

OFF-THE-JOB SHORT-TERM TRAINING PROGRAMS FOR IMMIGRANTS: DO EFFECTS DIFFER FROM NATIVES AND WHY?*

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Abstract

Labour market integration of immigrants provides a difficulty in many countries. As a consequence, immigrants are substantially over-represented in welfare systems. Thus, to reduce high levels of welfare dependency it is crucial that active labour market policy programs like training programs are effective not only for the native population but also for the immigrants. However, empirical evidence about the effectiveness of active labour market programs for immigrants is scarce so far. Based on recent and comprehensive data on immigrants in German welfare, we evaluate the effects of a set of different off-the-job short-term training programs on welfare receipt and the transition to employment. The core questions of the paper are: What are the effects of these training programs for immigrants in welfare? Are there any differences in the effects of training programs compared to natives? And what are the reasons for these potential differences, i.e. are there differences in socio-demographic variables or is it discrimination? To answer these questions we evaluate the effects of the training programs separately for immigrants and natives. Our analysis is based on propensity score estimators which allow us to investigate effect heterogeneity. To provide an explanation of the differences in effects, we suggest a decomposition based on the matching procedure that allows identification of differences due to characteristics and differences related to an immigrant fixed effect.

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1 Introduction

Labor market integration of immigrants provides a difficulty in many countries. As a consequence, immigrants are substantially over-represented in welfare systems. For example, in Germany more than 30% of all welfare recipients are immigrants or have foreign roots, whereas in the total population this share is about 20%. Thus, to reduce high levels of welfare dependency it is crucial that active labor market policy (ALMP) programs, like training programs, are effective not only for the native population but also for the immigrants. Empirical evidence about the effectiveness of ALMP programs for immigrants is scarce so far.

In this paper, we analyze comprehensive data on native and immigrant welfare recipients in Germany. The data are merged from five different sources of administrative records. Due to an innovative identification approach we do not have to rely on foreigners only, but can also include naturalized persons and resettler in the group of immigrants. Using these data we look at how different labor market training programs affect the probability of exiting the welfare system and taking up a job providing a sufficient income above the subsistence level. This analysis is done separately for both ethnic groups. However, we are not only interested in whether the training programs are effective in reducing welfare dependency and improving employment chances in the respective group but whether their effectiveness differs between natives and immigrants. Therefore, the central question of the paper is whether these differences are migration background specific or whether they are caused by differences in the composition of the native and immigrant population in the welfare system (e.g. due to differences in education or in the employment history). In order to answer this question we propose a propensity-score based decomposition method of differences in treatment effects between natives and immigrants which could be thought of as a balanced difference-in-difference estimator.

Determining the source of differences in program effectiveness between the two ethnic groups is important. If, for example, differences in program effectiveness are driven by differences in the composition of native and immigrant welfare recipients it implies a general potential for welfare agencies to improve the targeting of programs to participants. If, on the other hand, differences are due to the migration background per se, then this points to discrimination in the effectiveness of training programs and the question arises whether the use of programs for specific ethnic groups is reasonable at all. Clearly, both possible explanations for differences in program effects must cause concern among policy makers. However, since effect differences due to the migration background per se are especially problematic and affect at least 30% of the welfare population, we will mainly focus on the contribution of the migration background to

the observed differences in the effectiveness of training programs.

The remainder of this paper is organized as follows. Section 2 presents some details of the German welfare system and introduces the training programs of interest. The data used in the empirical analysis is described in section 3. Our evaluation approach and the propensity-score based decomposition method of differences in treatment effects between natives and immigrants is discussed in section 4. In section 5 we present the estimation results. The final section concludes.

2 Institutional Background

2.1 The German Welfare System

The generous German welfare system was substantially reformed at the beginning of 2005.¹ Until 2005, welfare recipients were eligible for social assistance (SA) if they had not contributed to unemployment insurance before. In addition, persons whose unemployment benefit (UB) claims had expired were eligible for unemployment assistance (UA). If UA was too low to provide a minimum living standard, a combination of UA and SA was granted. In contrast to UB, UA and SA were both means-tested. With the welfare reform of January 2005, both programs were replaced by the so-called unemployment benefits II scheme (UBII). In contrast to UA, which replaced up to 57% of the previous net earnings, UBII (as former SA) does not depend on former earnings. The means-test takes into account the wealth and income of all individuals living in the household. At the beginning of 2005, the standard UBII amounted to EUR 345 in West Germany and to EUR 331 in East Germany. Meanwhile, the level of UBII in East Germany was adjusted to the Western level and UBII was slightly raised in both parts to compensate for inflation. Moreover, the standard UBII welfare payments also include compulsory social insurance contributions, rents and housing costs. Additional expenses for special needs may also be covered.

In order to be eligible for UBII, persons have to be aged 15 to 64 years and be able to work for at least 15 hours per week. It is important to note that unemployment is not a prerequisite for receipt of UBII. Individuals who are employed but whose household income is too low are also eligible for UBII. Claimants capable of work have to register with the local welfare agency and are obliged to participate in welfare-to-work programs. This obligation marks an important

¹This reform was the last part of a series of four major reforms of the German labor market which were enacted between 2003 and 2005. These reforms have become known as ‘Hartz reforms’ named after the chairman of the commission proposing the reforms. Since the reform of the welfare system is the last of the four reforms it is also referred to as the ‘Hartz IV reform’. See Jacobi and Kluge (2007) for a description of all four ‘Hartz reforms’.

change in German welfare policy. Namely, for the first time welfare recipients became a target group of labor market activation. Before 2005, hardly any effort was made to reintegrate these persons into the labor market and welfare solely relied on passive benefit payments. Since 2005, the welfare recipients' rights and duties in the activation process are set out in a so-called 'integration contract' (*Eingliederungsvereinbarung*), an agreement between the welfare agency and the benefit recipient containing obligations with respect to program participation and job search activities, as well as detailing the services provided by the welfare agency. The integration contract is usually set up after the first meeting of a welfare recipient with the caseworker. The caseworker counsels and advises the welfare recipient and decides about placement in off-the-job short-term training programs.

2.2 Off-the-Job Short-term Training Programs

Short-term training programs were introduced in Germany with the enactment of Social Code III (*Sozialgesetzbuch III*) in 1997/1998. They replaced the former short-term qualification measures (*kurzzeitige Qualifizierungsmaßnahmen*), training measures for UB and UA recipients and employment counseling measures (*Maßnahmen der Arbeitsberatung*). In 2005, the rules from Social Code III were adopted in Social Code II (*Sozialgesetzbuch II*), the legal basis for UBII. The primary purpose of short-term training programs is to improve the integration prospects of the participating individuals. For this reason, programs consist of three different types of measures (modules) that can be accomplished separately or in combination and allow a flexible implementation in line with the specific needs of the job seekers and the options of the local employment agencies as well.

The first type of courses are aptitude tests (*Eignungsfeststellungen*) that last for up to four weeks. These tests are used to assess the suitability of job seekers in terms of skills, capability and labor market opportunities for specific occupations. During the assessment process occupation specific skills are provided which shall help to improve employment chances in the respective occupations. The measures of the second type of short-term training programs aim at improving the applicant's presentation and job search abilities (*Überprüfung der Verfügbarkeit/Bewerbertraining*). The activities support the individual's efforts to find work or efforts by the welfare agency to place him/her, especially through job-application training, counseling on job search possibilities or measures assessing the person's willingness and ability to work (work-tests). Measures of the second type are promoted for up to two weeks. The third type contains practical training of the participants (for up to eight weeks) providing necessary skills and techniques required for placement in employment or vocational training (*Vermittlung*

notwendiger Kenntnisse und Fertigkeiten). The courses cover specific working techniques (e.g., business administration), computer courses and language courses. Combinations of modules, e.g., a job aptitude test followed by a computer course, could be granted for a maximum of twelve weeks. Short-term training programs could be provided on-the-job within firms and off-the-job. Off-the-job courses are offered by service providers (*Bildungsträger*) and of main interest in this paper.

Financial support during the training is provided by the FEA and covers course costs, examination fees, travel grants as well as child care. In addition, participants receive UBII payments. Decisions about support of courses and placement of welfare recipients are made by the welfare agencies. Support is authorized on recommendation or with the approval of the agency only and activities are often initiated by caseworkers. However, short-term training programs may be initiated by welfare recipients as well.

3 Data

For the empirical analysis, we use a sample of inflows into welfare in Germany from January, 1st 2006 to December, 31st 2006. The data stem from administrative records of the Federal Employment Agency (*Bundesagentur für Arbeit*, FEA) that were provided by the Institute for Employment Research, Nuremberg. To ensure that inflows in the data are not short-term recurrences of welfare episodes, for example due to false reporting or data errors, only persons are regarded who have not been registered in welfare for at least three months before the sampling date.

The sample is restricted to unemployed welfare recipients aged 18 to 57 years at the sampling date. Although unemployment is not a prerequisite for receiving welfare benefits, it is required for participation in full-time short-term training programs. In addition, welfare recipients younger than 18 years are excluded so that the estimates are not affected by compulsory schooling. Welfare recipients aged 58 years and above are eligible for so-called relaxed welfare receipt. Within this scheme active job search is not required for benefit entitlement and claimants can rely on welfare until (early) retirement age.

The data were merged from five different sources of administrative records. The main source is the *Integrated Employment Biography* data set (*Integrierte Erwerbsbiographien*, IEB) that provides comprehensive information with regard to the socio-demographic situation, the labor market history, and the participation in ALMP programs. The information included in IEB covers the years 1990 to 2008 and, thus, provides a sufficient source of background information

for welfare inflows in 2006. These data allow a quite detailed characterization of the current situation and the labor market chances of the welfare recipients. However, since welfare receipt is asset-tested, i.e. the wealth and the income of further household members is considered, we merge information on further persons living in the households that are recorded in the *Benefit History Master Records (Leistungshistorikgrunddatei, BHMR)*.

In the analysis, we distinguish the following ethnic groups. Immigrants comprise all foreigners and naturalized persons. Foreigners are persons who do not possess German citizenship. The group of naturalized contains, on the one hand, German resettler from Eastern Europe, and, on the other hand, naturalized foreigners. Although citizenship is recorded in IEB as well, identification of naturalized immigrants and German resettler from Eastern Germany could not be obtained from this dataset. To identify resettlers we consider the information on the immigration date recorded in the *Job Seeker Statistics (Arbeitsuchendenstatistik, ASU)* dating back to 1990, which explicitly contains the information on resettler status. To identify naturalized immigrants, we use the information of IEB for the years 1990 to 2008 and in addition the *Employment History Records (Beschäftigtenhistorik, EHR)* for the years 1975 to 1989. If a person with German citizenship was coded as a foreigner in any spell between 1975 and 2008 we treat him as a naturalized immigrant. Unfortunately, the administrative records of the FEA do neither contain information about the place of birth nor about the parents of the individual. Moreover, since minors (persons under 18 years of age) do not appear in any of these datasets, we are neither able to identify immigrants who were naturalized at an early age nor second generation immigrants.

