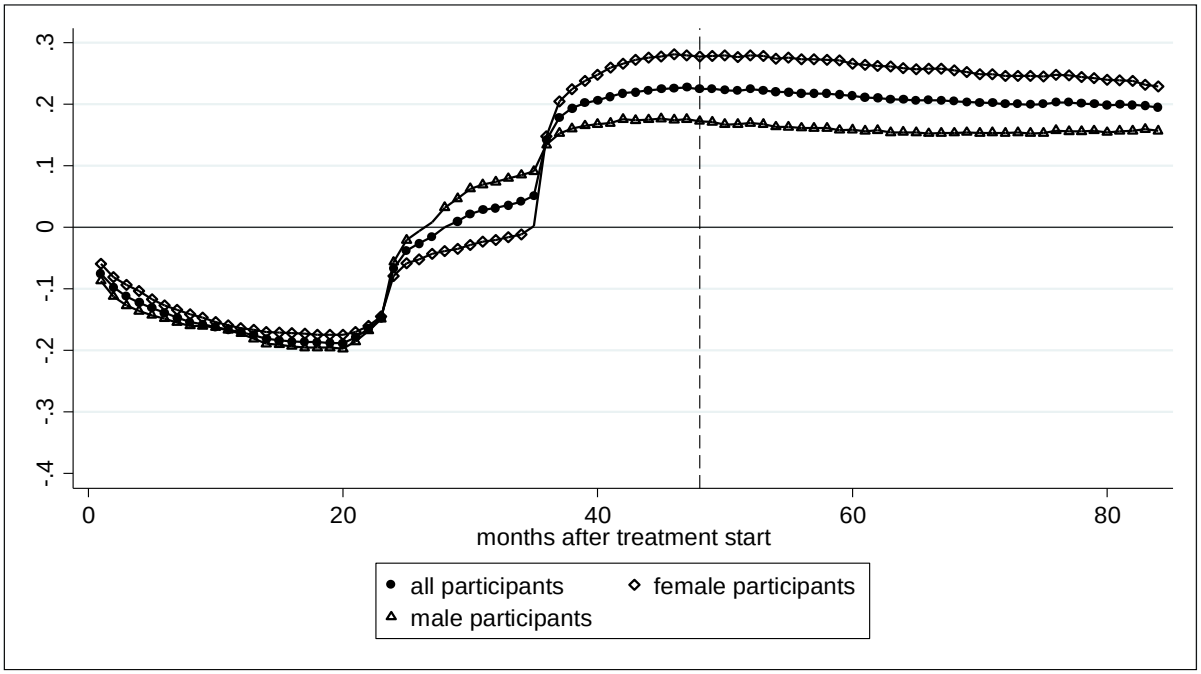
Before the results for different occupations are shown, we present overall effects for the three different samples. For participants starting a course in 2004, we report effects up to seven years after treatment start. For the other two samples with participants starting retraining between 2005 and 2007, we can track their labour market history up to four years after treatment start. Figures 3 to 5 show treatment effects on unsubsidised employment subject to social security contributions for the three different samples.

Participants starting retraining in 2004 experience strong lock-in effects up to about -20 percentage points about 20 months after treatment start (see Figure 3). About 24 months after the beginning of the programme there is a remarkable increase in employment effects as the duration of many retraining courses is about two years (for the distribution of the length of courses see Figure A7 in the appendix). Average treatment effects get positive in the male sample shortly afterwards but, compared to female non-participants, the employment probability of female participants is still lower until about three years after they joined the programme. This longer lock-in period can be explained by the fact that women take part in retraining that lasts longer, especially retraining in the field of healthcare occupations.[14] At the end of the observation period, seven years after treatment start, female participants experience higher effects on the employment rate than male participants. For women the treatment effect is almost 23 percentage points whereas it is 15.7 percentage points for men (see also lower part of Table 3). Note that the employment share for both male and female participants is about 62 % after seven years. The stronger effect in the subsample of women is due to the fact that only about 39 % of the women in the matched control group are employed, whereas the employment share of matched male non-participants is about 46 %.

[13] We also tried a multiple treatment approach (e. g. Lechner et al. 2011) and match participants in different occupations. However, differences seem to be too strong and we did not achieve a satisfying balancing after matching in most cases, also because the number of control observations which can be used for matching is quite low.

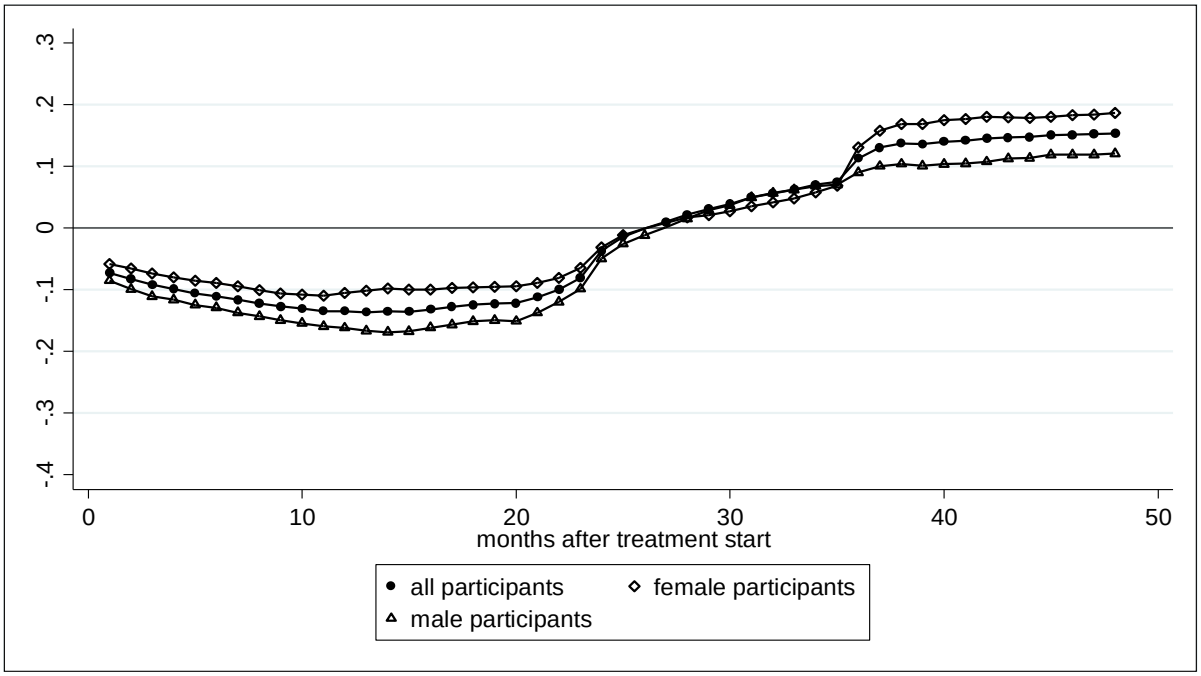
[14] Figure A7 in the appendix shows that for female participants in 2004 the mode of retraining duration is about three years.

Figure 3
Employment effects - participants 2004



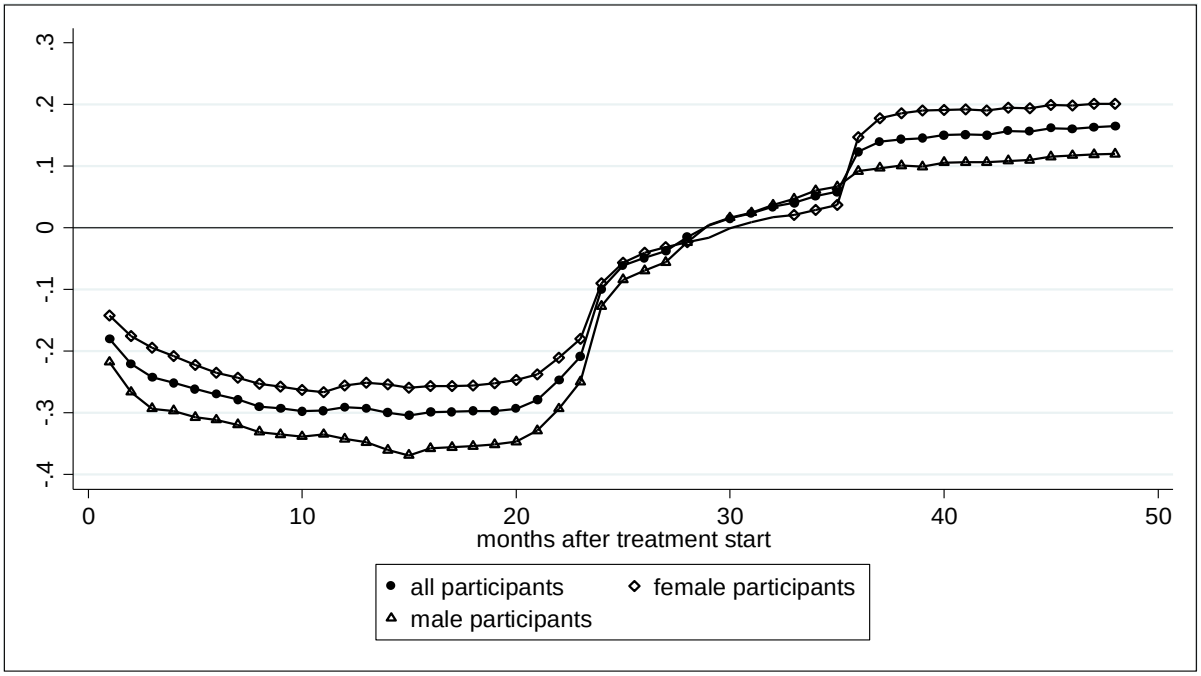
Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Figure 4
Employment effects - participants SGB II (2005-2007)



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Figure 5
Employment effects - participants SGB III (2005-2007)



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

The dashed vertical line indicates the end of the observation window for the samples of participants according to SGB II and SGB III four years after treatment start. Between four and seven years after treatment start, estimated effects do not change substantially. The effects only get somewhat lower. Those unemployed in the control group who do not (or later) start a programme only catch up somewhat after a while. Thus, we can be confident that the estimated effects 48 months after treatment start in the other two samples are meaningful.

For participants according to SGB II, lock-in effects are relatively weak (see Figure 4). This may have different reasons. First, dropout rates could be quite high among this group of disadvantaged unemployed people. Moreover, especially for unemployed according to SGB II priority is given to job placement. It is possible that participants (have to) drop out of retraining early if there is a job opportunity to prevent further benefit receipt. Finally, people in the control group who are not locked-in in the programme but only on job search, still face difficulties to find a new job as they are hard-to-place. Thus, the share of employed people in the control group may not be very high. Our results show that, compared to female non-participants under SGB II, female participants have a lower employment probability of about 10 percentage points during the first months after they started training and effects exceed the zero line after month 26. For men lock-in effects are somewhat stronger. After four years men who participated in retraining have a higher employment rate of about 12 percentage points compared to male non-participants. In the subsample of women according to SGB II the effect on the employment probability is almost 19 percentage points. Again, the share of employed people after four years is with about 45 % very similar for male and female participants (and much lower than in

the 2004 sample), but the percentage of employed non-participants differs by gender. Only 26 % of the women in the matched control group are employed whereas it is about 33 % in the control group of men and thus, estimated treatment effects are stronger for women.

Four years after treatment start, employment effects for participants according to SGB III are very similar (see Figure 5). Female participants have a higher employment probability of about 20 percentage points, male participants of 12 percentage points. However, compared to participants according to SGB II, lock-in effects are much stronger in the SGB III sample. During the first months after beginning of the programme they rise up to -26 percentage points in the subsample of women and to -36 percentage points in the subsample of men. As unemployed according to SGB II are often long-term unemployed and disadvantaged on the labour market, people belonging to the control group of the SGB II sample less often find a job during the lock-in period of the participants compared to unemployed in the control group of the SGB III sample. The fact that unemployed under SGB II have poorer chances on the labour market also reflects in much higher employment shares in the SGB III sample compared to the SGB II sample. 66 % of male participants and 63 % of female participants are employed four years after treatment start. Also the share of employed non-participants is with 44 % for women and 54 % for men much higher.

In addition to monthly employment status, Table 3[15] also shows effects on unemployment status and on accumulated days in employment subject to social security contributions as well as on cumulated earnings from unsubsidised contributory employment after four (seven) years. Although monthly employment effects at the end of the observation period hardly differ for participants according to SGB II and SGB III, we find strong differences in cumulated effects because of a much more pronounced lock-in effect for participants under SGB III. Except for women under SGB II, retraining has a negative impact on cumulated days spent in employment four years after treatment start. These mostly negative effects on cumulated employment after four years also reflect in lower cumulated earnings for most treatment groups.

[15] Differences in the number of observations in Table 3 compared to Table 1 are due to the loss of some observations which are not on the common support.