In line with the two empirical questions of the paper, i.e. the evaluation of the program effects for immigrants and natives and the decomposition of effect differences, the analysis sample was drawn in a 1:1 ratio of immigrants and native Germans on regional level. For each immigrant randomly drawn from a welfare agency district, one native German was drawn from the same district. Therefore, immigrant-native German ratios are balanced across districts and should mitigate regional imbalances in the distribution of immigrants that could affect the estimates. The final sample for the analysis contains 82,774 observations.

To evaluate the effects of short-term training programs and to decompose the differences in the effects, we rely on two outcomes of interest. As the main purpose of ALMP is to eliminate welfare dependency, we use the drop-off rate from welfare as the first outcome. However, elimination of welfare dependency does not solely depend on the direct effects for the individual under study but may result from changes in the household as well, e.g. if the income of the partner increases. Therefore, we also estimate the direct effects of training on the drop-off rate

from welfare conditional on employment uptake of the individual. Both outcome measures can be observed until July 2008 and have been merged from the *Employment Statistics Register* (*Beschäftigtenstatistik*, ESR).²

4 Evaluation Approach

4.1 Estimation of Treatment Effects

The evaluation of the treatment effects of a participation in a short-term training program on the drop-off rates from welfare has to consider the set-up of the comprehensive system of ALMP in Germany. This system is characterized by a wide array of programs which take place continuously over time and are open to welfare recipients who meet certain eligibility criteria, where participation can take place at different points of time during the welfare spell. Recent empirical literature highlights the need to consider the timing of treatment in the unemployment spell when evaluating treatment effects, see e.g. Abbring and van den Berg (2003), Sianesi (2004), Thomsen (2007), Fredriksson and Johansson (2008), or Hujer and Thomsen (2009). Whereas standard evaluation literature usually deals only with binary information, i.e. whether an individual has been subject to treatment or not, the recent literature points out the importance of information on the timing of treatment events as it conveys useful information for the identification of the treatment effect and has implications for the definition of the comparison groups. Specifically, the starting point of the program within the individual welfare spell may be an important determinant for the selection of participating individuals, as well as for the type of program the individual is assigned to.

The basis of the empirical analysis is given by the potential outcome approach of causality, comprehensively described in Heckman, LaLonde, and Smith (1999) and variously attributed to e.g. Neyman (1923), Roy (1951) and Rubin (1974). Following the conventional notation, let Y^1 and Y^0 denote the two potential outcomes, where Y^1 is the outcome when the individual participates in the program, and Y^0 is the outcome, when the individual does not participate. Since the individual cannot be in both states at the same time, one of the potential outcomes is

²It has to be noted that due to delays in reporting by employers, the information available in the ESR has an up to two-year time lag. Therefore, the FEA forecasts the information included. In consequence, assessing contemporary effects of ALMP programs is possible, but the results will be based purely on forecasted employment information. As the evaluation of program effects should be based on actually reported, rather than forecasted information, our observation period ends in July 2008. Data were extracted in February 2009. However, as the time lag between the corresponding date of information and the extraction from the ESR for our analysis amounted to only eight months, the relation between reported and forecasted data has to be checked. Based on the results of Fröhlich, Kaimer, and Stamm (2004), the share of forecasted data used in the analyses amounts to between four and ten percent at maximum.

unobservable and direct estimation of the treatment effect is impossible. We focus on the average effect of treatment on the treated (ATT) at some given elapsed welfare duration.³ Conditioning on the elapsed welfare duration is sensible in the German context for a reason first raised by Sianesi (2004). She argues that in a comprehensive ALMP system a person will join a program at some point, provided the individual remains in welfare long enough. Consequently, the reason why an individual is not observed as participating in a program is that the person has found left the welfare system before, or the time horizon of the analysis is too short. Obviously, although participation in a program is not mandatory in Germany like e.g. in Sweden, it tends to be true that benefit recipients become more likely to participate in any program the longer they remain on welfare. The argument is therefore reasonable for the evaluation of training programs as well.

In line with that, participation and non-participation have to be defined dynamically, i.e. with respect to the point in time in which the comparison is made. According to Sianesi (2004), persons who have neither entered a program nor left welfare up to a specific point in time are defined as non-participants of interest or ‘waiters’ (in the sense that they are waiting to be allocated to a program). Thus, non-participation can be interpreted as the default state for each individual, and everybody is a non-participant until entering a program or leaving to take up a job. In this context, it should be noted that individuals who are defined as non-participants at the moment we start our comparison may enter a program at a later point in time. The evaluation approach in the dynamic setting could be formalized as follows. Let $U = \{0, \dots, U_{\max}\}$ define the discrete elapsed welfare duration of the individual since registration at the local welfare agency. Furthermore, let u denote the point of time during the welfare spell in which the program of interest starts and D_u the treatment indicator with the discrete time index. $D_u = 1$ if the individual starts a program at time u of the welfare spell, $D_u = 0$ if the individual remains on welfare at u . Program effects are estimated for time t , i.e. the time since the program started. The hypothetical outcomes for time t given a treatment at time u are then defined as $Y_{t,u}^1$ for individuals who received the treatment at u and $Y_{t,u}^0$ for individuals who did not receive the treatment at least up to time u . The parameter of interest for each u is then the average effect in t for individuals starting a program in period u of their welfare spell

³Imbens (2000) and Lechner (2002) generalize the framework for situations where a whole range of programs is available. Although we analyze a number of different types of short-term training programs, the focus of the analysis are the effects of participation compared to non-participation in that program and not relative effects of comparing one type of short-term training with another. Therefore, we forgo the distinction of J different available programs in the description.

compared to not joining at u :

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

Whereas the first term is identified in the data by the observed outcome of the participants, the second term has to be estimated. Simply using the observable non-participants' outcomes to approximate the unobservable participants' outcomes without treatment may lead to biased estimates due to self-selection.

To solve the selection problem we apply a propensity score matching estimator. The basic idea of the matching approach is to find, in a large group of non-participants, those individuals who are similar to the participants in all relevant pre-treatment characteristics X ('statistical twins'). However, it is well known that matching can become hazardous when X is of high dimension. To deal with this dimensionality problem, Rosenbaum and Rubin (1983) suggest the use of the propensity score $p(X) = E(D = 1|X)$, i.e. the probability of participation in a program, summarizing the information of the relevant covariates X into a single index function. However, for the ATT to be identified with matching, the so-called *conditional independence assumption* (CIA, $Y^0 \perp\!\!\!\perp D|X$ in the static binary case, Lechner, 1998) has to be imposed. It states that, conditional on the set of relevant (observable) covariates X , the non-participation outcome Y^0 is independent of the participation decision.

For the dynamic case, we have to invoke an adjusted version, the *dynamic conditional independence assumption* (DCIA):

$$Y_{t,u}^0 \perp\!\!\!\perp D_u | p(X_u), D_1 = \dots = D_{u-1} = 0,\tag{2}$$

i.e. the hypothetical outcome at time t after not participating up to time u is independent of program participation at time u , conditional on the propensity score $p(X_u)$ measured at time u . The DCIA ensures that treated and non-treated individuals are comparable in their non-treatment outcomes at time t conditional on $p(X_u)$, conditional on claiming welfare benefits up to time $u - 1$, and conditional on not receiving treatment before u . In addition, the availability of non-participating analogues for the participants must be guaranteed (*common support*), i.e. $Pr(D = 1|X_u) < 1$ (Smith and Todd, 2005a).

4.2 Implementation

For the DCIA to hold, it is necessary to observe all covariates that, conditional on having spent a given welfare duration u , jointly influence the participation decision at that time (D_u) and the outcome variable where such a decision is postponed further ($Y_{t,u}^0$). In line with that, we condition on previous welfare experience by stratifying the welfare duration in quarters. Using this kind of aggregation is useful for consideration of differences due to the timing of treatments since we expect the probabilities of leaving welfare for program or employment to remain relatively constant within quarters of the welfare spell. For the propensity scores, we have estimated separate probit models for each group, each treatment, gender, and the first four quarters of welfare receipt. Each probit estimates the probability of starting a program in quarter u , conditional on X , conditional on having reached the welfare duration of $u \in \{1, \dots, 4\}$ quarters, and conditional on not having received a treatment before u in the welfare spell. Hence, we analyze the effects of a training program for groups of individuals that join within the first year of the welfare spell. The outcomes are measured monthly from the first month of the sequent quarter after (potential) participation onwards until July 2008 due to the time horizon of the analysis.⁴ The treatment effects were estimated using kernel density matching on the estimated propensity score. Standard errors were calculated by bootstrapping with 200 replications.

With regard to the variables selected as relevant to solve the potential self-selection bias, the comprehensive data at hand provides a sufficient basis. In the empirical specification of the propensity score models, we use 21 categories of variables comprising socio-demographic information like age, marital status, or the number of children, the qualification of the individual and information characterizing the employment, unemployment, and welfare history of the participants dating in some cases dating back until 1990. The specifications for the final models used in the estimations were obtained by estimating probit regressions starting with the full set of variables and a stepwise dropping of jointly insignificant variable-blocks (indicated by F -tests) in order to provide a parsimonious specification. For this reason, the model specifications vary across the probit models estimated for ethnic groups, quarters of program start, gender, and the programs considered.

The estimated propensity score should guarantee that the included variables are balanced be-

⁴For programs assigned in the first quarter of the welfare spell we have an observation period of at least 16 months for each observation. The last entry into the welfare system in our sample is December 31st, 2006. Thus, a program in the first quarter could be assigned until March 31st, 2007. In this case, the observation period for the outcomes is April 2007 until July 2008. Consequently, for programs assigned in the second quarter we have an observation period of 13 months. In the third quarter the observation period lasts for 10 months and in the fourth quarter for 7 months.

tween treatment and comparison group. To check the balancing property of the estimated propensity score, we applied a procedure suggested by Smith and Todd (2005b):

$$\begin{aligned}
X_{k_u} = & \beta_0 + \beta_1\hat{p}(X_u) + \beta_2\hat{p}(X_u)^2 + \beta_3\hat{p}(X_u)^3 + \beta_4\hat{p}(X_u)^4 \\
& + \beta_5D + \beta_6D\hat{p}(X_u) + \beta_7D\hat{p}(X_u)^2 + \beta_8D\hat{p}(X_u)^3 + \beta_9D\hat{p}(X_u)^4.
\end{aligned} \tag{3}$$

Eq. (3) was estimated for each variable X_{k_u} included in the propensity score of program participation in quarter u . Afterwards, the null hypothesis of β_5 to β_9 being jointly zero was tested. The test indicates, whether there are differences due to the treatment indicator conditional on a quartic polynomial of the propensity score. If ideal balancing is achieved all those coefficients should be zero.

Obviously, caseworkers play a crucial role in the process of assignment to programs. Turning down a placement could be sanctioned by benefit revocation and, hence, caseworkers can be assumed to have the final word in the participation decision. If the caseworkers act on unobservable information that is correlated with the individual's potential labor market outcomes, the DCIA would be violated. Despite the fact that assignment has been largely discretionary on characteristics it is not very likely that caseworkers have referred to further unobservable information than the large set of variables recorded. The data used in this analysis were collected by the caseworkers and supplemented by their own subjective assessment of the qualification and placement restrictions of the individuals. Moreover, it should be noted that - to bias the estimates - any further unobserved information has to jointly influence the participation decision and the outcomes. Given the extended details of the assignment process together with the large set of variables we considered relevant and we controlled for in the estimations, we assume that caseworkers act idiosyncratically given the observable characteristics of the individuals and the subjective assessments.

For interpretation of the results, one has to bear in mind that the chosen comparison group does not reflect a no-program state, but rather possibly postponed participation. If we choose as the comparison group those individuals who have been observed to never participate in the data, this may invalidate the DCIA, as we have to condition on future outcomes. For unbiased estimation we have to rule out anticipatory effects, else people would behave differently conditional on future outcomes or treatments. If for example, non-participants would know in advance to be treated later and when, then matching could not solve the selection problem and we would overestimate the treatment effect since the non-participants have no reason to leave welfare instantly for work. In contrast, if people dread the prospect of being treated and, again, they know when to be treated in the future they will leave for work and the program effect is

underestimated since non-participants would differ significantly even after matching from the participants. However, it is important to note that this is only the case if people know exactly that they will be treated and when. In line with that, Abbring and van den Berg (2003) point out that the exclusion of anticipatory effects does not rule out that the individuals know and act on the determinants of assignment to treatment or labor market outcomes, i.e. individuals are allowed to adjust their optimal behavior to the determinants of the treatment process, but not to realization of the treatment. This is not a problem for the analysis as long as treated and non-treated individuals anticipate the chances of these events conditional on propensity score and the elapsed welfare duration in a certain quarter in the same way. Hence, with respect to the assignment process during the individual welfare spell people may know the determinants, but it is unlikely that they know the realizations of the future events. For that reason, we assume our estimates not to be affected by anticipatory effects.

4.3 Decomposition of Differences in Treatment Effects

Considering effect heterogeneity in the treatment effects between ethnic groups for a particular program can be used to reveal important insights. Assuming that identical programs are provided, differences could be, on the one hand, due to differences in the composition of the groups, i.e. the distribution of characteristics that are relevant for program and labor market success may be different. Hence, when controlling for all these variables in the estimation (as required for the validity of the DCIA) no further differences should occur. However, on the other hand, if residual differences would remain between the compared ethnic groups these differences are solely due to the ethnic group attachment of the individual and can be interpreted as potential discrimination. An important question in the context of providing ALMP for immigrants is whether potential discrimination is identified as the unexplained part of the gap in the difference of the treatment effects. To analyze the extent of the potential discrimination, we suggest and apply the following decomposition procedure.

To abbreviate notation, we suppress the indicators of the dynamic setting. Starting point for the decomposition is the raw differential Δ_{Dif} of the differences in the ATT between immigrants and native Germans:

$$\Delta_{Dif} = \Delta_{Mig}^{ATT} - \Delta_{nG}^{ATT}, \quad (4)$$

with

$$\Delta_{Mig}^{ATT} = E \left(Y^1 - Y^0 | X_{Mig}, D = 1 \right) \Big|_{Mig=1}, \quad (5)$$

and

$$\Delta_{nG}^{ATT} = E \left(Y^1 - Y^0 | X_{nG}, D = 1 \right) \Big|_{Mig=0} . \quad (6)$$

Here, Δ_{Mig}^{ATT} denotes the ATT for the immigrants and Δ_{nG}^{ATT} is the ATT for the native Germans who participated in the program under consideration. Both ATTs were estimated according to the procedure described in the previous section.

To highlight the differences in the raw differential, we have added the relevant conditions in eq. (5) and (6). Mig is a dummy variable taking value 1 if the group of interest are immigrants, and 0 if native Germans are considered. Moreover, the ATT of the immigrants (eq. 5) is conditional on the observable characteristics X_{Mig} of the participating immigrants; the ATT for the native Germans (eq. 6) on the characteristics X_{nG} of the participants in that group.

Accordingly, we could decompose the raw differential in eq. (4) into the following two components, differences in characteristics and differences due to belonging to a particular ethnic group (indicated by the dummy Mig):

$$\Delta_{Dif} = \Delta_{\Delta}^{ATT} |_{X_{Mig}} + \Delta_{\Delta}^{ATT} |_{Mig=1} . \quad (7)$$

The first term on the right-hand side denotes the difference in the ATT for immigrants and native Germans that is solely due to unobservable differences between the two ethnic groups. Holding the observable characteristics constant, i.e. assuming all individuals to possess the characteristics of the immigrants, X_{Mig} , the difference is defined as:

$$\Delta_{\Delta}^{ATT} |_{X_{Mig}} = E \left(Y^1 - Y^0 | X_{Mig}, D = 1 \right) \Big|_{Mig=1} - E \left(Y^1 - Y^0 | X_{Mig}, D = 1 \right) \Big|_{Mig=0} . \quad (8)$$

The second term on the right-hand side of eq. (7) is the difference in the ATTs that is due to differences in observable characteristics between immigrants and native Germans:

$$\Delta_{\Delta}^{ATT} |_{Mig=1} = E \left(Y^1 - Y^0 | X_{Mig}, D = 1 \right) \Big|_{Mig=1} - E \left(Y^1 - Y^0 | X_{nG}, D = 1 \right) \Big|_{Mig=1} . \quad (9)$$

Here, the second term on the right-hand side describes the hypothetical ATT for immigrants if they had the characteristics of the participating native Germans.

The proposed decomposition of the differences in the treatment effects is similar to a difference-in-differences estimator. It allows the ceteris paribus identification of the difference in program effects that is due to variation in observable characteristics, i.e. differences in the composition of the immigrant and native participants in the particular program, and of the part that is due to belonging to the immigrant group. The latter relates to unobservable differences between immigrants and native Germans.

To estimate the difference that is due to unobservable differences (eq. 8), we have to match participating immigrants with comparable participating native Germans, i.e. $X_{Mig} = X_{nG}$. To do so, we apply a matching procedure similar to that describe above. In the first step, we estimate the ATTs separately for both ethnic groups. In the second step, we keep only the participants in both samples and match treated immigrants and treated native Germans conditional on the distribution of the observable characteristics of the treated immigrants. Outcome variable in this matching step is the individual treatment effect for each participant. Therefore, the resulting effect of the second matching step gives the average difference in program effects between immigrants and natives which is due to the migration background. Analogously to the estimation of the program effects, we also use a kernel density matching estimator for the second matching step.

5 Empirical Results

5.1 Quality of the Estimates

For the estimation of program effects we stratify our data by ethnic group, gender and quarter of program start. In total we are able to estimate treatment effects for 51 different strata.⁵ To obtain valid treatment effects it is crucial that the covariates included in the propensity score estimation are balanced between treatment and comparison group after matching. As balancing test we apply the procedure suggested by Smith and Todd (2005b). Results of this test are summarized in Table 1. The test is passed in 2.355 of 2.481 cases at the 1% significance level. Thus, balancing is not ideal in every case but sufficient to obtain valid treatment effects. The matching quality is similar for men (1.387 of 1.460 tests passed) and women (968 of 1.021) as well as for natives (1.151 of 1217) and immigrants (1.204 of 1.264). Even at the 5% level 2.270 of the total 2.481 tests are passed and 2.184 at the 10% level.

Table 1: Results for Smith and Todd (2005) Balancing Test

		Men				Women			
		$p > .1$	$p > .05$	$p > .01$	Regressors	$p > .1$	$p > .05$	$p > .01$	Regressors
Aptitude tests									
Quarter 1	Natives	28	31	35	37	42	44	44	46
	Migrants	66	70	72	74	40	42	44	44
Quarter 2	Natives	50	54	56	58	38	38	39	39
	Migrants	36	36	38	40	51	53	54	59

Continued on next page

⁵In 13 strata the number of treated individuals is too small to estimate valid treatment effects. See Table 1 for the affected strata.

Table 1: Results for Smith and Todd (2005) Balancing Test (continued)

		Men				Women			
		$p > .1$	$p > .05$	$p > .01$	Regressors	$p > .1$	$p > .05$	$p > .01$	Regressors
Quarter 3	Natives	36	37	38	38	38	40	42	45
	Migrants	66	67	68	74	27	29	30	32
Quarter 4	Natives	30	31	33	35	/	/	/	/
	Migrants	45	48	53	55	/	/	/	/
Training aimed at improving presentation and job search abilities									
Quarter 1	Natives	58	61	63	65	41	43	44	48
	Migrants	51	54	59	66	47	48	49	50
Quarter 2	Natives	41	42	45	46	31	32	32	32
	Migrants	73	74	77	80	/	/	/	/
Quarter 3	Natives	23	24	24	26	/	/	/	/
	Migrants	/	/	/	/	/	/	/	/
Quarter 4	Natives	/	/	/	/	/	/	/	/
	Migrants	/	/	/	/	/	/	/	/
Training providing necessary skills required for placement									
Quarter 1	Natives	48	51	52	54	44	46	49	52
	Migrants	55	55	60	62	51	53	53	55
Quarter 2	Natives	33	36	37	42	35	35	36	38
	Migrants	34	35	37	39	63	65	67	69
Quarter 3	Natives	57	58	61	68	40	43	47	50
	Migrants	32	32	32	33	40	40	41	44
Quarter 4	Natives	45	49	52	55	34	34	36	39
	Migrants	53	56	58	59	25	26	27	29
Combined training programs									
Quarter 1	Natives	51	55	56	62	36	39	40	44
	Migrants	76	77	80	83	52	56	56	59
Quarter 2	Natives	50	53	54	57	32	32	32	34
	Migrants	43	43	44	44	40	42	43	48
Quarter 3	Natives	34	36	37	38	27	28	29	30
	Migrants	27	28	28	31	33	33	34	35
Quarter 4	Natives	36	36	38	39	/	/	/	/
	Migrants	/	/	/	/	/	/	/	/

Remarks: Fields marked by a / indicate that the number of treated individuals in the respective cell was too low to estimate valid treatment effects.