Table 3
Effects on monthly/cumulated employment, monthly unemployment, cumulated earnings

Sample		2004		2005-2007: SGB II		2005-2007: SGB III	
		Women	Men	Women	Men	Women	Men
Outcomes after 4 years							
Employment		0.277** (0.006)	0.173** (0.006)	0.186** (0.007)	0.121** (0.006)	0.201** (0.009)	0.120** (0.008)
Cumulated employment (days)		-13.36* (5.381)	-32.23** (4.958)	13.28* (5.140)	-44.41** (4.548)	-91.08** (7.893)	-182.70** (7.490)
Unemployment		-0.173** (0.006)	-0.122** (0.005)	-0.143** (0.007)	-0.079** (0.006)	-0.062** (0.006)	-0.062** (0.007)
Cumulated earnings (€)		1001.69** (280.48)	-876.04* (316.44)	2449.44** (239.14)	-727.15** (264.90)	-1940.90** (424.13)	-8886.83** (557.67)
Outcomes after 7 years							
Employment		0.229** (0.007)	0.157** (0.006)				
Cumulated employment (days)		268.01** (10.32)	140.80** (9.53)				
Unemployment		-0.137** (0.006)	-0.107** (0.005)				
Cumulated earnings (€)		16712.63** (571.68)	10428.90** (633.57)				
Mean standardized bias (MSB)	before matching	11.7	12.5	11.1	11.0	11.3	12.8
	after matching	0.7	0.4	0.5	0.4	0.7	0.8
Number of treated individuals		12700	14375	8045	10964	4669	5463

*/** indicates significance at the 5%/1% level. Standard errors in parentheses. Regression-adjusted matching with 5 nearest neighbours and ties

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

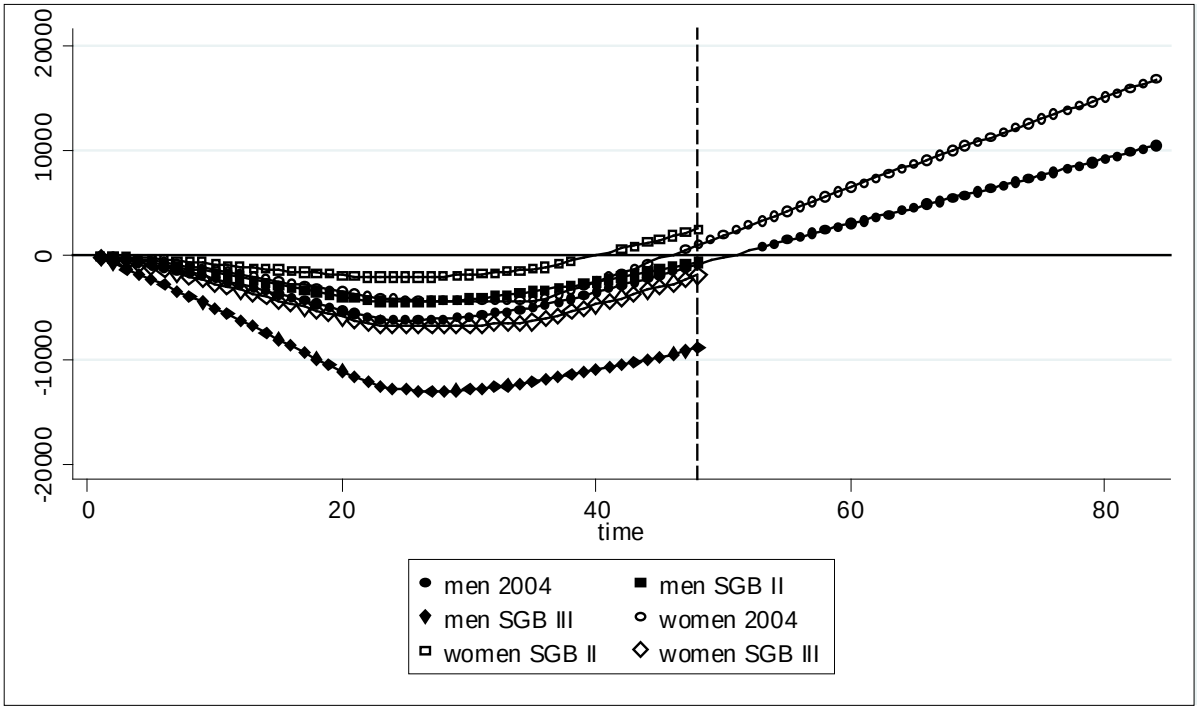
The upper part of Table 3 indicates that only female participants who started retraining in 2004 and female participants according to SGB II realise positive effects on cumulated earnings of about 1000 and 2450 euro after four years. In the case of women in the 2004 sample, the effect on cumulated employment is negative, but the effect on cumulated earnings is positive. This indicates that, given an individual is employed, earnings are higher for participants.

For participants joining a retraining course in 2004, effects seven years after programme start are reported in the lower part of Table 3. It is obvious that, although the effects on monthly outcomes (employment, unemployment) are somewhat weaker than after four years, the impact on cumulated employment and earnings is positive and significant. After seven years female participants have spent about 268 days more in regular employment than non-participants, male participants about 141 days. Cumulated earnings of retraining participants seven years after programme start are about 16700 euro higher for women and about 10400 euro higher for men.

Figure 6 shows the development of cumulated earnings over time. Given the observed course of the curves we could expect the negative cumulated effects in the

SGB II and SGB III samples to disappear and get positive if we observed them for a longer period, where male participants according to SGB III would be the last to reach positive cumulated earnings.

Figure 6
Effects on cumulated earnings (€)



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Looking at unemployment as outcome variable in Table 3, negative unemployment effects are less pronounced than positive employment effects. In month 48 after treatment start they vary from -6.2 percentage points for the SGB III subsamples to -17.3 percentage points for women in 2004. Smaller effects on unemployment imply that a larger share of untreated individuals who do not find a job subject to social security contributions do not register as unemployed any longer. As we do not have any information on individuals who are not employed and not registered as job-seekers, these individuals may, e. g., have dropped out of the labour force or have become self-employed.

Overall, the results show that positive effects of retraining on future labour market outcomes are more pronounced in the 2004 sample and in the female samples. The finding that effects are stronger in the 2004 sample might be explained by different labour market situations when participants finished their courses. With a duration of mostly two to three years, participants starting retraining in 2004 completed their training in a time with increasing labour demand. Participants between 2005 and 2007 could at least partly be affected by the crisis and might have been faced with a situation in which employers reduced hires. One reason for the fact that effects are stronger for female participants might be that women and men are trained for differ-

ent occupations with varying demand. Thus, we estimate treatment effects separately for different target occupations.

4.2 Effects by occupational field

4.2.1 Employment effects

Table 4 shows average treatment effects on employment status four (seven) years after treatment start for male and female participants with different target occupations (with each more than 350 treated individuals who are trained for the specific occupation). As female participants are strongly concentrated in very few occupations, we have less occupational fields to analyse. For the groups of male and female participants there is an overlap of three frequent occupational fields, healthcare occupations, office occupations and wholesale and retail clerks.

The results in the upper part of Table 4 indicate that, four years after treatment start, for male participants in 2004 the most successful professions are healthcare and transport occupations as well as some production-related occupations (occupations in metal production and processing, industrial and tool mechanics, occupations in metal construction and installation). Retraining in one of these occupational fields increases the employment probability of men by more than 20 percentage points. Seven years after treatment start effects are somewhat lower for most occupations.

For unemployment benefit II recipients also retraining in the field of healthcare occupations and transport occupations has the strongest employment effects for men (with about 24 and 20 percentage points after four years). For the group of male participants according to SGB III we report results only for six different occupations where we each observe more than 350 participants with a certain occupation. Again, target occupations in the field of healthcare increase the employment probability of participants the most. The success of retraining in this occupational field is not surprising given the high demand for such occupations which reflects in increasing employment and decreasing unemployment rates during the last years (see Figure A3 and Figure A6).

Table 4
Employment effects for participants with different target occupations

Sample	2004			2005-2007: SGB II		2005-2007: SGB III	
	after 4 years	*after 7 years*	# Treated [MSB]	after 4 years	# Treated [MSB]	after 4 years	# Treated [MSB]
Male participants							
Transport occupations	0.266** (0.015)	*0.225*** *(0.015)*	1418 [0.9]	0.200** (0.019)	793 [1.2]	0.146** (0.027)	368 [1.5]
Metal production and processing	0.251** (0.023)	*0.206*** *(0.024)*	459 [1.2]	0.157** (0.021)	629 [1.0]	0.108** (0.025)	440 [1.2]
Healthcare occupations	0.248** (0.012)	*0.219*** *(0.012)*	2159 [0.7]	0.239** (0.017)	1075 [0.9]	0.184** (0.023)	505 [1.6]
Industrial and tool mechanics	0.244** (0.017)	*0.210*** *(0.017)*	975 [1.0]	0.148** (0.018)	988 [0.9]	0.124** (0.022)	664 [1.5]
Metal construction, installation	0.215** (0.022)	*0.169*** *(0.022)*	558 [1.1]	0.125** (0.027)	401 [1.3]		
Warehouse workers	0.186** (0.025)	*0.200*** *(0.024)*	472 [1.2]	0.081** (0.028)	369 [1.2]		
Electrical occupations	0.171** (0.016)	*0.158*** *(0.016)*	1117 [1.0]	0.154** (0.020)	766 [1.1]	0.174** (0.025)	417 [1.6]
Personal security occupations	0.169** (0.028)	*0.119*** *(0.028)*	390 [1.4]	0.129** (0.026)	418 [1.3]		
Wholesale and retail clerks	0.146** (0.023)	*0.127*** *(0.023)*	578 [1.3]	0.088** (0.028)	356 [1.4]		
Core IT occupations	0.103** (0.021)	*0.116*** *(0.021)*	751 [1.1]	0.119** (0.022)	605 [1.2]		
Construction occupations	0.103** (0.019)	*0.092*** *(0.019)*	807 [0.8]	0.087** (0.022)	582 [1.1]		
Clerical office occupations	0.086** (0.018)	*0.107*** *(0.018)*	962 [0.9]	0.031 (0.017)	914 [0.8]	0.097** (0.026)	435 [1.6]
Cooks	0.074** (0.024)	*0.065*** *(0.024)*	517 [1.2]	0.034 (0.022)	530 [1.0]		
Female participants							
Healthcare occupations	0.360** (0.009)	*0.298*** *(0.009)*	5532 [0.8]	0.304** (0.011)	2755 [0.7]	0.281** (0.013)	1777 [1.1]
Social occupations	0.299** (0.024)	*0.349*** *(0.022)*	530 [1.9]				
Clerical office occupations	0.223** (0.011)	*0.210*** *(0.011)*	2825 [0.7]	0.137** (0.013)	1868 [0.8]	0.209** (0.016)	1212 [1.4]
Sales occupations				0.133** (0.026)	379 [1.4]		
Wholesale and retail clerks	0.186** (0.028)	*0.135*** *(0.028)*	386 [1.6]				
Occupations in secondary human health field	0.033 (0.022)	*-0.034* *(0.023)*	534 [1.2]	0.048* (0.024)	415 [1.3]		

*/** indicates significance at the 5%/1% level. Standard errors in parentheses, mean standardized bias after matching in square brackets. Matching with 5 nearest neighbours and ties.

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

The least effective target occupations for men in the 2004 sample are construction occupations, clerical office occupations and cooks. Training as a cook induces the lowest increase in the employment probability of treated individuals of 7.4 percentage points after four years and 6.5 percentage points after seven years. Note that cook is the occupation with the highest unemployment rate of all professions considered in our analysis (see Figure A2). Also construction occupations are characterized by a relatively high unemployment rate and a negative employment trend (Figure A1 and A4), thus the results can be explained by specific labour market conditions. In the SGB II and SGB III samples, the lowest effects can be found for men receiving retraining in clerical office occupations. In the case of unemployment benefit II recipients, the average effect on employment probability of 3.1 percentage points is even insignificant. The same is true for the treatment effect of training as a cook of 3.4 percentage points. In contrast to cooks, the moderate effects of retraining in the field of office occupations cannot be explained by difficult labour market conditions (see Figure A2 and Figure A7). Another explanation for weak effects could be higher drop-out rates in certain occupations. Unfortunately, we do not have reliable information on the nature of termination of retraining. However, in the case of initial vocational training, drop-out rates of apprentices who get trained as cooks, for example, are among the highest (BMBF 2012).

The lower part of Table 4 presents the results for the most frequent target occupations of female participants. For the 2004 sample and the SGB II sample we each observe four different occupational fields with more than 350 participants, for the SGB III sample we only estimate treatment effects for healthcare occupations and clerical office occupations. Again, after four years, similar to the effects for male participants, the employment effects of retraining in healthcare occupations are with 28.1 to 36.0 percentage points among the highest, together with social occupations and clerical office occupations. Similar to men, the impact on the employment probability of women in most cases gets somewhat lower after seven years. The least successful ones of the frequently chosen occupations are those in the secondary human health field. Only for the sample of unemployment benefit II recipients there are relatively small significant effects of 4.8 percentage points.

Overall, both for male and female participants we find a strong heterogeneity in the employment effects for different target occupations, varying from about 3 to about 26 percentage points for men and from insignificant negative effects up to 36 percentage points for women. However, as participants in different occupations differ with respect to observable characteristics, no statement can be made whether participants with a specific occupation would realise higher or weaker effects if they had chosen another occupation.

Finally, for three occupational fields we obtain estimates both for women and men. For women, employment effects of retraining in the fields of healthcare and clerical office occupations exceed those of men in the same occupational fields by about 10 percentage points. Only in the case of retraining as a wholesale or retail clerk the effects are only slightly higher for female participants. Thus, although women are more frequently retrained in one of the most successful occupational fields, namely healthcare occupations, this cannot completely explain gender differences in the overall effect. Even within specific occupational fields differences with respect to gender can be found.