5.2 Program Effects

The estimated program effects and corresponding t-values are displayed in Tables 2 to 5. The effects are estimated separately for natives and immigrants, for men and women and for each quarter. As can be seen from Table 2, aptitude tests have a positive impact on the probability of native and immigrant males to leave the welfare system and to take up employment providing a sufficient income above the subsistence level. This positive impact is independent of the exact timing of the training. However, the absolute size and the significance of the effects differ across quarters and also between the two considered ethnic groups. In the first quarter of welfare dependency aptitude tests show only a modest and mainly insignificant effect on

the probability of native men to leave the welfare system. Male participants with migration background profit slightly more in the short-run. During the first nine months after program start the probability of immigrants to leave the welfare system increases by about 5 percentage points. Similar effects are estimated for the uptake of employment in the first six months after program start. At the end of the observation period the employment effects are even larger. Nine to twelve months after the beginning of an aptitude test we observe an increase in the employment probability of a male immigrant welfare recipient of about 7 percentage points. Even slightly larger employment effects are estimated for native males. In this group the probability to take up employment within one year after the training increases by about 9 percentage points. Thus, while the welfare effects are larger for immigrants, the employment effects of aptitude tests starting in the first quarter of a welfare spell are larger for natives.

In the second quarter welfare effects are again larger for immigrant than for native males amounting up to 10 percentage points. Consequently, the effects are also larger than in the first quarter. The same is true for the employment effects which now also amount to about 10 percentage points and which are now larger than the corresponding estimates for native males. In the third quarter program effects for immigrant males further increase. The welfare effects in this quarter amount to about 13 percentage points nine months after program start and the employment effects to about 15 percentage points. For natives the estimated effects are much lower. While the welfare effects are again insignificant, the employment effects amount to 8 percentage points in the first six months after the program start and to about 6 percentage points nine months after the start. In contrast to the third quarter we observe a reversed picture in the fourth quarter, in which both welfare and employment effects are much larger for natives than for immigrants. Six months after program start welfare effects amount to 16.5 percentage points for native males and to 12 percentage points for immigrants. The employment effects are nearly twice as large for natives as for immigrants (18.5 percentage points compared to 9.4 percentage points). Thus, while in the second and third quarter immigrants profit more from aptitude tests than natives, natives do better in the fourth quarter.

For women we observe a more uniform pattern of the estimated effects. Native females seem to profit more from aptitude tests than women with migration background. In the first quarter the probability to leave the welfare system within one year after program start increases for a female native participant by about 8 percentage points. The corresponding figure for immigrants amounts to 3 percentage points only and is not statistically different from zero. A similar picture arises with respect to employment. While for native women the probability to find a job increases by 9.5 percentage points one year after the program, female immigrants face only

a slightly significant increase of 5 percentage points. In the second quarter neither welfare nor employment effects are significant for immigrant females. For native women welfare effects are only slightly significant in the middle of the observation period. However, employment effects are highly significant and amount to more than 10 percentage points. Similar employment effects for native females are found in the third quarter. In this quarter, employment effects are also positive for female immigrants but somewhat lower in magnitude compared to natives. In the fourth quarter we observe positive welfare effects for women with migration background.

In contrast to aptitude tests training aimed at improving presentation and job search abilities is rather ineffective (see Table 3). For native males we estimate insignificant welfare and employment effects in all four considered quarters. For male immigrants the estimated effects are also insignificant in the second, third and fourth quarter. Only in the first quarter we observe slightly significant positive effects around nine months after program start when both welfare and employment effects reach a maximum of 6 percentage points. For female immigrants we observe negative welfare and employment effects at the beginning of the observation period in the first quarter. The probability to leave the welfare system is reduced by about 7 percentage points and the employment probability by 5 percentage points in the first six months after program start. The corresponding figures for native women are positive. While the welfare effects are statistically insignificant, the employment probability increases by about 5 percentage points in the first nine months after the training and then rises further to 9 percentage points one year after program start. In the second quarter both welfare and employment effects are insignificant for immigrant women. Welfare effects are also insignificant for female natives, while employment effects are significantly positive in the middle of the observation period reaching a maximum of 12 percentage points nine months after program start.

Contrary to training aimed at improving presentation and job search abilities training providing necessary skills required for placement seems to be more effective (see Table 4). For native men we observe positive welfare and employment effects in the first quarter. The training increases the probability of participants to leave the welfare system within the first six months after program start by 4 percentage points. The effect then increases further and amounts to 7 percentage points one year after the training. The employment effects are even larger and amount to more than 10 percentage points in the second half of the observation period. For male immigrants we also observe positive employment effects. However, compared to native men effects are smaller in magnitude and only slightly significant. One year after program start the probability to find a job is increased by 6 percentage points. The welfare effects for men with migration background are insignificant. In the second, third and fourth quarter welfare

and employment effects are mostly insignificant for both natives and immigrants.

In contrast to the picture observed for men, we find for women and the first quarter that training providing necessary skills required for placement is more effective among participants with migration background than for natives. While for native women welfare effects are insignificant and employment effects amount to about 6 percentage points, we estimate considerably larger effects for immigrants. Both the probability to leave the welfare system and the probability to take up employment increase by more than 10 percentage points one year after program start. In the second quarter the welfare and employment effects for female immigrants are insignificant or even slightly negative significant. The welfare effects for women without migration background are positive, but not statistically significant. However, the employment effects for female natives are highly significant positive. The probability to take up a job increases by more than 10 percentage points six months after program start and then remains almost constantly larger compared to the situation without participation. In the third quarter all estimated effects are insignificant, while we observe negative treatment effects throughout the whole observation period in the fourth quarter. Welfare effects are even slightly significantly negative six months after program start for women with migration background.

Even though some training modules show a positive impact on the probability to leave the welfare system and to take up employment, the combination of two or three modules in one program is rather ineffective (see Table 5). In the first quarter we find no significant effect for any subgroup. In the second quarter we only find significant positive welfare effects for male immigrants and slightly significant positive employment effects for female immigrants. The probability for men with migration background to leave the welfare system one year after program start increases by almost 12 percentage points due to participation. For female immigrants the probability to take up employment is increased by about 8 percentage points one year after participation. In the third and fourth quarter the estimated effects are mostly insignificant for both ethnic groups and for both genders.

To summarize our findings, we find pronounced differences in the effectiveness of the considered training programs. For aptitude tests we observe positive welfare and employment effects. While in the case of women treatment effects are larger for natives than for immigrants, the picture is ambiguous for men depending on the timing of the training. In some quarters men with migration background profit more from the training while in others native men do better. Training providing necessary skills required for placement also shows positive welfare and employment effects especially when it takes place right at the beginning of the welfare spell. As in the case of aptitude tests, treatment effects differ between natives and immigrants and

between men and women. For women and the first quarter we observe that this form of training is more effective among participants with migration background. In contrast, for men and the first quarter we find that natives do better. Irrespective of the migration background the effect of training aimed at improving presentation and job search abilities is rather limited. Here we only observe slightly significant positive welfare and employment effects for male immigrants nine months after program start and significantly positive employment effects for native females throughout the whole observation period in the first quarter of the welfare spell. Similarly, the combination of all three training modules is quite ineffective. While in the first quarter none of the considered subgroups profit from the combined training program, in the second quarter we only find significantly positive welfare effects for men with migration background and slightly significant positive employment effects for female immigrants.

Table 2: Effects of aptitude tests

Month after program start:		Men				Women			
		3	6	9	12	3	6	9	12
Quarter 1		Treated: 507 natives and 448 immigr.				Treated: 297 natives and 180 immigr.			
Welfare	Natives	0.0096	0.0420	0.0315	0.0312	0.0295	0.0670	0.0615	0.0816
		0.49	1.93	1.42	1.39	1.17	2.40	2.14	2.79
	Immigrants	0.0512	0.0445	0.0570	0.0381	0.0543	0.0587	0.0433	0.0324
		2.48	2.01	2.46	1.62	1.77	1.74	1.25	0.91
Employment	Natives	0.0668	0.0867	0.0834	0.0939	0.0490	0.0690	0.0673	0.0948
		3.69	4.34	4.06	4.41	2.33	2.88	2.69	3.57
	Immigrants	0.0464	0.0441	0.0703	0.0653	0.0425	0.0727	0.0608	0.0524
		2.70	2.34	3.44	3.08	1.89	2.67	2.20	1.85
Quarter 2		Treated: 260 natives and 213 immigr.				Treated: 99 natives and 85 immigr.			
Welfare	Natives	0.0407	0.0233	0.0215	0.0374	0.0449	0.0915	0.0913	0.0740
		1.41	0.78	0.70	1.20	0.99	1.86	1.83	1.47
	Immigrants	0.0592	0.0734	0.1042	0.0686	0.0081	0.0002	0.0086	0.0681
		1.92	2.25	3.06	2.01	0.19	0.01	0.18	1.29
Employment	Natives	0.0965	0.0848	0.0760	0.0947	0.0675	0.1205	0.1170	0.1159
		3.68	3.13	2.72	3.24	1.77	2.74	2.59	2.51
	Immigrants	0.1007	0.1032	0.1129	0.1020	0.0227	0.0194	-0.0111	0.0531
		3.61	3.53	3.68	3.25	0.75	0.61	-0.37	1.31
Quarter 3		Treated: 138 natives and 143 immigr.				Treated: 62 natives and 76 immigr.			
Welfare	Natives	0.0517	0.0637	0.0600	-	0.0289	-0.0178	0.0372	-
		1.35	1.56	1.42	-	0.54	-0.33	0.62	-
	Immigrants	0.0733	0.1201	0.1316	-	0.0372	0.0616	0.0514	-
		1.97	2.96	3.15	-	0.81	1.21	0.98	-
Employment	Natives	0.0815	0.0889	0.0640	-	0.1126	0.0890	0.0992	-
		2.43	2.46	1.75	-	2.22	1.76	1.85	-
	Immigrants	0.1033	0.1279	0.1566	-	0.0601	0.0665	0.0767	-
		3.09	3.50	4.03	-	1.69	1.70	1.82	-
Quarter 4		Treated: 91 natives and 98 immigr.							
Welfare	Natives	0.1387	0.1650	-	-	/	/	-	-
		2.81	3.17	-	-	/	/	-	-
	Immigrants	0.0779	0.1203	-	-	/	/	-	-
		1.80	2.49	-	-	/	/	-	-
Employment	Natives	0.1532	0.1857	-	-	/	/	-	-
		3.38	3.81	-	-	/	/	-	-
	Immigrants	0.1085	0.0943	-	-	/	/	-	-
		2.75	2.29	-	-	/	/	-	-

Remarks: Displayed are average treatment effects on the treated and corresponding t-values. Fields marked by a - indicate that no outcome variable could be observed for the respective month. Fields marked by a / indicate that the number of treated individuals in the respective cell was too low to estimate valid treatment effects.

Table 3: Effects of training aimed at improving presentation and job search abilities

Month after program start:		Men				Women			
		3	6	9	12	3	6	9	12
Quarter 1		Treated: 303 natives and 270 immigr.				Treated: 189 natives and 102 immigr.			
Welfare	Natives	0.0185	0.0324	0.0390	0.0386	0.0202	0.0295	0.0397	0.0575
	Immigrants	0.0196	0.0278	0.0566	0.0289	-0.0638	-0.0778	-0.0014	0.0052
Employment	Natives	-0.0123	0.0307	0.0224	0.0329	0.0621	0.0585	0.0556	0.0910
	Immigrants	-0.0014	0.0193	0.0637	0.0414	-0.0382	-0.0564	0.0131	0.0362
Quarter 2		Treated: 116 natives and 110 immigr.				Treated: 69 natives			
Welfare	Natives	-0.0007	-0.0137	-0.0442	-0.0392	0.0482	0.0810	0.0839	0.0175
	Immigrants	-0.0052	-0.0114	-0.0008	0.0405	/	/	/	/
Employment	Natives	-0.0073	0.0191	-0.0045	0.0026	0.0703	0.1005	0.1205	0.0848
	Immigrants	0.0032	-0.0317	0.0133	0.0200	/	/	/	/
Quarter 3		Treated: 48 natives							
Welfare	Natives	-0.0922	-0.0467	0.0655	-	/	/	/	-
	Immigrants	/	/	/	-	/	/	/	-
Employment	Natives	-0.0399	-0.0120	0.0191	-	/	/	/	-
	Immigrants	/	/	/	-	/	/	/	-
Quarter 4									
Welfare	Natives	/	/	-	-	/	/	-	-
	Immigrants	/	/	-	-	/	/	-	-
Employment	Natives	/	/	-	-	/	/	-	-
	Immigrants	/	/	-	-	/	/	-	-

Remarks: Displayed are average treatment effects on the treated and corresponding t-values. Fields marked by a - indicate that no outcome variable could be observed for the respective month. Fields marked by a / indicate that the number of treated individuals in the respective cell was too low to estimate valid treatment effects.

Table 4: Effects of training providing necessary skills required for placement

Month after program start:		Men				Women			
		3	6	9	12	3	6	9	12
Quarter 1		Treated: 288 natives and 244 immigr.				Treated: 218 natives and 133 immigr.			
Welfare	Natives	0.0441	0.0429	0.0633	0.0719	0.0243	0.0053	0.0080	-0.0052
	Immigrants	1.63	1.50	2.15	2.42	0.84	0.17	0.25	-0.16
Employment	Natives	-0.0067	0.0036	0.0001	-0.0160	0.0808	0.0811	0.1284	0.1047
	Immigrants	-0.26	0.13	0.00	-0.52	2.19	2.04	3.02	2.44
Quarter 2	Natives	0.0430	0.0764	0.1192	0.1026	0.0318	0.0556	0.0639	0.0591
	Immigrants	1.90	2.95	4.27	3.64	1.37	2.05	2.21	1.99
Quarter 3	Natives	0.0218	0.0497	0.0522	0.0617	0.0741	0.0956	0.1153	0.1263
	Immigrants	0.99	1.91	1.91	2.14	2.54	2.90	3.24	3.38
Quarter 2		Treated: 160 natives and 146 immigr.				Treated: 152 natives and 80 immigr.			
Welfare	Natives	0.0037	0.0161	-0.0191	-0.0471	0.0159	0.0603	0.0391	0.0477
	Immigrants	0.10	0.43	-0.50	-1.23	0.45	1.55	0.99	1.19
Employment	Natives	-0.0344	-0.0178	-0.0413	-0.0703	-0.0531	-0.0602	-0.0363	-0.0831
	Immigrants	-1.08	-0.49	-1.12	-1.86	-1.42	-1.44	-0.77	-1.80
Quarter 3	Natives	0.0157	0.0380	0.0308	-0.0029	0.0609	0.1253	0.1148	0.0934
	Immigrants	0.56	1.19	0.92	-0.09	2.01	3.51	3.16	2.57
Quarter 4	Natives	-0.0096	0.0332	-0.0084	0.0032	-0.0061	0.0026	-0.0040	-0.0083
	Immigrants	-0.39	1.07	-0.28	0.10	-0.25	0.09	-0.12	-0.25
Quarter 3		Treated: 94 natives and 82 immigr.				Treated: 72 natives and 52 immigr.			
Welfare	Natives	-0.0397	-0.0218	-0.0256	-	-0.0692	-0.0336	-0.0474	-
	Immigrants	-0.99	-0.48	-0.53	-	-1.75	-0.69	-0.93	-
Employment	Natives	-0.0169	0.0072	0.0536	-	-0.0087	0.0071	0.0860	-
	Immigrants	-0.40	0.15	1.01	-	-0.17	0.12	1.31	-
Quarter 4	Natives	0.0116	-0.0120	-0.0017	-	0.0163	0.0201	0.0253	-
	Immigrants	0.35	-0.34	-0.04	-	0.46	0.51	0.59	-
Quarter 4	Natives	0.0213	0.0527	0.0998	-	0.0489	0.0086	0.0503	-
	Immigrants	0.61	1.26	2.09	-	1.18	0.23	1.05	-
Quarter 4		Treated: 69 natives and 67 immigr.				Treated: 48 natives and 41 immigr.			
Welfare	Natives	0.0257	0.0092	-	-	-0.0341	-0.0444	-	-
	Immigrants	0.52	0.18	-	-	-0.70	-0.81	-	-
Employment	Natives	0.0188	0.0061	-	-	-0.0444	-0.0865	-	-
	Immigrants	0.40	0.12	-	-	-0.94	-1.83	-	-
Quarter 4	Natives	0.0722	0.0688	-	-	-0.0214	-0.0486	-	-
	Immigrants	1.62	1.45	-	-	-0.73	-1.65	-	-
Quarter 4	Natives	0.1025	0.0561	-	-	-0.0231	-0.0400	-	-
	Immigrants	2.17	1.23	-	-	-0.94	-1.63	-	-

Remarks: Displayed are average treatment effects on the treated and corresponding t-values. Fields marked by a - indicate that no outcome variable could be observed for the respective month.

Table 5: Effects of combined training programs

Month after program start:	Men				Women				
	3	6	9	12	3	6	9	12	
Quarter 1	Treated: 410 natives and 360 immigr.				Treated: 188 natives and 135 immigr.				
Welfare	Natives	-0.0072	0.0223	0.0300	0.0283	0.0137	-0.0020	0.0037	0.0261
	Immigrants	-0.34	0.94	1.22	1.14	0.44	-0.06	0.11	0.72
Employment	Natives	-0.0071	0.0253	0.0372	0.0424	0.0169	0.0137	0.0304	0.0191
	Immigrants	-0.34	1.05	1.46	1.62	0.50	0.37	0.76	0.46
Quarter 2	Natives	0.0045	0.0306	0.0293	0.0289	0.0116	0.0157	0.0167	0.0066
	Immigrants	0.26	1.51	1.38	1.31	0.48	0.57	0.56	0.22
Quarter 3	Natives	0.0069	0.0316	0.0208	0.0272	-0.0027	0.0142	0.0533	0.0656
	Immigrants	-0.41	1.56	1.00	1.23	-0.14	0.52	1.63	1.86
Quarter 2	Treated: 180 natives and 157 immigr.				Treated: 113 natives and 95 immigr.				
Welfare	Natives	-0.0401	-0.0299	-0.0224	-0.0023	0.0384	0.0195	0.0143	0.0035
	Immigrants	-1.28	-0.88	-0.63	-0.06	0.92	0.45	0.32	0.08
Employment	Natives	0.0469	0.0653	0.0845	0.1175	0.0469	0.0452	0.0283	0.0463
	Immigrants	1.33	1.73	2.15	2.93	1.07	0.98	0.60	0.94
Quarter 3	Natives	0.0207	0.0089	0.0374	0.0379	0.0470	0.0459	0.0399	0.0452
	Immigrants	0.77	0.31	1.18	1.15	1.39	1.27	1.06	1.15
Quarter 4	Natives	0.0082	0.0271	0.0054	0.0519	0.0586	0.0512	0.0742	0.0786
	Immigrants	0.32	0.92	0.18	1.51	1.77	1.49	1.92	1.94
Quarter 3	Treated: 90 natives and 96 immigr.				Treated: 66 natives and 56 immigr.				
Welfare	Natives	-0.0295	-0.0661	-0.0429	-	-0.0135	-0.0604	-0.0567	-
	Immigrants	-0.71	-1.52	-0.89	-	-0.28	-1.25	-1.09	-
Employment	Natives	-0.0525	0.0026	0.0243	-	0.0168	-0.0067	-0.0607	-
	Immigrants	-1.49	0.06	0.51	-	0.32	-0.12	-1.17	-
Quarter 4	Natives	-0.0250	-0.0262	-0.0355	-	0.0107	0.0176	0.0256	-
	Immigrants	-0.87	-0.78	-0.98	-	0.30	0.43	0.57	-
Quarter 4	Natives	0.0154	0.0588	0.0744	-	0.0247	0.0228	0.0600	-
	Immigrants	0.49	1.50	1.75	-	0.71	0.59	0.16	-
Quarter 4	Treated: 63 natives								
Welfare	Natives	-0.0537	-0.0379	-	-	/	/	-	-
	Immigrants	-1.26	-0.73	-	-	/	/	-	-
Employment	Natives	/	/	-	-	/	/	-	-
	Immigrants	/	/	-	-	/	/	-	-
Quarter 4	Natives	-0.0407	-0.0108	-	-	/	/	-	-
	Immigrants	-1.50	-0.27	-	-	/	/	-	-
Quarter 4	Natives	/	/	-	-	/	/	-	-
	Immigrants	/	/	-	-	/	/	-	-

Remarks: Displayed are average treatment effects on the treated and corresponding t-values. Fields marked by a - indicate that no outcome variable could be observed for the respective month. Fields marked by a / indicate that the number of treated individuals in the respective cell was too low to estimate valid treatment effects.