4.2.2 Unemployment effects

Again, in addition to employment we also consider unemployment as well as cumulated employment and earnings as outcome variables. The effects on monthly unemployment are reported in Table 5. For most occupations effects are weaker than those on employment. The only group for which (absolute) unemployment effects are stronger than employment effects is female participants in occupations in the secondary human health field. This implies that the share of women who neither are employed nor registered as unemployed and maybe are out of labour force after four (seven) years is higher among participants. However, as we only observe employment subject to social security contributions, this could also indicate that a remarkable share of women with an occupation in this field became self-employed. This is quite conceivable as this occupational field includes professions like beautician, chiropodist or hairdresser. If this was the case, positive effects of retraining in this occupational field would be underestimated in a way, as we do not have any information on self-employment and corresponding earnings. For those occupations which are frequently chosen both by men and women, we again mostly find stronger effects in the samples of women.

Table 5
Unemployment effects for participants with different target occupations

Sample	2004			2005-2007: SGB II		2005-2007: SGB III	
	after 4 years	*after 7 years*	# Treated [MSB]	after 4 years	# Treated [MSB]	after 4 years	# Treated [MSB]
Male participants							
Transport occupations	-0.190** (0.014)	*-0.132** (0.013)*	1418 [0.9]	-0.142** (0.019)	793 [1.2]	-0.049* (0.022)	368 [1.5]
Metal construction, installation	-0.178** (0.018)	*-0.149** (0.018)*	558 [1.1]	-0.084** (0.026)	401 [1.3]		
Industrial and tool mechanics	-0.170** (0.015)	*-0.117** (0.015)*	975 [1.0]	-0.087** (0.017)	988 [0.9]	-0.052** (0.018)	664 [1.5]
Healthcare occupations	-0.157** (0.011)	*-0.144** (0.010)*	2159 [0.7]	-0.196** (0.016)	1075 [0.9]	-0.121** (0.017)	505 [1.6]
Metal production and processing	-0.157** (0.021)	*-0.105** (0.021)*	459 [1.2]	-0.090** (0.021)	629 [1.0]	-0.047* (0.020)	440 [1.2]
Electrical occupations	-0.125** (0.015)	*-0.103** (0.014)*	1117 [1.0]	-0.094** (0.019)	766 [1.1]	-0.093** (0.020)	417 [1.6]
Construction occupations	-0.099** (0.018)	*-0.104** (0.017)*	807 [0.8]	-0.098** (0.022)	582 [1.1]		
Warehouse workers	-0.095** (0.023)	*-0.085** (0.021)*	472 [1.2]	-0.034 (0.028)	369 [1.2]		
Wholesale and retail clerks	-0.095** (0.020)	*-0.066** (0.019)*	578 [1.3]	-0.036 (0.028)	356 [1.4]		
Personal security occupations	-0.077** (0.027)	*-0.064** (0.025)*	390 [1.4]	-0.082** (0.026)	418 [1.3]		
Core IT occupations	-0.069** (0.019)	*-0.058** (0.018)*	751 [1.1]	-0.067** (0.022)	605 [1.2]		
Clerical office occupations	-0.049** (0.017)	*-0.073** (0.015)*	962 [0.9]	0.021 (0.018)	914 [0.8]	-0.056** (0.022)	435 [1.6]
Cooks	-0.044 (0.024)	*-0.062** (0.023)*	517 [1.2]	-0.011 (0.023)	530 [1.0]		
Female participants							
Healthcare occupations	-0.216** (0.008)	*-0.177** (0.007)*	5532 [0.8]	-0.256** (0.010)	2755 [0.7]	-0.106** (0.008)	1777 [1.1]
Social occupations	-0.164** (0.020)	*-0.165** (0.017)*	530 [1.9]				
Occupations in secondary human health field	-0.139** (0.023)	*-0.075** (0.022)*	534 [1.2]	-0.071** (0.026)	415 [1.3]		
Clerical office occupations	-0.129** (0.010)	*-0.115** (0.009)*	2825 [0.7]	-0.079** (0.013)	1868 [0.8]	-0.037** (0.013)	1212 [1.4]
Sales occupations				-0.116** (0.028)	379 [1.4]		
Wholesale and retail clerks	-0.110** (0.026)	*-0.072** (0.024)*	386 [1.6]				

*/** indicates significance at the 5%/1% level. Standard errors in parentheses, mean standardized bias after matching in square brackets. Matching with 5 nearest neighbours and ties.

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

4.2.3 Effects on cumulated employment

When looking at heterogeneous effects on cumulated employment in Table 6, different aspects must be considered. Besides monthly employment effects after participation, the duration and magnitude of the lock-in effect affect cumulated employment and the length of retraining varies with occupations. Four years after treatment start treatment effects on cumulated employment are mostly negative and in many cases significant. The only target occupations for men which entail positive effects on cumulated employment after four years are transport occupations (in the 2004 sample and the SGB II sample). This is not surprising as retraining in the field of transport occupations has the shortest duration (see Table 2) and very strong effects on monthly employment in the 2004 sample and the SGB II sample (see Table 3). Also for women effects on cumulated employment after four years are mainly negative, except for participants according to SGB II who are retrained in the field of healthcare occupations or sales occupations.[16] Moreover, the results for the 2004 sample show that after seven years cumulated employment effects are positive and significant for many occupational fields. Exceptions are those occupations, which are also characterized by small effects on monthly employment probability (e. g. cooks and occupations in the secondary human health field).

4.2.4 Effects on cumulated earnings

Finally, we consider cumulated earnings as outcome, which are determined by employment rates and monthly earnings given an individual has found a new job. The results are presented in Table 7. Overall, the sign and significance of the effects for different target occupations for the three different samples are often similar to those of the effects on cumulated employment. However, there are also some occupations for which no positive effect on cumulated employment was found after four years but for which effects on cumulated earnings are positive. Male participants according to SGB II who are trained as industrial or tool mechanic as well as female participants according to SGB II who receive retraining in the field of office occupations realise negative effects on cumulated employment but positive effects on cumulated earnings. As mentioned above, this can be explained by the fact that on average employed participants also benefit from higher monthly earnings compared to employed non-participants. However, whether post-treatment earnings really are higher for participants also depends on occupations. Our data shows that there is no earnings advantage for participants with retraining in the field of personal security occupations and sales occupations. Male participants who get retraining as a cook as well as female participants with retraining in occupations in the secondary human

[16] This positive effect on cumulated employment for healthcare occupations seems surprising, as retraining in the field of healthcare has on average the longest duration (see Table 2). Note however, that female participants under SGB II less often participate in courses which last about three years (see Figure A7), and this is also the case for retraining for occupations in the field of healthcare, where this long courses mostly can be found.

health field even earn less than matched employed non-participants. At this point the question arises, whether having higher job chances but, given somebody found a job, lower earnings than non-participants in some occupations is really intended.

Table 6
Cumulated days in employment (subject to social security contributions)

Sample	2004			2005-2007: SGB II		2005-2007: SGB III	
	after 4 years	*after 7 years*	# Treated [MSB]	after 4 years	# Treated [MSB]	after 4 years	# Treated [MSB]
Male participants							
Transport occupations	146.55** (11.67)	*400.79*** *(22.44)*	1418 [0.9]	92.92** (14.41)	793 [1.2]	16.09 (24.20)	368 [1.5]
Metal production and processing	25.77 (18.23)	*198.97*** *(36.64)*	459 [1.2]	-55.37** (14.47)	629 [1.0]	-231.22** (20.04)	440 [1.2]
Warehouse workers	21.96 (18.00)	*225.12*** *(37.21)*	472 [1.2]	-57.67** (18.78)	369 [1.2]		
Industrial and tool mechanics	15.29 (12.94)	*215.24*** *(26.08)*	975 [1.0]	-2.47 (13.55)	988 [0.9]	-184.58** (18.57)	664 [1.5]
Personal security occupations	-8.74 (18.90)	*148.24*** *(40.78)*	390 [1.4]	-1.93 (19.66)	418 [1.3]		
Metal construction, installation	-19.25 (16.02)	*150.65*** *(32.24)*	558 [1.1]	-53.078** (19.36)	401 [1.3]		
Wholesale and retail clerks	-21.05 (16.47)	*117.03*** *(33.55)*	578 [1.3]	-65.30** (20.58)	356 [1.4]		
Cooks	-28.29 (17.75)	*46.97 (35.26)*	517 [1.2]	-97.96** (13.74)	530 [1.0]		
Construction occupations	-39.15** (13.22)	*42.54 (27.25)*	807 [0.8]	-63.45** (14.17)	582 [1.1]		
Electrical occupations	-50.23** (11.63)	*106.82*** *(24.32)*	1117 [1.0]	-56.95** (13.21)	766 [1.1]	-210.52** (19.56)	417 [1.6]
Core IT occupations	-81.39** (15.39)	*44.83 (32.14)*	751 [1.1]	-86.74** (14.88)	605 [1.2]		
Clerical office occupations	-71.91** (13.31)	*44.966 (27.65)*	962 [0.9]	-103.17** (11.84)	914 [0.8]	-193.62** (21.41)	435 [1.6]
Healthcare occupations	-138.13** (8.72)	*143.02*** *(17.82)*	2159 [0.7]	-28.78* (11.66)	1075 [0.9]	-251.59** (19.45)	505 [1.6]
Female participants							
Sales occupations				48.41* (19.00)	379 [1.4]		
Wholesale and retail clerks	15.82 (19.91)	*191.62*** *(40.47)*	386 [1.6]				
Clerical office occupations	6.98 (8.14)	*234.98*** *(16.45)*	2825 [0.7]	-17.42* (8.80)	1868 [0.8]	-19.45 (13.22)	1212 [1.4]
Healthcare occupations	-50.07** (7.20)	*319.21*** *(13.75)*	5532 [0.8]	66.82** (7.90)	2755 [0.7]	-113.63** (11.18)	1777 [1.1]
Social occupations	-53.71** (17.32)	*334.52*** *(33.41)*	530 [1.9]				
Occupations in secondary human health field	-63.92** (15.16)	*-64.44** *(32.48)*	534 [1.2]	-63.91** (15.23)	415 [1.3]		

*/** indicates significance at the 5%/1% level. Standard errors in parentheses, mean standardized bias after matching in square brackets. Matching with 5 nearest neighbours and ties.

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Table 7
Cumulated earnings (from employment subject to social security contributions)

Sample	2004			2005-2007: SGB II		2005-2007: SGB III	
	after 4 years	*after 7 years*	# Treated [MSB]	after 4 years	# Treated [MSB]	after 4 years	# Treated [MSB]
Male participants							
Transport occupations	10284.57** (741.90)	*26826.82*** *(1476.31)*	1418 [0.9]	8392.43** (906.39)	793 [1.2]	3194.32 (1707.71)	368 [1.5]
Metal production and processing	4958.73** (1302.96)	*20137.83*** *(2816.70)*	459 [1.2]	308.59 (931.15)	629 [1.0]	-10092.95** (1502.78)	440 [1.2]
Industrial and tool mechanics	3225.06** (886.975)	*19559.73*** *(1906.41)*	975 [1.0]	3439.09** (887.66)	988 [0.9]	-4996.57** (1469.34)	664 [1.5]
Warehouse workers	1923.24 (1160.03)	*13572.34*** *(2478.05)*	472 [1.2]	-2545.86* (1032.47)	369 [1.2]		
Metal construction, installation	1404.21 (1119.65)	*14850.62*** *(2379.40)*	558 [1.1]	835.19 (1277.83)	401 [1.3]		
Construction occupations	-507.82 (849.79)	*6501.92*** *(1812.82)*	807 [0.8]	-1680.82** (809.88)	582 [1.1]		
Personal security occupations	-772.82 (1082.19)	*7112.84*** *(2401.38)*	390 [1.4]	-211.28 (1045.56)	418 [1.3]		
Wholesale and retail clerks	-972.44 (1112.08)	*7938.29*** *(2396.18)*	578 [1.3]	-2189.68 (1177.42)	356 [1.4]		
Electrical occupations	-2394.43** (783.74)	*8045.17*** *(1716.25)*	1117 [1.0]	-736.18 (812.27)	766 [1.1]	-11461.93** (1368.60)	417 [1.6]
Cooks	-3302.25** (1004.05)	*-2017.03* *(2050.91)*	517 [1.2]	-5317.85** (685.53)	530 [1.0]		
Core IT occupations	-3506.27** (1119.39)	*5513.84** *(2440.04)*	751 [1.1]	-1985.94* (930.12)	605 [1.2]		
Clerical office occupations	-4004.89** (902.42)	*2449.034* *(1959.39)*	962 [0.9]	-4520.74** (709.96)	914 [0.8]	-9208.67** (1605.30)	435 [1.6]
Healthcare occupations	-7831.45** (562.56)	*7907.06*** *(1194.47)*	2159 [0.7]	-1113.01 (630.74)	1075 [0.9]	-15158.98** (1313.47)	505 [1.6]
Female participants							
Wholesale and retail clerks	1971.13 (1041.57)	*10869.26*** *(2188.85)*	386 [1.6]				
Clerical office occupations	1826.40** (431.70)	*14076.33*** *(921.02)*	2825 [0.7]	1183.45** (432.28)	1868 [0.8]	1088.26 (756.08)	1212 [1.4]
Social occupations	914.26 (988.23)	*25184.60*** *(2025.05)*	530 [1.9]				
Healthcare occupations	-233.38 (374.82)	*20995.70*** *(765.23)*	5532 [0.8]	5335.51** (358.56)	2755 [0.7]	-2968.02** (566.96)	1777 [1.1]
Sales occupations				801.85 (741.28)	379 [1.4]		
Occupations in secondary human health field	-3981.96** (628.71)	*-5638.53*** *(1404.38)*	534 [1.2]	-2905.29** (580.15)	415 [1.3]		

*/** indicates significance at the 5%/1% level. Standard errors in parentheses, mean standardized bias after matching in square brackets. Matching with 5 nearest neighbours and ties.