5.3 Decomposition Results

The previous section showed that the treatment effects of the considered training programs differ between native and immigrant participants. Therefore, the question arises whether the migration background per se causes these differences or whether differences in the sociodemographic characteristics of natives and immigrants are responsible for the variation in the estimated treatment effects. To disentangle the influence of both possible explanations we decompose the

differences in the treatment effects between natives and immigrants in two parts: the part which is caused by the migration background per se and the part which is caused by differences in the sociodemographic composition of both groups. Differences due to the migration background per se are of major policy concern, since in this case discrimination in the effectiveness of training programs is present. Therefore, in the following we concentrate on differences in treatment effects due to the migration background. Table 6 displays the relevant results.⁶ The first row of each block in the table depicts the raw differential of differences in the ATT between immigrants and native Germans for the respective program and is denoted by Δ_{Dif} . This raw differential is calculated from the results presented in the previous subsection. The second row of each block in the table is denoted by $\widehat{\Delta_{\Delta}^{ATT}|_{X_{Mig}}}$ and shows the estimated part of the raw differential which is due to the migration background per se. In other words, $\widehat{\Delta_{\Delta}^{ATT}|_{X_{Mig}}}$ indicates by how much the treatment effect of a program is changed due to the migration background holding all other factors fixed. For example, the entry 0.085 in the top left block of Table 6 states that a male immigrant participant in an aptitude test has a 0.085 percentage points larger probability to leave the welfare system three months after program start than a native participant with identical sociodemographic characteristics. Therefore, immigrants profit more from aptitude tests than natives holding all other characteristics constant. This *immigrant effect* is significant at the 5%-level as can be seen from the t-value. In the following months of the observation period, the effect is also positive but smaller in magnitude and not statistically significant. For the uptake of employment we also observe a positive *immigrant effect*. However, this effect is only significant nine months after program start. In this month immigrant participants have a 0.093 percentage points higher probability to find a job than participating natives.⁷

For women we do not observe any statistically significant difference in the treatment effects of aptitude tests between native and immigrant participants. The same is true for training aimed at improving presentation and job search abilities. In contrast to women, welfare effects of this form of training differ between male native and immigrant participants. Natives profit more from improved presentation and job search abilities. One year after program start native participants have a 0.14 percentage points larger probability to leave the welfare system than immigrants. Similarly, employment chances are higher for natives one year after the program. However, the differences in employment chances are not statistically significant. We do not find

⁶We only decompose the differences in the treatment effects for the first quarter, since in the other quarters the number of program participants is too small.

⁷Note that the *immigrant effects* are larger than the raw differentials for both welfare and employment meaning that differences in the sociodemographic composition of treated natives and immigrants contribute negatively to the raw differential. Unfortunately, the applied decomposition method does not allow to identify the driving force behind this *composition effect*. To further disentangle the *composition effect* a separate investigation is needed.

significant differences in treatment effects between male natives and immigrants either when looking at training providing necessary skills required for placement. For women we observe that this training module is more effective for immigrants, but the *immigrant effect* is only slightly significant for the probability to leave the welfare system nine months after program start. A similar picture is found for combined training programs. Female immigrants have a slightly larger probability to leave the welfare system nine months after start than participating women without migration background. No statistically significant difference is found for the employment effects. For men we do not observe any significant difference either.

Therefore, we have to conclude that even though differences in treatment effects exist between native and immigrant participants at the considered programs, these differences are only in a few cases partly due to the migration background per se. In most cases immigrant and native participants at a training program with otherwise identical characteristics profit in the same way from the training. Whether observed differences in treatment effects are mainly caused by different sociodemographic characteristics between native and immigrant participants cannot be concluded from the estimation approach used here. Further research is needed to identify the factors driving the differences in treatment effects. However, based on our results we can rule out that the migration background per se is the driving force. This is an important result because it clarifies that there is no discrimination in the effects of training programs in the German welfare system.

Table 6: Differences in treatment effects between natives and migrants

Month after program start:	Men				Women				
	3	6	9	12	3	6	9	12	
Aptitude tests									
Welfare	Δ_{Dif}	0.0416	0.0025	0.0255	0.0069	0.0248	-0.0083	-0.0182	-0.0492
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0850	0.0641	0.0798	0.0719	0.0828	0.0229	-0.0233	-0.0496
	t-value	1.98	1.36	1.66	1.48	1.09	0.27	-0.27	-0.57
Employment	Δ_{Dif}	-0.0204	-0.0426	-0.0131	-0.0286	-0.0065	-0.0037	-0.0065	-0.0424
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0148	0.0330	0.0931	0.0396	0.0033	0.0524	0.0246	-0.0553
	t-value	0.39	0.79	2.12	0.88	0.05	0.71	0.32	-0.70
Training aimed at improving presentation and job search abilities									
Welfare	Δ_{Dif}	-0.0011	-0.0046	0.0176	-0.0097	-0.0840	-0.1073	-0.0411	-0.0523
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	-0.0508	-0.0607	-0.0784	-0.1406	-0.0336	-0.1126	-0.0053	0.0553
	t-value	-0.80	-0.88	-1.10	-1.96	-0.37	-1.17	-0.05	0.49
Employment	Δ_{Dif}	0.0109	-0.0114	0.0413	-0.0085	-0.1003	-0.1149	-0.0425	-0.0548
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0280	0.0107	0.0391	-0.0302	-0.1095	-0.0962	-0.0550	0.0036
	t-value	0.60	0.18	0.64	-0.47	-1.52	-1.25	-0.61	0.04
Training providing necessary skills required for placement									
Welfare	Δ_{Dif}	-0.0508	-0.0393	-0.0632	-0.0879	0.0565	0.0758	0.1204	0.1099
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0186	0.0463	-0.0176	-0.0403	0.1182	0.0946	0.1463	0.0960
	t-value	0.34	0.77	-0.29	-0.65	1.60	1.21	1.74	1.13

Continued on next page

Table 6: Differences in treatment effects between natives and migrants
(continued)

Month after program start:	Men				Women				
	3	6	9	12	3	6	9	12	
Employment	Δ_{Dif}	-0.0212	-0.0267	-0.0670	-0.0409	0.0423	0.0400	0.0514	0.0672
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0097	0.0261	-0.0632	-0.0414	0.0608	0.0767	0.1153	0.1249
	t-value	0.21	0.49	-1.11	-0.71	1.02	1.13	1.54	1.60
Combined training programs									
Welfare	Δ_{Dif}	0.0001	0.0030	0.0072	0.0141	0.0032	0.0157	0.0267	-0.0070
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0268	0.0094	0.0466	0.0264	0.0253	0.1992	0.2231	-0.1566
	t-value	0.55	0.17	0.82	0.45	0.23	1.66	1.76	-1.18
Employment	Δ_{Dif}	0.0024	0.0010	-0.0085	-0.0017	0.0089	-0.0015	0.0366	0.0590
	$\widehat{\Delta_{\Delta}^{ATT}} _{X_{Mig}}$	0.0387	0.0159	0.0334	0.0116	0.0319	0.0909	0.1374	0.1020
	t-value	0.99	0.35	0.69	0.23	0.40	0.97	1.36	0.99

Remarks: Δ_{Dif} denotes the difference in the ATT between migrants and native Germans for the respective program and month after program start. $\widehat{\Delta_{\Delta}^{ATT}}|_{X_{Mig}}$ denotes the estimated difference in the ATT for migrants and native Germans that is solely due to unobservable differences between the two ethnic groups, or in other words, which is due to the migration background per se. t-values denote significance of these estimated *migrant effects*.

6 Conclusion

Labor market integration of immigrants is challenging and, unfortunately, in many cases rather unsuccessful. Consequently, immigrants are highly over-represented in welfare systems and it becomes crucial that labor market activation for this group is as effective as possible and as effective as for native welfare recipients. Despite the high share of migrants receiving welfare benefits little is known about the effectiveness of ALMP programs for this group. Therefore, in this paper paper, we have analyzed comprehensive administrative data on immigrant and native welfare recipients in Germany. Using these data we look at how different off-the-job short-term training programs affect the probability of exiting the welfare system and taking up a job providing a sufficient income above the subsistence level.

We mostly find strong positive effects of aptitude tests on the probability of employment and welfare exit. Training programs providing necessary skills required for placement increases employment chances if the program is offered in the first quarter of the welfare spell. Moreover, the long-term effects of the program are even larger than the short-term effects as the coefficient grows in magnitude with time after the program start. It also positively affects the welfare exit probability for native males and immigrant females. Surprisingly, for immigrant males and native females the effect is very small in magnitude.

Training aimed at improving presentation and job search abilities significantly increases the

immigrant males' probability of welfare exit and employment with the strongest effect being observed nine months after the program start. However, the program seems to be effective only if offered during the first quarter of the welfare spell. Immigrant females might potentially benefit from this program only in the long term. During the first six months after the program start, the treatment group has a lower probability of exiting the welfare system or finding employment. However, after the ninth month the negative effect fades out. Moreover, training aimed at improving presentation and job search abilities positively affects the probability of employment for native females.

Combined training programs generally have insignificant effects on both welfare exit and employment. However, there seem to exist positive long-term effects of the program on immigrants. For example, nine months and above after its start, the program has strong positive effect on the probability of welfare exit for immigrant men and on employment for immigrant women.

As becomes obvious from the estimation results there exist differences in program effects between natives and immigrants. Aptitude tests seem to have a stronger positive effect on welfare exit for immigrant males than for natives three months after the program start. In the long-term it has a stronger effect on native females' probability of welfare exit and employment. Training aimed at improving presentation and job search abilities has a much stronger positive effect on native females' welfare exit and employment chances. Training providing necessary skills required for placement benefit native males more than immigrant males in terms of welfare dependency and employment opportunities. On the other hand, the program benefits immigrant women more than native women.

Given these differences in treatment effects between natives and immigrants, the question arises whether these differences are migration background specific or whether they are caused by differences in the composition of the native and immigrant population in the welfare system (e.g. due to differences in education and the employment history). In order to answer this question we propose a decomposition method which could be thought of as a balanced difference-in-difference estimator. The decomposition reveals that - even though differences in treatment effects exist between native and immigrant participants at the considered programs - these differences are only in a few cases partly due to the migration background per se. In most cases immigrant and native participants at a training program with otherwise identical characteristics profit in the same way from the training. Whether observed differences in treatment effects are mainly caused by different sociodemographic characteristics between native and immigrant participants cannot be concluded from the estimation approach used here. Further research is needed to identify the factors driving the differences in treatment effects. However, based on our results

we can rule out that the migration background per se is the driving force. This is an important result because it clarifies that there is no discrimination in the effects of training programs in the German welfare system.

A Data Appendix

In this appendix we provide some descriptive statistics. The means of the selected variables depicted in Tables A.1 to A.8 refer to participants in the considered training programs before matching. Thus, the number of observations might differ from the number of observations displayed in Tables 2 to 5. The tables are stratified according to the ethnic group and the quarter of program start. The p-values derive from t-tests on the equality of means of the displayed variables between natives and immigrants for the respective quarter.