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Relatively low earnings after retraining may be explained by the fact that some occupations are just badly paid. Another reason might be that participants often do not complete retraining in certain occupations and thus still work as unskilled workers. Besides, another possible explanation is that after completing training the job perspectives or working conditions in the learnt occupation are so unattractive that participants rather work in unskilled jobs.

After seven years retraining in almost all occupational fields has a positive impact on cumulated earnings in the sample of participants starting retraining in 2004. Only men with retraining as a cook or in the field of office occupations as well as women with retraining in the secondary human health field do not realise significant positive effects on cumulated earnings, in the latter case the effect is even negative. This is not surprising as these occupations are characterized by insignificant or even negative effects on cumulated employment subject to social security contributions and no gains in post-treatment earnings.

5 Conclusion

In this paper we analyse the role of target occupations for the labour market effects of retraining. First, we find that participants in different occupations also differ with respect to observable characteristics. This indicates that there is sorting into specific occupations, which can be driven both by the caseworker and the participant.

We estimate the effects of retraining for a period after major labour market reforms in Germany and find that training for a new vocational degree which started between 2004 and 2007 strongly increases employment prospects of participants. This is also true for the group of unemployment benefit II recipients who are often long-term unemployed and disadvantaged in the labour market. As retraining is characterized by strong lock-in effects, effects on cumulated employment and earnings are less pronounced and can only be observed after several years. Overall we find that retraining in almost all occupations positively affects the labour market prospects of participants.

Moreover, female participants realise higher effects on labour market outcomes than male participants. Taking into account different target occupations reveals that differences in occupational choice do not fully explain gender differences in treatment effects. Still, the major target occupations of women, occupations in the field of healthcare, are one of those which affect future employment the most, both for female and male retraining participants. However, the average duration of retraining in these occupations is among the longest and thus it also entails strong lock-in effects.

Among the frequently chosen occupations of men, besides healthcare occupations, retraining in the field of transport occupations or in some production-related occupations has a strong impact on employment prospects of participants. Retraining as a cook and retraining in the field of clerical office occupations or construction occupa-

tions has the smallest effects on employment and also relatively weak or no effects on unemployment and earnings. Looking at the most important target occupations of female participants, occupations in the secondary human health field are the least effective ones, at least with respect to effects on employment subject to social security contributions. However, in most of the cases also for these “less successful” occupations we observe a significant positive and non-negligible impact on employment probabilities of participants, and there are hardly any occupations which do not improve employment chances of participants at all.

As participants with different target occupations also differ with respect to observable characteristics and we measure treatment effects on the treated in comparison to untreated non-participants, we cannot determine whether choosing another occupation would entail stronger effects. This could indicate that the assignment to specific occupations is in some way systematic. Finally, personal preferences and aptitudes of the participants will be crucial for the choice of a suitable occupation.

References

Biewen, M.; Fitzenberger, B.; Osikominu, A.; Waller, M. (2007): Which program for whom? Evidence on the comparative effectiveness of public sponsored training programs in Germany, IZA Discussion Paper 2885.

Biewen M.; Fitzenberger, B.; Osikominu, A. and M. Paul (forthcoming): The Effectiveness of Public Sponsored Training Revisited: The Importance of Data and Methodological Choices, Journal of Labor Economics.

Bernhard, S. and T. Kruppe (2012): Effectiveness of Further Vocational Training in Germany - Empirical Findings for Persons Receiving Means-tested Unemployment Benefits, Journal of Applied Social Science Studies, 132, 501–526.

Bundesministerium für Bildung und Forschung, BMBF (2012): Berufsbildungsbericht 2013, Bonn, Berlin.

Bogai, D.; Buch, T. and Seibert, H. (2014): Arbeitsmarktchancen von Geringqualifizierten: Kaum eine Region bietet genügend einfache Jobs, IAB-Kurzbericht 11/2014.

Cahuc, P.; Carcillo S. and K. Zimmermann (2013): Youth Unemployment in Old Europe: The Polar Cases of France and Germany, IZA Journal of European Labor Studies, 2:18.

Card, D.; Kluve, J. and A. Weber (2010): Active Labor market policy evaluations: A meta-analysis, The Economic Journal 120 (548), F452–F477.

Crépon, B.; Ferracci, M. and D. Fougère (2012): Training the Unemployed in France: How Does it Affect Unemployment Duration and Recurrence?, Annales d’Economie et de Statistique 107/108, 175–200.

Doerr, A.; Paul, M.; Fitzenberger, B.; Kruppe, T. and A. Strittmatter (2013): The Award of a Training Voucher and Labor Market Outcomes, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2013: Wettbewerbspolitik und Regulierung in einer globalen Wirtschaftsordnung.

Dorner, M.; Heining, J.; Jacobebbinghaus, P. and S. Seth (2010): The sample of integrated labour market biographies, Schmollers Jahrbuch 130, 599–608.

Dorsett, R. (2006): The new deal for young people: effect on the labour market status of young men, Labour Economics 13, 405–422.

Dyke, A.; Heinrich, C.; Mueser, P.; Troske, K and K.-S. Jeon (2006): The Effects of Welfare-to-Work Program Activities on Labor Market Outcomes, Journal of Labor Economics 24, 567–607.

Eurostat (2012): Labour market policy – expenditure and participants, Eurostat Statistical Books, 2012 Edition.

Fitzenberger, B. and R. Völter (2007): Long-run effects of training programs for the unemployed in East Germany, Labour Economics 14, 370–755.

Fitzenberger, B.; Osikominu, A. and R. Völter (2008): Get training or wait? Long-run employment effects of training programs for the unemployed in West Germany, Annales d'Economie et de Statistique, 91/92, 321–355.

Fredriksson, P. and P. Johansson (2008): Dynamic treatment assignment, Journal of Business & Economic Statistics 26, 435–445.

Heinrich, C.; Mueser, P.; Troske, K.; Jeon, K.-S. and Kahvecioglu, D. (2013): Do public employment and training programs work?, IZA Journal of Labor Economics 2:6.

Hotz, J.; Imbens, G. and J. Klerman (2006): Evaluating the Differential Effects of Alternative Welfare-to-Work Training Components: A Reanalysis of the California GAIN Program, Journal of Labor Economics 24, 521–566.

Jacobi, L. and J. Kluve (2007): Before and After the Hartz Reforms: The Performance of Active Labour Market Policy in Germany, Journal for Labour Market Research 1/2007, 45–64.

Jespersen, S.; Munch, J. and L. Skipper (2008): Costs and benefits of Danish active labour market programmes, Labour Economics 15, 859–884.

Kleinert, C. and H. Dietrich (2006): Einstiege in Pflegeberufe aus der Arbeitslosigkeit. Beschäftigungschance oder Sackgasse?, in: Pundt, J. (ed.), Professionalisierung im Gesundheitswesen. Positionen - Potentiale - Perspektiven, Handbuch Gesundheitswissenschaften, Bern: Huber, 246–265.

Kluve, J. (2010): The effectiveness of European active labor market programs, Labour Economics 17, 904–918.

Kruppe, T. (2009): Bildungsgutscheine in der aktiven Arbeitsmarktpolitik, Sozialer Fortschritt 58, 9–19.

Lalive, R.; van Ours, J. and J. Zweimüller (2008): The Impact of Active Labour Market Programmes on the Duration of Unemployment in Switzerland, Economic Journal 118, 235–257.

Lechner, M.; Miquel, R. and C. Wunsch (2007): The Curse and Blessing of Training the Unemployed in a Changing Economy: The Case of East Germany after Unification, German Economic Review 8, 468–509.

Lechner, M.; Miquel, R. and C. Wunsch (2011): Long-Run Effects of Public Sector Sponsored Training in West Germany, The Journal of the European Economic Association 9, 742–784.

Lechner, M. and C. Wunsch (2009): Active Labour Market Policy in East Germany: Waiting for the Economy to take off, Economics of Transition 17, 661–702.

Lechner, M. and C. Wunsch (2013): Sensitivity of matching-based program evaluations to the availability of control variables, Labour Economics 21(C), 111–121.

Osikominu, A. (2013): Quick Job Entry or Long-Term Human Capital Development? The Dynamic Effects of Alternative Training Schemes, Review of Economic Studies, 80 (1), 313–342.

Rosenbaum, P. and D. Rubin (1983): The Central Role of the Propensity Score in Observational Studies for Causal Effects, Biometrika 70, 41–55.

Rinne, U.; Uhlendorff, A. and Z. Zhao (2013): Vouchers and Caseworkers in Training Programs for the Unemployed, Empirical Economics 45(3), 1089–1127.

Sianesi, B. (2004): An Evaluation of the Swedish System of Active Labor Market Programs in the 1990s, The Review of Economics and Statistics, 86, 133–155.

Sianesi, B. (2008): Differential effects of active labour market programs for the unemployed, Labour Economics 15, 370–399.

Stephan, G. (2008): The effects of active labor market programs in Germany. An investigation using different definitions of non-treatment, Jahrbücher für Nationalökonomie und Statistik 228(5/6), S. 586–611.

Stephan, G., and A. Pahnke (2011): The Relative Effectiveness of Selected Active Labour Market Programmes and the Common Support Problem, The Manchester School 79, 1262–1293.

Tiemann, M.; Schade, H.-J.; Helmrich, R.; Hall, A.; Braun U. and P. Bott (2008): Berufsfeld-Definitionen des BIBB auf Basis der KldB 1992, Zweite Fassung, Stand: 29. Mai 2008.

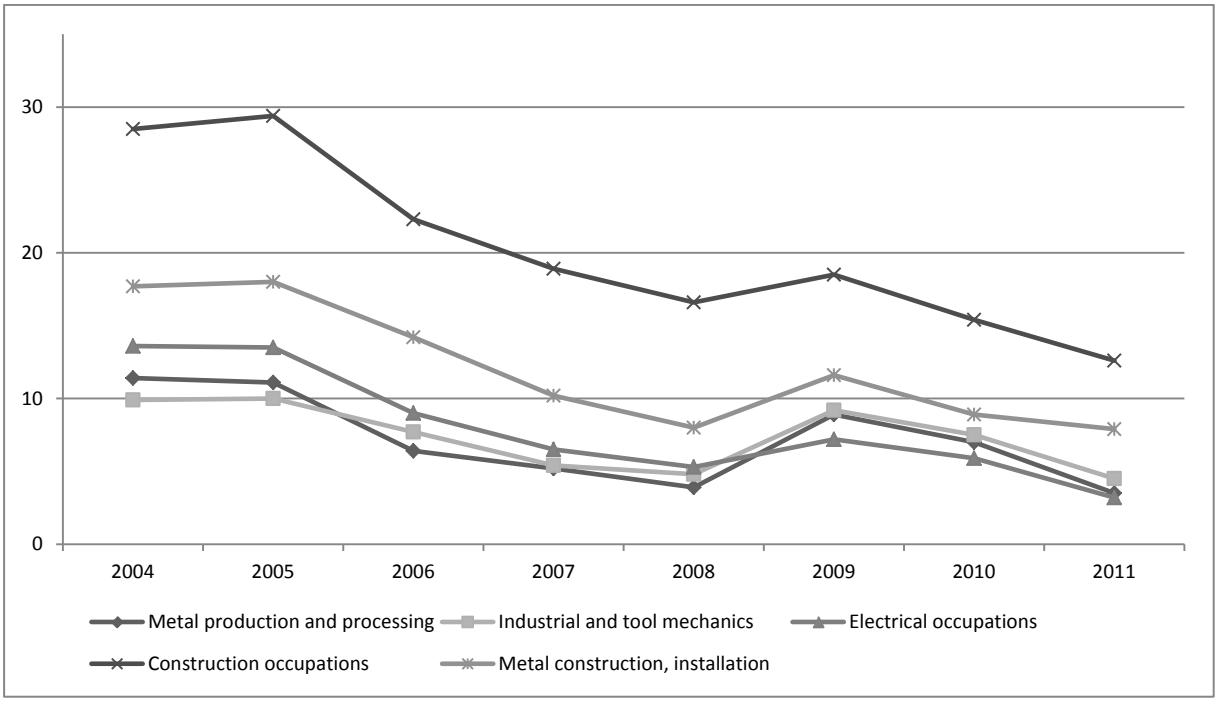
Weber, B. and E. Weber (2013): Qualifikation und Arbeitsmarkt: Bildung ist der beste Schutz vor Arbeitslosigkeit, IAB-Kurzbericht 04/2013.

Winter-Ebmer, R. (2006): Coping with a structural crisis: evaluating an innovative redundancy-retraining project, International Journal of Manpower 27, 700–721.

Wunsch, C. and M. Lechner (2008): What Did All the Money Do? On the General Ineffectiveness of Recent West German Labour Market Programmes, Kyklos 61,134–174.