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.302	0.190	0.000	0.281	0.155	0.001	0.250	0.140	0.019	0.261	0.163	0.100
25-34	0.337	0.413	0.016	0.365	0.469	0.022	0.400	0.448	0.420	0.272	0.480	0.003
35-49	0.312	0.346	0.260	0.308	0.329	0.627	0.321	0.357	0.533	0.435	0.316	0.093
50-57	0.049	0.051	0.886	0.046	0.047	0.968	0.029	0.056	0.255	0.033	0.041	0.766
Schooling												
No school leaving certificate	0.087	0.205	0.000	0.065	0.239	0.000	0.064	0.175	0.004	0.120	0.194	0.162
Secondary general school	0.473	0.444	0.367	0.542	0.460	0.075	0.464	0.476	0.850	0.446	0.418	0.706
Intermediate secondary school	0.250	0.161	0.001	0.242	0.150	0.013	0.286	0.175	0.027	0.293	0.153	0.020
Vocational diploma (Fachabitur)	0.057	0.049	0.579	0.062	0.038	0.238	0.079	0.021	0.025	0.033	0.031	0.938
University entrance diploma	0.085	0.094	0.629	0.054	0.061	0.738	0.071	0.077	0.861	0.098	0.102	0.923
Missing	0.047	0.047	0.973	0.035	0.052	0.361	0.036	0.077	0.134	0.011	0.102	0.007
Family status												
Single	0.673	0.422	0.000	0.685	0.324	0.000	0.593	0.308	0.000	0.663	0.286	0.000
Household size												
Number of persons	1.509	2.116	0.000	1.465	2.169	0.000	1.607	2.238	0.000	1.565	2.296	0.000
Region												
East Germany	0.055	0.022	0.009	0.058	0.033	0.203	0.036	0.084	0.089	0.054	0.092	0.325
Labor market history 2 years before program start (measured in number of half-months)												
Employment	14.225	15.855	0.080	11.915	12.300	0.735	9.536	10.203	0.606	8.283	9.755	0.302
Unemployment	15.570	15.839	0.737	19.781	20.000	0.836	24.707	23.776	0.496	28.543	27.847	0.626
Job seeking while employed	1.134	0.569	0.002	1.185	0.610	0.033	0.764	0.517	0.362	0.478	0.490	0.967
Program participation	2.406	3.009	0.166	2.608	3.056	0.478	2.686	1.895	0.306	3.696	1.888	0.035
Out of labor force	14.665	12.728	0.084	12.512	12.033	0.737	10.307	11.608	0.431	7.000	8.020	0.523
Labor market history 4 years before program start (measured in number of half-months)												
Employment	34.970	35.221	0.892	32.392	32.944	0.822	28.871	29.378	0.863	30.022	30.204	0.959
Unemployment	23.793	26.377	0.045	29.423	28.803	0.714	34.550	33.622	0.687	39.500	39.663	0.949
Job seeking while employed	1.448	0.944	0.024	1.854	0.962	0.037	1.157	0.832	0.353	0.935	0.939	0.992
Program participation	4.469	5.509	0.134	5.300	5.667	0.726	5.229	4.350	0.501	6.293	3.531	0.057
Out of labor force	31.320	27.949	0.114	27.031	27.624	0.833	26.193	27.818	0.653	19.250	21.663	0.537
Observations	507	448		260	213		140	143		92	98	

Table A.2: Means of selected variables for female participants of aptitude tests

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.293	0.239	0.200	0.253	0.151	0.090	0.258	0.263	0.946	0.232	0.042	0.006
25-34	0.279	0.361	0.062	0.364	0.453	0.217	0.226	0.289	0.401	0.304	0.542	0.014
35-49	0.347	0.361	0.752	0.343	0.302	0.554	0.452	0.355	0.253	0.429	0.396	0.738
50-57	0.081	0.039	0.072	0.040	0.093	0.149	0.065	0.092	0.555	0.036	0.021	0.655
Schooling												
No school leaving certificate	0.071	0.139	0.014	0.061	0.209	0.003	0.065	0.132	0.197	0.071	0.208	0.042
Secondary general school	0.354	0.356	0.964	0.364	0.302	0.381	0.403	0.342	0.463	0.339	0.312	0.774
Intermediate secondary school	0.313	0.200	0.007	0.384	0.128	0.000	0.371	0.237	0.088	0.446	0.188	0.005
Vocational diploma (Fachabitur)	0.057	0.056	0.939	0.081	0.105	0.578	0.065	0.053	0.768	0.071	0.083	0.822
University entrance diploma	0.104	0.094	0.727	0.051	0.116	0.103	0.048	0.079	0.473	0.054	0.083	0.550
Missing	0.101	0.156	0.078	0.061	0.140	0.071	0.048	0.158	0.040	0.018	0.125	0.030
Family status												
Single	0.552	0.372	0.000	0.495	0.256	0.001	0.419	0.289	0.113	0.464	0.125	0.000
Household size												
Number of persons	1.502	1.933	0.000	1.455	2.140	0.000	1.645	2.171	0.006	1.464	2.417	0.000
Region												
East Germany	0.067	0.022	0.029	0.071	0.012	0.049	0.113	0.053	0.196	0.107	0.104	0.961
Labor market history 2 years before program start (measured in number of half-months)												
Employment	16.751	15.578	0.460	12.889	9.988	0.161	9.500	9.329	0.934	6.554	8.271	0.368
Unemployment	11.727	12.750	0.405	19.434	17.977	0.473	20.968	22.724	0.363	28.500	23.771	0.024
Job seeking while employed	0.862	0.822	0.889	1.061	0.942	0.836	1.855	0.763	0.139	1.018	0.333	0.147
Program participation	2.340	1.828	0.409	1.222	2.081	0.213	1.726	1.408	0.693	1.732	2.750	0.399
Out of labor force	16.320	17.022	0.697	13.394	17.012	0.144	13.952	13.776	0.945	10.196	12.875	0.288
Labor market history 4 years before program start (measured in number of half-months)												
Employment	36.158	32.106	0.172	32.626	22.314	0.014	25.710	27.895	0.649	23.018	20.938	0.655
Unemployment	17.569	17.694	0.944	25.152	26.500	0.671	27.661	28.355	0.822	38.536	30.542	0.043
Job seeking while employed	1.148	1.067	0.819	1.465	1.523	0.932	3.065	1.171	0.053	1.839	0.521	0.034
Program participation	4.158	3.039	0.216	3.141	3.163	0.984	3.516	2.382	0.450	2.518	7.854	0.032
Out of labor force	36.966	42.094	0.133	33.616	42.500	0.079	36.048	36.197	0.979	30.089	36.146	0.313
Observations	297	180		99	86		62	76		56	48	

Table A.3: Means of selected variables for male participants of training aimed at improving presentation and job search abilities

	Quarter 1		Quarter 2		Quarter 3		Quarter 4		p-value	Immigr.	p-value	Immigr.	p-value
	Natives	Immigr.	Natives	Immigr.	Natives	Immigr.	Natives	Immigr.					
Age													
18-24	0.320	0.252	0.072	0.259	0.264	0.932	0.208	0.122	0.259	0.226	0.081	0.096	0.096
25-34	0.343	0.363	0.622	0.328	0.373	0.479	0.354	0.429	0.458	0.323	0.486	0.176	0.176
35-49	0.264	0.300	0.340	0.353	0.327	0.680	0.333	0.388	0.581	0.323	0.351	0.806	0.806
50-57	0.073	0.085	0.577	0.060	0.036	0.405	0.104	0.061	0.447	0.129	0.081	0.524	0.524
Schooling													
No school leaving certificate	0.053	0.233	0.000	0.095	0.255	0.001	0.104	0.102	0.973	0.097	0.324	0.024	0.024
Secondary general school	0.545	0.452	0.027	0.405	0.436	0.637	0.542	0.490	0.614	0.484	0.459	0.844	0.844
Intermediate secondary school	0.231	0.167	0.055	0.259	0.145	0.035	0.250	0.224	0.771	0.194	0.054	0.077	0.077
Vocational diploma (Fachabitur)	0.036	0.022	0.322	0.052	0.045	0.828	0.000	0.041	0.161	0.097	0.027	0.230	0.230
University entrance diploma	0.076	0.093	0.473	0.086	0.064	0.522	0.104	0.102	0.973	0.097	0.054	0.509	0.509
Missing	0.059	0.033	0.142	0.103	0.055	0.176	0.000	0.041	0.161	0.032	0.081	0.402	0.402
Family status													
Single	0.686	0.400	0.000	0.672	0.391	0.000	0.646	0.408	0.019	0.710	0.270	0.000	0.000
Household size													
Number of persons	1.465	2.126	0.000	1.362	2.100	0.000	1.438	2.184	0.008	1.452	2.000	0.047	0.047
Region													
East Germany	0.069	0.037	0.089	0.026	0.027	0.948	0.062	0.000	0.077	0.000	0.000	-	-
Labor market history 2 years before program start (measured in number of half-months)													
Employment	19.208	21.585	0.117	13.112	14.055	0.634	8.875	13.510	0.063	7.226	6.946	0.900	0.900
Unemployment	9.759	11.393	0.094	15.310	15.373	0.966	25.500	23.796	0.431	24.774	28.919	0.106	0.106
Job seeking while employed	0.957	0.870	0.748	1.000	0.627	0.254	0.812	0.082	0.011	1.742	0.135	0.075	0.075
Program participation	2.617	2.085	0.383	2.319	2.482	0.867	2.438	3.347	0.505	0.774	4.270	0.014	0.014
Out of labor force	15.459	12.067	0.020	16.259	15.464	0.718	10.375	7.265	0.212	13.484	7.730	0.063	0.063
Labor market history 4 years before program start (measured in number of half-months)													
Employment	40.092	44.663	0.100	33.284	32.009	0.749	30.812	43.102	0.019	23.065	26.432	0.573	0.573
Unemployment	17.297	18.481	0.449	22.121	23.309	0.587	34.917	31.857	0.398	31.258	41.757	0.013	0.013
Job seeking while employed	1.327	1.141	0.564	1.345	1.391	0.932	2.167	0.408	0.014	2.710	0.216	0.090	0.090
Program participation	4.142	3.656	0.572	4.267	4.255	0.994	5.562	4.653	0.709	3.645	7.919	0.137	0.137
Out of labor force	33.142	28.059	0.068	34.983	35.036	0.990	22.542	15.980	0.172	35.323	19.676	0.033	0.033
Observations	303	270	116	110	110	48	49	31	37	31	37		

Table A.4: Means of selected variables for female participants of training aimed at improving presentation and job search abilities