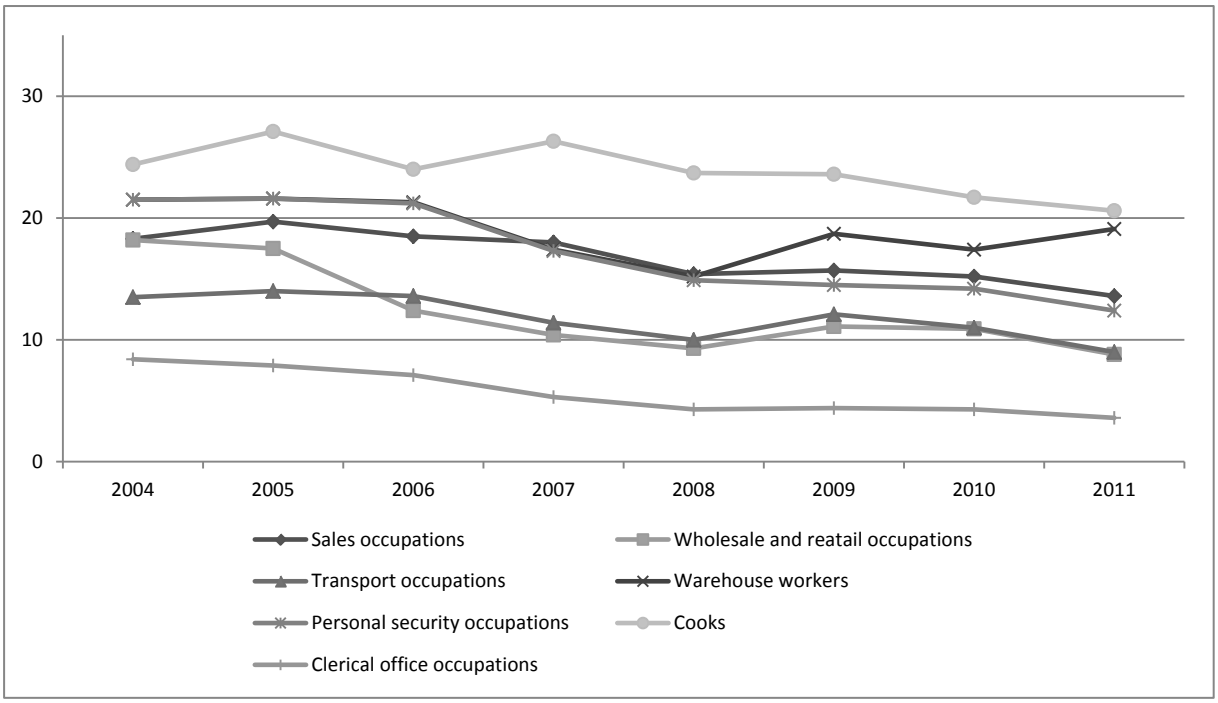
Appendix

Figure A1
Unemployment rates - production-related occupations



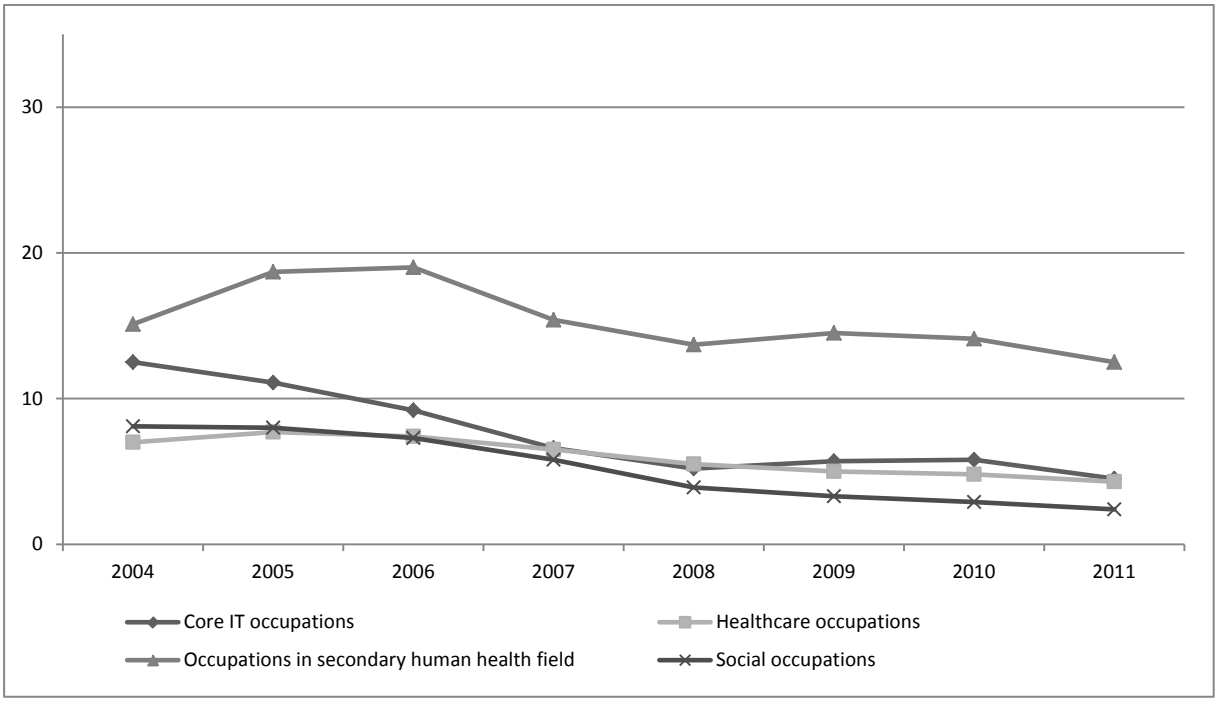
Source: Berufe im Spiegel der Statistik, IAB.

Figure A2
Unemployment rates - primary service occupations



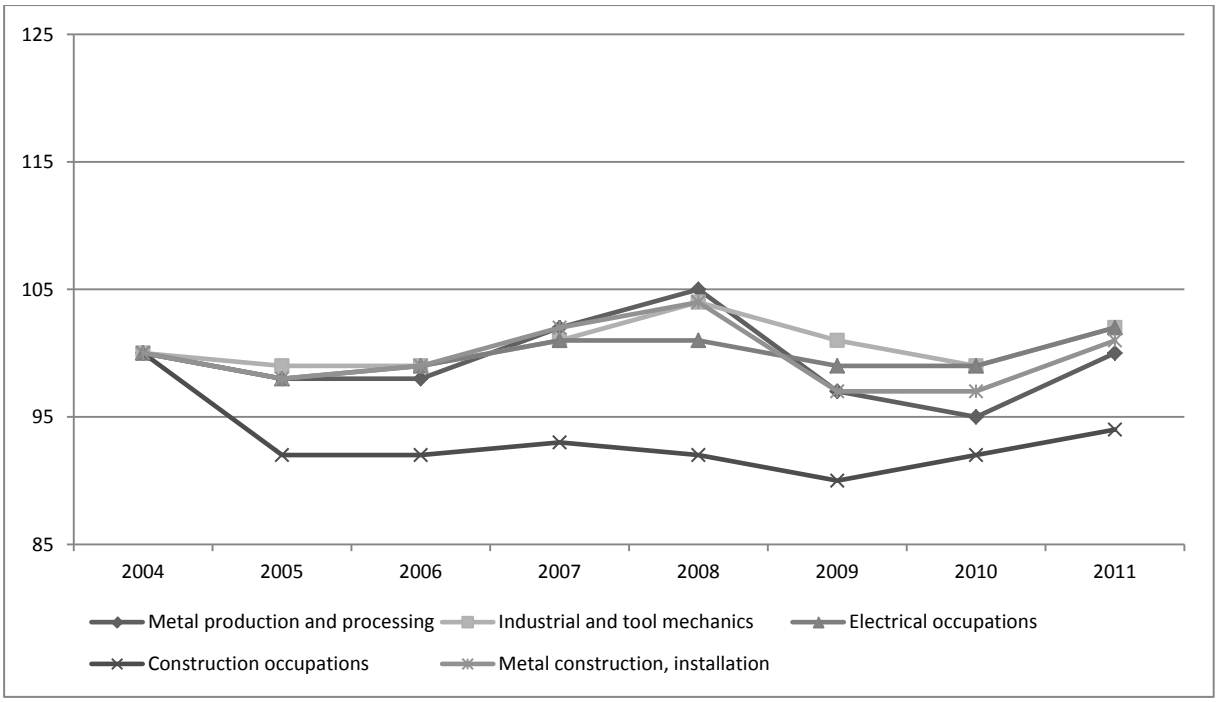
Source: Berufe im Spiegel der Statistik, IAB.

Figure A3
Unemployment rates - secondary service occupations



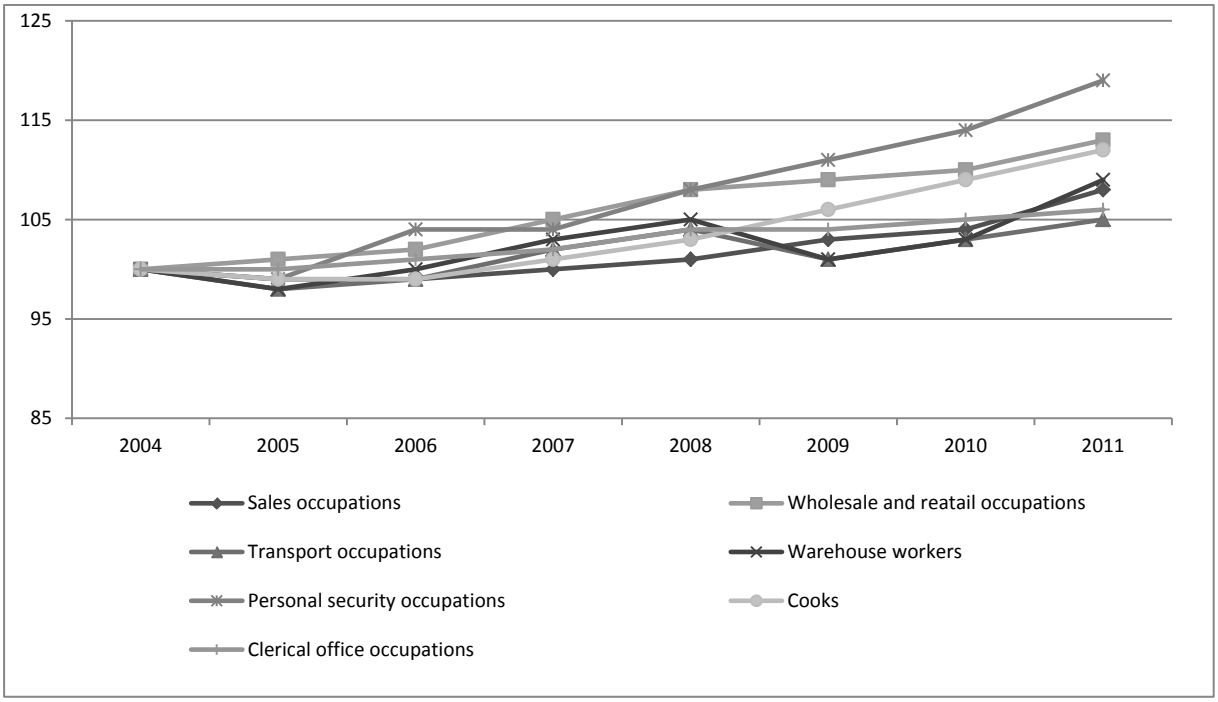
Source: Berufe im Spiegel der Statistik, IAB.

Figure A4
Employment index - production-related occupations (2000=100)



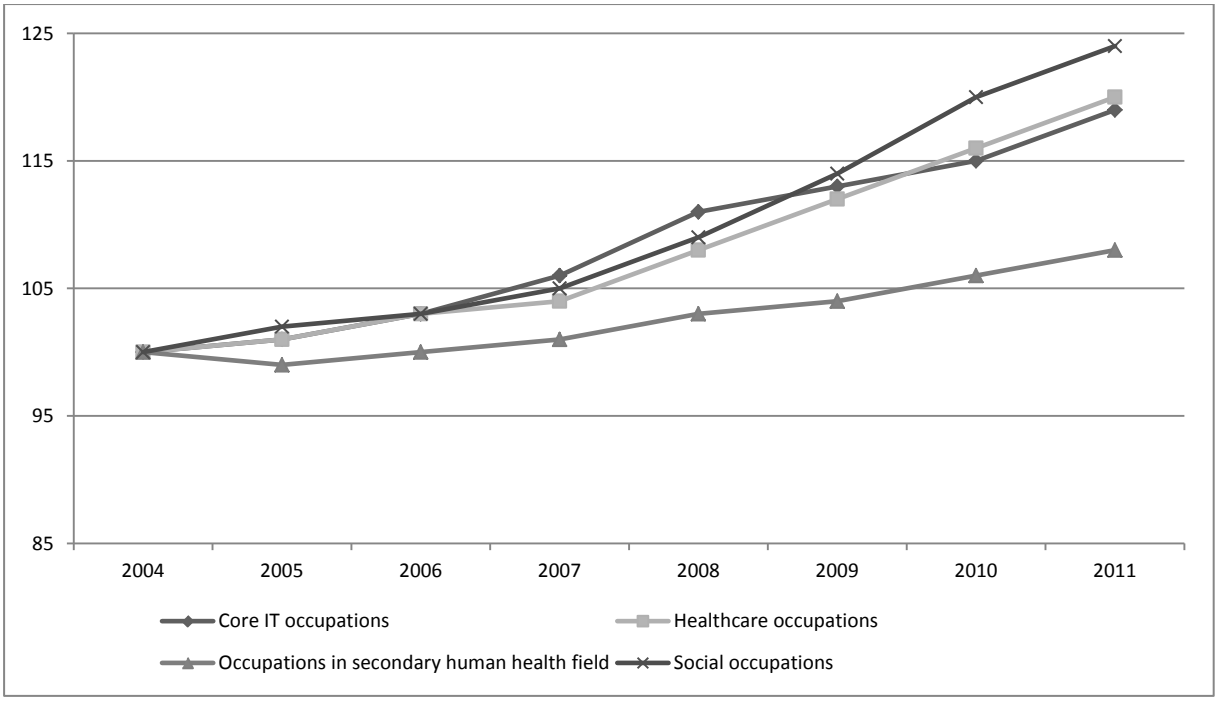
Source: Berufe im Spiegel der Statistik, IAB.

Figure A5
Employment index - primary service occupations (2000=100)



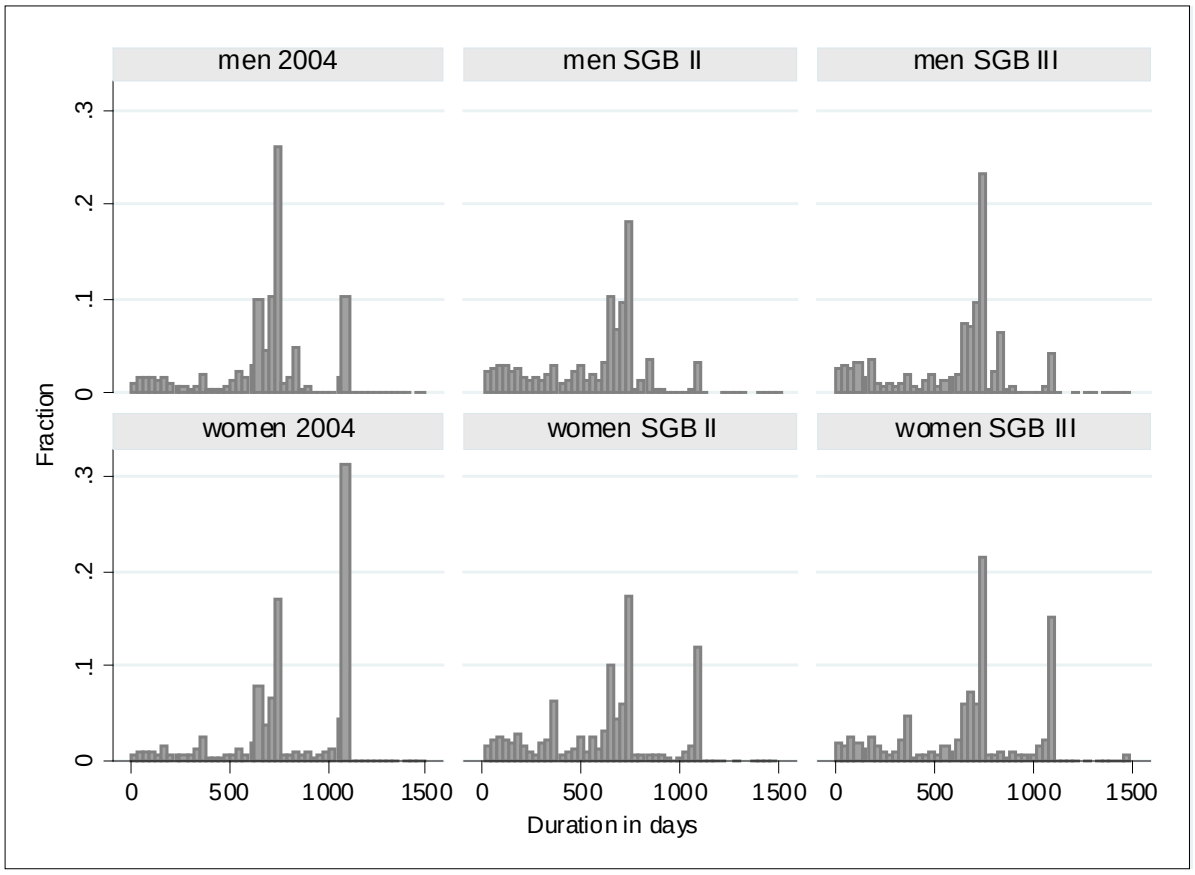
Source: Berufe im Spiegel der Statistik, IAB.

Figure A6
Employment index - secondary service occupations (2000=100)



Source: Berufe im Spiegel der Statistik, IAB.

Figure A7
Actual duration of retraining



Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Table A1
Mean values of control variables before matching

	Sample 2004		Sample SGB II (2005-2007)		Sample SGB III (2005-2007)	
Variable	Treatment group	Control group	Treatment group	Control group	Treatment group	Control group
Female	0.469	0.383	0.425	0.438	0.461	0.435
Marital status						
Single	0.422	0.408	0.459	0.416	0.361	0.352
Not married, not living alone	0.077	0.070	0.111	0.088	0.079	0.071
Single parent	0.119	0.088	0.190	0.189	0.087	0.068
married	0.383	0.434	0.241	0.366	0.472	0.510
Children	0.429	0.561	0.463	0.600	0.523	0.612
Age						
Age 20-24	0.133	0.129	0.123	0.091	0.125	0.114
Age 25-29	0.238	0.159	0.323	0.197	0.238	0.160
Age 30-34	0.210	0.162	0.224	0.168	0.192	0.143
Age 35-39	0.200	0.180	0.167	0.178	0.188	0.169
Age 40-44	0.140	0.167	0.112	0.169	0.145	0.167
Age 45 and older	0.079	0.203	0.052	0.197	0.112	0.248
German	0.908	0.846	0.894	0.818	0.905	0.879
Health problems	0.072	0.100	0.093	0.099	0.095	0.093
Disabled	0.012	0.027	0.017	0.025	0.017	0.030
Last occupation (BIBB major occupational fields)						
Occup. involving extraction/production of raw materials	0.026	0.034	0.027	0.036	0.019	0.033
Manufacturing, processing, repair/maintenance occup.	0.257	0.340	0.306	0.328	0.264	0.322
Occup. in operation and servicing of plants/machinery	0.064	0.052	0.043	0.044	0.079	0.046
Occup. involving sale/marketing of goods	0.097	0.093	0.103	0.102	0.091	0.098
Transport, storage, security occup.	0.142	0.141	0.152	0.148	0.146	0.130
Hotel/restaurant and cleaning occup.	0.109	0.136	0.146	0.180	0.100	0.118
Office and commercial occup.	0.128	0.098	0.101	0.077	0.117	0.122
Technical and scientific occup.	0.037	0.029	0.024	0.017	0.034	0.033
Legal, management and business occup.	0.006	0.007	0.004	0.004	0.006	0.009

Table A1
Mean values of control variables before matching (cont.)

	Sample 2004		Sample SGB II (2005-2007)		Sample SGB III (2005-2007)	
Variable	Treatment group	Control group	Treatment group	Control group	Treatment group	Control group
Occ. in media sciences, humanities, social sciences, art	0.016	0.011	0.014	0.009	0.016	0.013
Health care, social and personal care occup.	0.111	0.054	0.076	0.053	0.121	0.071
Teaching occup.	0.008	0.005	0.004	0.003	0.009	0.007
Position in last job						
Blue-collar worker	0.357	0.406	0.435	0.467	0.375	0.349
Days with benefit receipt	366.756	539.730	561.62	617.63	290.22	462.16
Number of spells with benefit receipt	2.157	2.964	2.797	3.141	1.970	3.038
Days in unemployment	377.528	589.523	579.35	715.69	309.37	528.42
Number of unemployment spells	2.322	3.275	3.357	3.848	2.306	3.473
Days in labour market programmes	131.175	124.575	208.51	155.49	128.98	136.31
Number of spells with programme participation	0.823	0.968	1.636	1.330	1.017	1.201
Days without information	481.481	600.552	592.04	775.56	442.00	623.01
Number of spells without information	0.426	0.562	0.547	0.754	0.372	0.509
Participation in short-term training two years before unempl. spell	0.228	0.316	0.284	0.253	0.180	0.285
Participation in further training two years before unempl. spell	0.139	0.145	0.160	0.113	0.092	0.113
Mainly employed…						
one year prior to unemployment	0.586	0.336	0.342	0.220	0.677	0.400
two years prior to unemployment	0.526	0.343	0.270	0.197	0.637	0.391
three years prior to unemployment	0.503	0.374	0.283	0.230	0.589	0.392
four years prior to unemployment	0.190	0.205	0.159	0.164	0.199	0.236
Daily wage last job	44.391	44.372	38.52	38.71	46.77	46.03
Mean daily wage (7 years)	42.688	41.708	34.90	30.88	45.05	44.02
Further training in current unemployment spell	0.081	0.025	0.094	0.029	0.056	0.027
Short-term training in current unemployment spell	0.127	0.136	0.204	0.165	0.075	0.120
Education						
No school degree	0.041	0.142	0.065	0.194	0.046	0.101
Secondary schooling degree (Hauptschulabschluss, Mittlere Reife)	0.810	0.762	0.819	0.741	0.797	0.775

Table A1
Mean values of control variables before matching (cont.)

	Sample 2004		Sample SGB II (2005-2007)		Sample SGB III (2005-2007)	
Variable	Treatment group	Control group	Treatment group	Control group	Treatment group	Control group
Secondary schooling degree (Abitur)	0.149	0.096	0.117	0.065	0.157	0.124
Vocational education						
No vocational degree	0.339	0.352	0.448	0.451	0.308	0.250
Vocational degree	0.620	0.608	0.524	0.527	0.648	0.696
Academic degree	0.041	0.040	0.028	0.022	0.045	0.055
Classification of local labour market						
Areas in East Germany with poorest labour market conditions	0.085	0.054	0.055	0.053	0.076	0.061
Areas in East Germany with poor labour market conditions	0.124	0.121	0.110	0.122	0.103	0.130
Areas mainly in East Germany , high unemployment, some on border to west	0.074	0.058	0.080	0.058	0.052	0.065
Areas characterized by big cities and high unemployment	0.128	0.109	0.204	0.134	0.080	0.071
Areas mainly characterized by big cities and moderately high unemployment	0.040	0.074	0.116	0.087	0.052	0.057
Areas with above-average unemployment but moderate dynamics	0.105	0.091	0.117	0.093	0.082	0.088
Areas with average unemployment	0.104	0.112	0.110	0.115	0.099	0.112
Areas with below-average unemployment and weak dynamics	0.116	0.115	0.089	0.106	0.125	0.129
Centres with good labour market situation and strong dynamics	0.061	0.080	0.043	0.080	0.067	0.074
Rural areas with good labour market situation and strong seasonal dynamics	0.031	0.025	0.014	0.020	0.063	0.032
Areas with SME structure and good labour market situation	0.085	0.113	0.038	0.095	0.123	0.123
Areas with best labour market situation and strong dynamics	0.046	0.049	0.025	0.039	0.077	0.058
Elapsed duration of unemployment spell in months						
<1	0.184	0.288	0.074	0.068	0.275	0.229
1-2<	0.048	0.102	0.023	0.043	0.080	0.095
2-3<	0.057	0.097	0.030	0.041	0.080	0.086

Table A1
Mean values of control variables before matching (cont.)

	Sample 2004		Sample SGB II (2005-2007)		Sample SGB III (2005-2007)	
Variable	Treatment group	Control group	Treatment group	Control group	Treatment group	Control group
3-4<	0.056	0.072	0.026	0.038	0.075	0.068
4-5<	0.057	0.062	0.029	0.038	0.068	0.061
5-6<	0.053	0.049	0.028	0.033	0.064	0.048
6-7<	0.052	0.043	0.038	0.035	0.069	0.048
7-8<	0.050	0.037	0.038	0.033	0.058	0.040
8-9<	0.039	0.028	0.032	0.030	0.038	0.033
9-10<	0.039	0.026	0.030	0.032	0.044	0.033
10-11<	0.036	0.020	0.023	0.027	0.029	0.025
11-12<	0.035	0.017	0.030	0.032	0.032	0.025
12-13<	0.029	0.016	0.028	0.028	0.011	0.020
13-24	0.164	0.100	0.263	0.273	0.053	0.127
>24-36	0.060	0.031	0.165	0.168	0.015	0.044
>36	0.042	0.014	0.143	0.082	0.011	0.019
State before beginning of current unemployment spell						
Employed	0.677	0.425	0.508	0.318	0.668	0.495
Apprentice	0.020	0.007	0.022	0.007	0.028	0.007
No information 1-3 months	0.091	0.183	0.147	0.197	0.070	0.126
No information 4-6 months	0.055	0.116	0.095	0.133	0.049	0.091
No information 7-12 months	0.059	0.105	0.085	0.126	0.061	0.096
No information 13-24 months	0.043	0.076	0.064	0.101	0.054	0.086
No information more than 24 months	0.056	0.089	0.079	0.119	0.069	0.096
Federal state						
Schleswig-Holstein	0.041	0.038	0.031	0.040	0.013	0.032
Hamburg	0.006	0.028	0.028	0.032	0.008	0.020
Lower Saxony	0.112	0.095	0.160	0.095	0.121	0.100
Bremen	0.010	0.010	0.035	0.013	0.009	0.007
North-Rhine-Westphalia	0.157	0.205	0.235	0.221	0.180	0.196
Hesse	0.067	0.057	0.026	0.054	0.041	0.062
Rhineland-Palatinate	0.033	0.045	0.014	0.044	0.016	0.046
Baden-Württemberg	0.063	0.094	0.037	0.081	0.126	0.096

Table A1
Mean values of control variables before matching (cont.)

	Sample 2004		Sample SGB II (2005-2007)		Sample SGB III (2005-2007)	
Variable	Treatment group	Control group	Treatment group	Control group	Treatment group	Control group
Bavaria	0.125	0.119	0.069	0.099	0.203	0.137
Saarland	0.011	0.017	0.006	0.013	0.008	0.011
Berlin	0.096	0.067	0.121	0.081	0.047	0.040
Brandenburg	0.076	0.042	0.039	0.041	0.047	0.046
Mecklenburg-Vorpommern	0.047	0.034	0.066	0.036	0.047	0.033
Saxony	0.077	0.065	0.067	0.065	0.077	0.075
Saxony-Anhalt	0.026	0.049	0.029	0.050	0.020	0.050
Thuringia	0.053	0.040	0.035	0.036	0.038	0.038
Regional unempl. rate (dependent civilian labour force)	13.716	12.944	14.872	13.732	12.486	13.201
Number of observations	27280	1004219	19135	1536570	10435	1207170

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
Sample 2004	0.576	0.368	0.548	0.418	0.485	0.484	0.483	0.299	0.452	0.433	0.527	0.459	0.411
Sample 2005-2007 – SGB II	0.286	0.366	0.306	0.394	0.332	0.352	0.391	0.409	0.330	0.442	0.319	0.358	0.436
Sample 2005-2007 – SGB III	0.138	0.266	0.145	0.188	0.184	0.164	0.125	0.292	0.218	0.125	0.154	0.183	0.152
Marital status													
Single	0.560	0.441	0.449	0.628	0.499	0.574	0.619	0.459	0.516	0.617	0.618	0.580	0.501
Not married. not living alone	0.095	0.087	0.116	0.094	0.098	0.118	0.096	0.121	0.094	0.094	0.095	0.102	0.141
Single parent	0.015	0.012	0.010	0.017	0.016	0.008	0.011	0.010	0.007	0.022	0.010	0.011	0.010
married	0.330	0.460	0.425	0.261	0.387	0.300	0.273	0.411	0.383	0.267	0.277	0.307	0.348
Children	0.281	0.426	0.392	0.240	0.367	0.307	0.251	0.403	0.372	0.241	0.242	0.293	0.344
Age	34.101	31.257	32.238	31.754	32.013	30.166	31.434	31.563	31.019	31.467	29.805	32.298	33.117
Age 20-24	0.109	0.165	0.169	0.132	0.129	0.201	0.130	0.169	0.191	0.153	0.202	0.148	0.154
Age 25-29	0.236	0.316	0.281	0.317	0.300	0.341	0.332	0.318	0.317	0.341	0.375	0.294	0.287
Age 30-34	0.188	0.223	0.189	0.233	0.240	0.210	0.238	0.179	0.197	0.195	0.216	0.192	0.183
Age 35-39	0.195	0.154	0.155	0.165	0.173	0.152	0.177	0.168	0.144	0.154	0.119	0.165	0.125
Age 40-44	0.155	0.096	0.121	0.098	0.101	0.061	0.080	0.110	0.102	0.096	0.064	0.141	0.111
Age 45 and older	0.116	0.046	0.084	0.054	0.058	0.035	0.042	0.056	0.050	0.062	0.024	0.060	0.140
German	0.940	0.842	0.871	0.903	0.844	0.894	0.919	0.899	0.880	0.888	0.881	0.909	0.911
Health problems	0.074	0.062	0.071	0.197	0.084	0.050	0.144	0.053	0.037	0.066	0.166	0.102	0.106
Disabled	0.012	0.007	0.008	0.047	0.009	0.006	0.023	0.006	0.006	0.009	0.015	0.015	0.020
Last occupation (BIBB major occu-pational fields)													
Occup. involving extraction/ produc-tion of raw materi-als	0.024	0.026	0.046	0.014	0.028	0.041	0.012	0.029	0.035	0.034	0.021	0.022	0.040

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
Manufacturing, processing. re-pair/maintenance occup.	0.301	0.522	0.431	0.300	0.456	0.590	0.331	0.543	0.529	0.321	0.350	0.387	0.375
Occup. in opera-tion and servicing of plants/ machinery	0.067	0.140	0.079	0.063	0.092	0.054	0.066	0.137	0.119	0.043	0.062	0.097	0.051
Occup. involving sale/marketing of goods	0.068	0.029	0.035	0.082	0.045	0.026	0.079	0.030	0.033	0.052	0.126	0.046	0.046
Transport, storage, security occup.	0.152	0.197	0.282	0.202	0.188	0.168	0.165	0.155	0.154	0.178	0.199	0.322	0.311
Hotel/restaurant and cleaning oc-cup.	0.062	0.048	0.067	0.078	0.069	0.068	0.045	0.050	0.056	0.265	0.086	0.064	0.061
Office and com-mercial occup.	0.069	0.017	0.030	0.151	0.049	0.019	0.129	0.021	0.025	0.052	0.087	0.034	0.048
Technical and scientific occup.	0.041	0.017	0.016	0.042	0.048	0.013	0.128	0.017	0.028	0.026	0.028	0.015	0.035
Legal, manage-ment and business occup.	0.008	0.001	0.002	0.008	0.003	0.002	0.006	0.002	0.005	0.004	0.011	0.003	0.006
Occup. in media sciences. humani-ties, social scienc-es, art	0.020	0.004	0.002	0.022	0.008	0.006	0.021	0.003	0.006	0.009	0.018	0.005	0.006
Healthcare, social and personal care occup.	0.182	0.004	0.007	0.028	0.012	0.011	0.014	0.010	0.010	0.012	0.013	0.004	0.015
Teaching occup.	0.007	0.001	0.002	0.009	0.004	0.001	0.004	0.003	0.001	0.002	0.001	0.001	0.006
Position in last job													
Blue-collar worker	0.349	0.687	0.574	0.377	0.543	0.643	0.348	0.594	0.575	0.546	0.436	0.618	0.511
Skilled worker	0.240	0.203	0.272	0.228	0.247	0.206	0.236	0.278	0.274	0.191	0.245	0.211	0.243

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
White-collar work-er	0.273	0.046	0.070	0.270	0.131	0.056	0.313	0.056	0.067	0.107	0.194	0.081	0.123
Part-time worker	0.135	0.062	0.083	0.120	0.073	0.091	0.099	0.068	0.077	0.148	0.120	0.088	0.114
Employment history 7 years before beginning of un-employment spell													
Days in employ-ment	1251.977	1239.135	1152.941	1051.319	1144.778	952.883	1015.428	1155.047	1159.642	885.576	1056.675	1274.623	1108.063
Days with benefit receipt	457.146	381.376	481.548	429.578	410.089	497.526	405.148	4572.513	391.494	519.308	386.758	457.715	568.181
Number of spells with benefit re-ceipt	2.624	2.515	2.943	2.501	2.420	3.115	2.362	2932.171	2.706	2.983	2.453	2.865	3.168
Days in unem-ployment	442.193	421.707	502.924	447.289	437.677	550.259	412.560	474.793	428.486	569.156	431.727	484.546	552.318
Number of unem-ployment spells	2.734	3.116	3.184	2.844	2.835	3.776	2.595	3.432	3.187	3.577	2.892	3.304	3.344
Days in labour market pro-grammes	154.864	149.298	182.684	135.698	149.623	178.321	152.659	205.112	162.190	187.999	136.141	162.544	224.503
Number of spells with programme participation	1.146	1.249	1.345	1.115	1.095	1.427	1.076	1.598	1.294	1.476	1.147	1.345	1.635
Days without information	367.166	324.006	288.267	475.598	384.578	439.682	514.601	330.490	350.455	527.717	428.219	332.375	329.717
Number of spells without infor-mation	0.328	0.361	0.276	0.533	0.396	0.477	0.516	0.311	0.371	0.633	0.450	0.424	0.322
Participation in short-term training two years before unempl. spell	0.245	0.253	0.311	0.253	0.233	0.330	0.221	0.279	0.295	0.333	0.293	0.280	0.308
Participation in	0.113	0.135	0.147	0.170	0.160	0.164	0.158	0.196	0.189	0.163	0.148	0.157	0.169

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
further training two years before unempl. spell													
Mainly em-ployed…													
one year prior to unemployment	0.568	0.602	0.564	0.502	0.556	0.466	0.513	0.560	0.570	0.401	0.530	0.569	0.489
Daily wage last job	49.798	50.616	47.028	49.464	49.224	45.983	49.027	48.269	49.676	41.417	48.449	48.168	44.280
Mean daily wage (7 years)	48.413	48.635	45.890	47.406	47.799	44.499	46.863	46.809	48.124	39.996	47.573	46.782	43.838
Further training in current unem-ployment spell	0.077	0.079	0.065	0.086	0.082	0.070	0.105	0.081	0.091	0.074	0.066	0.080	0.088
Short-term train-ing in current unemployment spell	0.147	0.135	0.172	0.171	0.158	0.134	0.171	0.128	0.136	0.175	0.132	0.141	0.135
Education													
No school degree	0.027	0.108	0.124	0.020	0.055	0.121	0.019	0.082	0.085	0.100	0.040	0.088	0.054
Secondary schooling degree (Hauptschulabsch luss, Mittlere Reife)	0.786	0.827	0.839	0.755	0.813	0.829	0.732	0.861	0.844	0.813	0.825	0.841	0.881
Secondary schooling degree (Abitur)	0.187	0.064	0.038	0.225	0.131	0.051	0.250	0.057	0.070	0.087	0.135	0.071	0.065
Vocational educa-tion													
No vocational degree	0.222	0.513	0.434	0.363	0.380	0.573	0.325	0.382	0.427	0.512	0.411	0.480	0.329
Vocational degree	0.722	0.464	0.557	0.586	0.583	0.415	0.623	0.594	0.552	0.472	0.567	0.507	0.647
Academic degree	0.056	0.023	0.009	0.051	0.036	0.012	0.052	0.023	0.021	0.016	0.022	0.013	0.024

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
Classification of local labour mar-ket													
Areas in East Germany, poorest labour market conditions	0.110	0.030	0.123	0.038	0.063	0.059	0.069	0.062	0.096	0.098	0.025	0.031	0.132
Areas in East Germany, poor labour market conditions	0.129	0.039	0.205	0.057	0.103	0.077	0.159	0.161	0.095	0.082	0.047	0.055	0.259
Areas mainly in East Germany, high unemploy-ment, some on border to west	0.076	0.103	0.073	0.063	0.059	0.038	0.088	0.148	0.030	0.068	0.045	0.062	0.040
Areas character-ized by big cities and high unem-ployment	0.113	0.020	0.061	0.191	0.178	0.091	0.160	0.067	0.078	0.168	0.145	0.084	0.177
Areas mainly characterized by big cities and moderately high unemployment	0.071	0.022	0.058	0.081	0.058	0.062	0.071	0.032	0.070	0.121	0.075	0.120	0.101
Areas with above-average unem-ployment but moderate dynam-ics	0.126	0.034	0.115	0.096	0.111	0.182	0.091	0.071	0.148	0.133	0.139	0.139	0.092
Areas with aver-age unempl.	0.124	0.172	0.104	0.108	0.097	0.101	0.066	0.094	0.171	0.116	0.114	0.118	0.038
Areas with below-average unempl. and weak dynam-ics	0.087	0.156	0.101	0.115	0.129	0.122	0.112	0.151	0.156	0.089	0.150	0.140	0.071

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
Centres with good labour market situation and strong dynamics	0.046	0.024	0.057	0.093	0.048	0.073	0.054	0.015	0.033	0.040	0.077	0.069	0.046
Rural areas with good labour mar-ket situation and strong seasonal dynamics	0.023	0.066	0.050	0.017	0.025	0.038	0.030	0.079	0.048	0.024	0.038	0.066	0.011
Areas with SME structure and good labour mar-ket situation	0.058	0.232	0.041	0.098	0.060	0.087	0.044	0.060	0.048	0.038	0.086	0.074	0.027
Areas with best labour market situation and strong dynamics	0.037	0.103	0.012	0.044	0.069	0.068	0.055	0.060	0.027	0.022	0.059	0.043	0.006
Elapsed duration of unem-ployment spell in months													
<1	0.173	0.150	0.111	0.129	0.158	0.206	0.113	0.165	0.162	0.137	0.156	0.150	0.117
1-2<	0.042	0.061	0.048	0.035	0.044	0.053	0.043	0.062	0.053	0.052	0.043	0.043	0.041
2-3<	0.047	0.065	0.059	0.052	0.053	0.056	0.045	0.064	0.068	0.050	0.046	0.047	0.047
3-4<	0.049	0.072	0.063	0.045	0.045	0.045	0.045	0.054	0.040	0.052	0.044	0.038	0.046
4-5<	0.049	0.068	0.067	0.047	0.050	0.045	0.048	0.062	0.064	0.048	0.043	0.041	0.040
5-6<	0.045	0.052	0.056	0.048	0.047	0.049	0.047	0.054	0.053	0.037	0.040	0.048	0.051
6-7<	0.051	0.057	0.056	0.042	0.048	0.049	0.047	0.055	0.060	0.043	0.057	0.057	0.061
7-8<	0.047	0.051	0.045	0.054	0.047	0.041	0.043	0.050	0.048	0.048	0.056	0.051	0.040
8-9<	0.034	0.041	0.038	0.040	0.037	0.040	0.027	0.026	0.047	0.038	0.038	0.048	0.034
9-10<	0.037	0.032	0.036	0.036	0.033	0.033	0.042	0.031	0.044	0.042	0.050	0.035	0.031
10-11<	0.030	0.030	0.026	0.029	0.028	0.029	0.036	0.035	0.025	0.032	0.032	0.026	0.037
11-12<	0.031	0.034	0.034	0.039	0.035	0.032	0.038	0.032	0.027	0.022	0.047	0.035	0.031
12-13<	0.025	0.023	0.025	0.027	0.030	0.023	0.028	0.022	0.034	0.027	0.025	0.023	0.028
13-24	0.184	0.146	0.185	0.196	0.185	0.154	0.186	0.147	0.148	0.191	0.203	0.198	0.191
>24-36	0.084	0.065	0.076	0.099	0.087	0.090	0.101	0.074	0.067	0.088	0.075	0.078	0.103
>36	0.069	0.054	0.076	0.083	0.073	0.055	0.110	0.067	0.059	0.093	0.046	0.080	0.102

Table A2
Mean values of control variables for different target occupational fields of male participants

	Health-care occup.	Industrial, tool mecha-nics	Trans-port occup.	Clerical office occup.	Electrical occup.	Con-struc-tion occup.	Core IT occup.	Metal produc-tion, pro-cessing	Metal construc-tion, in-stallation	Cooks	Whole-sale and retail clerks	Ware-house workers	Personal security occup.
No info. more than 24 months	0.028	0.027	0.021	0.043	0.041	0.032	0.056	0.033	0.021	0.053	0.030	0.024	0.031
Federal state													
Schleswig-Holstein	0.052	0.018	0.019	0.033	0.015	0.041	0.020	0.017	0.018	0.029	0.073	0.049	0.034
Hamburg	0.013	0.001	0.000	0.017	0.016	0.008	0.011	0.021	0.015	0.021	0.031	0.018	0.008
Lower Saxony	0.127	0.041	0.165	0.126	0.138	0.212	0.125	0.074	0.198	0.180	0.184	0.125	0.145
Bremen	0.021	0.001	0.000	0.019	0.004	0.012	0.028	0.001	0.012	0.046	0.018	0.035	0.008
North-Rhine-Westphalia	0.204	0.274	0.195	0.245	0.193	0.218	0.117	0.225	0.318	0.258	0.138	0.202	0.161
Hesse	0.046	0.034	0.064	0.080	0.062	0.033	0.047	0.038	0.028	0.054	0.066	0.112	0.049
Rhineland-Palatinate	0.020	0.013	0.030	0.035	0.022	0.038	0.016	0.025	0.023	0.021	0.027	0.015	0.002
Baden-Württemberg	0.051	0.231	0.029	0.064	0.048	0.063	0.038	0.045	0.035	0.027	0.070	0.032	0.021
Bavaria	0.103	0.208	0.074	0.111	0.180	0.155	0.163	0.168	0.115	0.065	0.153	0.215	0.025
Saarland	0.009	0.003	0.015	0.010	0.006	0.014	0.005	0.006	0.015	0.001	0.011	0.010	0.000
Berlin	0.050	0.006	0.008	0.104	0.092	0.034	0.115	0.009	0.011	0.065	0.118	0.041	0.123
Brandenburg	0.081	0.038	0.099	0.038	0.061	0.029	0.051	0.056	0.029	0.057	0.019	0.021	0.044
Mecklenburg-Vorpommern	0.068	0.003	0.073	0.065	0.025	0.036	0.071	0.034	0.144	0.086	0.038	0.007	0.112
Saxony	0.090	0.032	0.137	0.019	0.074	0.045	0.121	0.157	0.017	0.037	0.041	0.066	0.177
Saxony-Anhalt	0.034	0.003	0.027	0.009	0.020	0.040	0.030	0.021	0.012	0.011	0.008	0.019	0.038
Thuringia	0.033	0.095	0.065	0.024	0.043	0.021	0.042	0.103	0.008	0.043	0.004	0.033	0.052
Regional unempl. rate	14.496	10.857	15.555	13.413	13.760	12.817	14.773	13.590	13.270	14.853	12.685	12.261	16.999
Number of obser-vations	3838	2713	2604	2334	2316	1668	1587	1548	1240	1202	1118	1044	958

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

Table A3
Mean values of control variables for different target occupational fields of female participants

	Healthcare occup.	Clerical office occup.	Occup. in second-ary human health field	Sales occup.	Wholesale and retail clerks	Social occup.
Sample 2004	0.548	0.479	0.460	0.383	0.463	0.721
Sample 2005-2007 – SGB II	0.273	0.320	0.353	0.451	0.376	0.155
Sample 2005-2007 – SGB III	0.179	0.202	0.186	0.166	0.161	0.124
Marital status						
Single	0.228	0.239	0.229	0.248	0.360	0.208
Not married. not living alone	0.079	0.066	0.091	0.075	0.087	0.042
Single parent	0.268	0.335	0.281	0.298	0.280	0.303
married	0.425	0.360	0.399	0.379	0.273	0.446
Children	0.652	0.681	0.671	0.646	0.559	0.705
Age	35.870	32.708	32.919	33.001	31.140	36.068
Age 20-24	0.075	0.105	0.144	0.144	0.161	0.046
Age 25-29	0.161	0.260	0.241	0.242	0.302	0.131
Age 30-34	0.186	0.254	0.217	0.212	0.230	0.234
Age 35-39	0.238	0.208	0.190	0.180	0.189	0.264
Age 40-44	0.205	0.126	0.126	0.137	0.093	0.222
Age 45 and older	0.136	0.046	0.082	0.084	0.026	0.102
German	0.933	0.898	0.855	0.907	0.870	0.932
Health problems	0.043	0.097	0.053	0.052	0.086	0.062
Disabled	0.007	0.021	0.012	0.009	0.012	0.015
Last occupation (BIBB major occupational fields)						
Occup. involving extraction/production of raw materials	0.018	0.013	0.023	0.029	0.016	0.019
Manufacturing, processing. repair/maintenance occup.	0.106	0.110	0.135	0.165	0.128	0.086
Occup. in operation and servicing of plants/machinery	0.028	0.030	0.034	0.040	0.042	0.024
Occup. involving sale/marketing of goods	0.122	0.190	0.190	0.219	0.218	0.134
Transport, storage, security occup.	0.074	0.090	0.087	0.115	0.111	0.045
Hotel/restaurant and cleaning occup.	0.163	0.156	0.194	0.225	0.195	0.122
Office and commercial occup.	0.150	0.269	0.164	0.099	0.141	0.155

Table A3
Mean values of control variables for different target occupational fields of female participants (cont.)

	Healthcare occup.	Clerical office occup.	Occup. in secondary human health field	Sales occup.	Wholesale and retail clerks	Social occup.
Technical and scientific occup.	0.024	0.029	0.023	0.022	0.019	0.028
Legal, management and business occup.	0.005	0.006	0.003	0.001	0.009	0.005
Occup. in media sciences. humanities, social sciences, art	0.014	0.015	0.025	0.008	0.014	0.020
Healthcare, social and personal care occup.	0.287	0.086	0.114	0.072	0.100	0.339
Teaching occup.	0.008	0.007	0.007	0.005	0.007	0.023
Part-time worker	0.342	0.301	0.307	0.340	0.322	0.380
Employment history 7 years before beginning of unemployment spell						
Days in employment	1118.479	938.711	938.776	842.735	886.814	1002.906
Days with benefit receipt	414.408	307.573	421.998	366.674	325.285	428.643
No. of spells with benefit receipt	1.977	1.616	2.031	1.761	1.798	2.032
Days in unemployment	396.615	328.820	421.471	414.234	357.109	399.031
No. of unemployment spells	2.131	1.970	2.256	2.353	2.156	2.080
Days in labour market programmes	160.970	108.466	155.552	144.010	136.932	183.693
No. of spells with programme participation	1.006	0.817	1.017	1.058	1.023	0.900
Days without information	584.765	794.225	625.598	694.579	650.109	715.607
No. of spells without information	0.432	0.622	0.490	0.541	0.519	0.454
Participation in short-term training two years before unempl. spell	0.194	0.188	0.200	0.215	0.224	0.153
Participation in further training two years before unempl. spell	0.089	0.150	0.109	0.106	0.120	0.065
Mainly employed…						
one year prior to unemployment	0.549	0.457	0.446	0.428	0.464	0.526
two years prior to unemployment	0.475	0.398	0.376	0.336	0.387	0.422
three years prior to unemployment	0.452	0.376	0.394	0.336	0.374	0.401
four years prior to unemployment	0.167	0.171	0.165	0.166	0.178	0.162
Daily wage last job	37.140	34.614	33.661	31.510	34.267	37.124
Mean daily wage (7 years)	35.493	33.194	32.838	30.697	33.097	35.454

Table A3
Mean values of control variables for different target occupational fields of female participants (cont.)

	Healthcare occup.	Clerical office occup.	Occup. in secondary human health field	Sales occup.	Wholesale and retail clerks	Social occup.
Further training in current unemployment spell	0.068	0.078	0.081	0.080	0.067	0.096
Short-term training in current unemployment spell	0.118	0.158	0.134	0.166	0.127	0.114
Education						
No school degree	0.023	0.028	0.048	0.077	0.045	0.009
Secondary schooling degree (Hauptschulabschluss, Mittlere Reife)	0.832	0.791	0.870	0.850	0.800	0.774
Secondary schooling degree (Abitur)	0.145	0.182	0.083	0.073	0.156	0.216
with above-average unempl. but moderate dynamics	0.099	0.081	0.085	0.183	0.094	0.117
with average unemployment	0.106	0.104	0.065	0.131	0.115	0.078
with below-average unempl. and weak dynamics	0.092	0.120	0.098	0.242	0.132	0.085
Centres with good labour market situation and strong dynamics	0.044	0.106	0.050	0.059	0.060	0.102
Rural areas with good labour market situation and strong seasonal dynamics	0.029	0.025	0.026	0.015	0.025	0.031
with SME structure and good labour market situation	0.071	0.122	0.046	0.047	0.114	0.073
with best labour market situation and strong dynamics	0.043	0.052	0.032	0.052	0.042	0.065
Elapsed duration of unemployment spell in months						
<1	0.206	0.155	0.135	0.149	0.162	0.258
1-2<	0.039	0.045	0.057	0.027	0.050	0.046
2-3<	0.044	0.057	0.047	0.043	0.042	0.048
3-4<	0.048	0.054	0.041	0.036	0.041	0.029
4-5<	0.041	0.050	0.047	0.039	0.055	0.040
5-6<	0.040	0.048	0.039	0.042	0.043	0.048
6-7<	0.054	0.050	0.040	0.043	0.049	0.036
7-8<	0.047	0.045	0.048	0.043	0.061	0.049
8-9<	0.036	0.039	0.043	0.027	0.039	0.037
9-10<	0.036	0.041	0.039	0.035	0.039	0.039
10-11<	0.031	0.030	0.023	0.042	0.026	0.024
11-12<	0.030	0.036	0.041	0.031	0.032	0.031

Table A3
Mean values of control variables for different target occupational fields of female participants (cont.)

	Healthcare occup.	Clerical office occup.	Occup. in secondary human health field	Sales occup.	Wholesale and retail clerks	Social occup.
12-13<	0.022	0.025	0.027	0.036	0.023	0.025
13-24	0.173	0.176	0.180	0.233	0.175	0.146
>24-36	0.084	0.096	0.109	0.107	0.091	0.070
>36	0.069	0.052	0.083	0.070	0.072	0.074
State before beginning of current unempl. spell						
Employed	0.630	0.525	0.526	0.535	0.542	0.631
Apprentice	0.025	0.021	0.022	0.027	0.028	0.017
No information 1-3 months	0.084	0.110	0.110	0.100	0.101	0.081
No information 4-6 months	0.061	0.064	0.077	0.073	0.084	0.060
no information 7-12 months	0.057	0.069	0.075	0.060	0.081	0.057
No information 13-24 months	0.052	0.072	0.084	0.069	0.060	0.041
No information more than 24 months	0.091	0.139	0.105	0.136	0.104	0.113
Federal state						
Schleswig-Holstein	0.033	0.039	0.013	0.025	0.048	0.061
Hamburg	0.020	0.015	0.003	0.001	0.029	0.003
Lower Saxony	0.125	0.099	0.098	0.210	0.148	0.090
Bremen	0.015	0.029	0.016	0.043	0.021	0.012
North-Rhine-Westphalia	0.152	0.223	0.161	0.351	0.149	0.056
Hesse	0.044	0.069	0.045	0.022	0.063	0.113
Rhineland-Palatinate	0.026	0.029	0.027	0.047	0.032	0.032
Baden-Württemberg	0.068	0.108	0.042	0.028	0.075	0.062
Bavaria	0.105	0.141	0.087	0.103	0.122	0.150
Saarland	0.009	0.012	0.022	0.018	0.011	0.004
Berlin	0.037	0.093	0.053	0.035	0.168	0.070

Table A3
Mean values of control variables for different target occupational fields of female participants (cont.)

	Healthcare occup.	Clerical office occup.	Occup. in secondary human health field	Sales occup.	Wholesale and retail clerks	Social occup.
Brandenburg	0.087	0.040	0.120	0.021	0.025	0.126
Mecklenburg-Vorpommern	0.068	0.044	0.137	0.003	0.068	0.013
Saxony	0.100	0.034	0.085	0.070	0.020	0.125
Saxony-Anhalt	0.046	0.007	0.028	0.007	0.011	0.019
State before beginning of current unempl. spell						
Regional unempl. rate (dependent civilian labour force)	14.208	12.498	15.567	12.654	12.910	14.169
Number of observations	10227	5930	1197	867	853	753

Source: IEB V10.00 and MTH V06.02-201204, own calculations.

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