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.337	0.331	0.909	0.333	0.304	0.725	0.250	0.308	0.632	0.227	0.071	0.233
25-34	0.326	0.331	0.940	0.319	0.357	0.655	0.219	0.308	0.451	0.318	0.429	0.515
35-49	0.253	0.254	0.975	0.275	0.268	0.926	0.344	0.385	0.753	0.364	0.429	0.707
50-57	0.084	0.085	0.987	0.072	0.071	0.982	0.188	0.000	0.019	0.091	0.071	0.842
Schooling												
No school leaving certificate	0.068	0.127	0.082	0.072	0.179	0.070	0.094	0.154	0.493	0.091	0.214	0.31
Secondary general school	0.353	0.441	0.124	0.435	0.411	0.789	0.344	0.154	0.104	0.318	0.571	0.141
Intermediate secondary school	0.311	0.161	0.003	0.261	0.196	0.400	0.312	0.346	0.790	0.364	0.071	0.05
Vocational diploma (Fachabitur)	0.100	0.051	0.125	0.058	0.036	0.566	0.000	0.038	0.271	0.000	0.071	0.215
University entrance diploma	0.084	0.136	0.152	0.130	0.107	0.693	0.094	0.192	0.287	0.136	0.000	0.158
Missing	0.084	0.085	0.987	0.043	0.071	0.503	0.156	0.115	0.660	0.091	0.071	0.842
Family status												
Single	0.563	0.322	0.000	0.522	0.286	0.007	0.469	0.269	0.124	0.500	0.143	0.03
Household size												
Number of persons	1.568	1.907	0.002	1.565	1.929	0.030	1.438	2.269	0.001	1.636	1.929	0.412
Region												
East Germany	0.068	0.042	0.345	0.072	0.125	0.325	0.000	0.000	0.045	0.071	0.749	
Labor market history 2 years before program start (measured in number of half-months)												
Employment	19.921	19.059	0.691	13.913	14.500	0.828	15.500	7.538	0.027	9.545	11.214	0.675
Unemployment	9.105	9.780	0.634	16.087	17.571	0.531	21.344	18.346	0.276	25.727	29.214	0.341
Job seeking while employed	0.900	0.975	0.842	0.812	0.732	0.867	0.562	0.885	0.575	2.227	0.571	0.375
Program participation	2.168	1.280	0.286	0.841	2.232	0.179	1.406	0.577	0.265	1.455	1.286	0.911
Out of labor force	15.905	16.907	0.658	16.348	12.964	0.251	9.188	20.654	0.001	9.045	5.714	0.402
Labor market history 4 years before program start (measured in number of half-months)												
Employment	40.221	36.398	0.327	31.029	30.857	0.973	37.500	16.115	0.003	29.318	31.000	0.86
Unemployment	14.763	15.161	0.856	21.145	26.464	0.165	29.719	21.385	0.072	32.182	43.429	0.16
Job seeking while employed	1.132	1.381	0.593	1.203	0.875	0.539	1.250	1.308	0.945	4.318	1.071	0.447
Program participation	3.368	2.983	0.742	1.333	3.929	0.112	2.094	0.846	0.174	2.727	1.286	0.622
Out of labor force	36.516	40.076	0.396	41.290	33.875	0.211	25.438	56.346	0.000	27.455	19.214	0.398
Observations	190	118		69	56		32	26		22	14	

Table A.5: Means of selected variables for male participants of training providing necessary skills required for placement

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.299	0.152	0.000	0.213	0.171	0.362	0.245	0.110	0.021	0.087	0.075	0.794
25-34	0.330	0.413	0.044	0.281	0.329	0.368	0.415	0.524	0.148	0.275	0.463	0.023
35-49	0.312	0.390	0.056	0.412	0.404	0.882	0.298	0.354	0.433	0.565	0.328	0.005
50-57	0.059	0.045	0.476	0.094	0.096	0.949	0.043	0.012	0.229	0.072	0.134	0.238
Schooling												
No school leaving certificate	0.059	0.201	0.000	0.119	0.205	0.039	0.085	0.183	0.055	0.087	0.164	0.176
Secondary general school	0.500	0.447	0.213	0.519	0.397	0.033	0.404	0.585	0.016	0.478	0.463	0.857
Intermediate secondary school	0.233	0.182	0.142	0.188	0.171	0.712	0.298	0.098	0.001	0.261	0.134	0.065
Vocational diploma (Fachabitur)	0.073	0.034	0.045	0.038	0.027	0.621	0.053	0.061	0.825	0.043	0.045	0.971
University entrance diploma	0.094	0.091	0.909	0.112	0.103	0.784	0.128	0.024	0.011	0.087	0.060	0.546
Missing	0.042	0.045	0.828	0.025	0.096	0.008	0.032	0.049	0.570	0.043	0.134	0.063
Family status												
Single	0.635	0.360	0.000	0.625	0.377	0.000	0.766	0.341	0.000	0.681	0.299	0.000
Household size												
Number of persons	1.514	2.201	0.000	1.438	2.062	0.000	1.319	2.329	0.000	1.536	2.239	0.002
Region												
East Germany	0.035	0.023	0.402	0.044	0.062	0.484	0.106	0.049	0.161	0.029	0.015	0.580
Labor market history 2 years before program start (measured in number of half-months)												
Employment	16.264	18.189	0.151	12.137	13.144	0.517	9.064	12.512	0.054	6.812	8.701	0.260
Unemployment	15.052	14.750	0.769	20.031	18.575	0.277	23.319	23.927	0.693	27.812	28.731	0.618
Job seeking while employed	1.385	0.629	0.006	0.637	0.712	0.785	1.011	0.463	0.154	0.449	0.299	0.573
Program participation	3.354	2.523	0.158	2.356	2.466	0.872	2.223	1.939	0.711	4.203	2.597	0.203
Out of labor force	11.944	11.909	0.980	12.837	13.103	0.883	12.383	9.159	0.116	8.725	7.672	0.605
Labor market history 4 years before program start (measured in number of half-months)												
Employment	38.326	39.360	0.684	31.169	29.603	0.629	27.149	35.610	0.041	26.913	29.358	0.570
Unemployment	22.635	22.799	0.918	28.956	28.699	0.910	32.330	32.366	0.989	39.130	39.806	0.833
Job seeking while employed	1.830	1.197	0.091	1.050	1.288	0.608	1.691	1.000	0.319	1.043	0.433	0.294
Program participation	5.955	4.784	0.239	4.506	4.610	0.929	4.649	4.659	0.995	6.478	5.493	0.658
Out of labor force	27.253	27.860	0.828	30.319	31.801	0.690	30.181	22.366	0.080	22.435	20.910	0.752
Observations	288	264		160	146		94	82		69	67	

Table A.6: Means of selected variables for female participants of training providing necessary skills required for placement

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr. p-value	Natives	Immigr. p-value	Natives	Immigr. p-value	Natives	Immigr. p-value				
Age												
18-24	0.242	0.233	0.849	0.204	0.200	0.944	0.097	0.173	0.217	0.208	0.293	0.364
25-34	0.283	0.391	0.036	0.355	0.338	0.788	0.292	0.250	0.611	0.375	0.244	0.188
35-49	0.365	0.323	0.425	0.388	0.400	0.861	0.528	0.462	0.471	0.354	0.415	0.564
50-57	0.110	0.053	0.068	0.053	0.062	0.757	0.083	0.115	0.555	0.062	0.049	0.782
Schooling												
No school leaving certificate	0.023	0.150	0.000	0.026	0.188	0.000	0.083	0.038	0.319	0.083	0.171	0.216
Secondary general school	0.374	0.323	0.333	0.375	0.387	0.853	0.347	0.269	0.360	0.333	0.268	0.511
Intermediate secondary school	0.384	0.263	0.021	0.342	0.125	0.000	0.347	0.288	0.494	0.375	0.195	0.064
Vocational diploma (Fachabitur)	0.068	0.030	0.123	0.046	0.075	0.364	0.028	0.077	0.211	0.062	0.024	0.393
University entrance diploma	0.114	0.158	0.239	0.112	0.138	0.570	0.111	0.192	0.208	0.021	0.122	0.059
Missing	0.037	0.075	0.111	0.099	0.087	0.783	0.083	0.135	0.362	0.125	0.220	0.240
Family status												
Single	0.584	0.286	0.000	0.553	0.287	0.000	0.375	0.269	0.220	0.458	0.220	0.018
Household size												
Number of persons	1.580	1.797	0.033	1.586	2.138	0.000	1.764	2.096	0.102	1.833	2.195	0.115
Region												
East Germany	0.037	0.030	0.747	0.046	0.062	0.593	0.097	0.058	0.429	0.021	0.024	0.911
Labor market history 2 years before program start (measured in number of half-months)												
Employment	16.849	16.925	0.966	13.401	13.250	0.937	9.889	11.558	0.476	6.229	6.732	0.806
Unemployment	14.644	13.331	0.363	17.211	18.487	0.448	22.042	19.519	0.208	24.312	27.780	0.127
Job seeking while employed	0.858	0.902	0.888	1.007	0.863	0.746	0.847	0.500	0.409	0.271	0.683	0.400
Program participation	2.411	1.774	0.378	2.342	1.700	0.480	2.236	1.519	0.545	2.062	2.146	0.938
Out of labor force	13.237	15.068	0.337	14.039	13.700	0.881	12.986	14.904	0.490	15.125	10.659	0.118
Labor market history 4 years before program start (measured in number of half-months)												
Employment	36.986	34.805	0.519	33.368	31.013	0.559	24.708	28.500	0.434	18.896	23.732	0.353
Unemployment	22.064	21.098	0.661	22.776	24.275	0.529	31.167	26.654	0.179	32.562	31.634	0.791
Job seeking while employed	1.324	1.361	0.930	1.480	1.138	0.507	1.236	0.885	0.560	0.792	1.561	0.302
Program participation	4.205	3.158	0.324	4.447	2.800	0.248	5.069	2.212	0.183	3.271	2.195	0.401
Out of labor force	31.420	35.579	0.257	33.928	36.775	0.537	33.819	37.750	0.520	40.479	36.878	0.581
Observations	219	133	152	80	72	52	48	41				

Table A.7: Means of selected variables for male participants of combined training programs

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.351	0.233	0.000	0.328	0.261	0.183	0.256	0.240	0.802	0.254	0.136	0.102
25-34	0.276	0.400	0.000	0.378	0.382	0.934	0.389	0.406	0.810	0.349	0.356	0.939
35-49	0.276	0.300	0.456	0.228	0.306	0.106	0.311	0.312	0.984	0.365	0.407	0.640
50-57	0.098	0.067	0.122	0.067	0.051	0.544	0.044	0.042	0.926	0.032	0.102	0.121
Schooling												
No school leaving certificate	0.117	0.275	0.000	0.100	0.204	0.007	0.100	0.292	0.001	0.032	0.271	0.000
Secondary general school	0.522	0.431	0.011	0.444	0.510	0.234	0.500	0.406	0.201	0.556	0.492	0.483
Intermediate secondary school	0.183	0.119	0.015	0.294	0.121	0.000	0.189	0.167	0.694	0.222	0.102	0.073
Vocational diploma (Fachabitur)	0.044	0.033	0.450	0.039	0.038	0.975	0.044	0.031	0.639	0.032	0.034	0.947
University entrance diploma	0.071	0.056	0.390	0.078	0.076	0.963	0.089	0.031	0.097	0.111	0.068	0.408
Missing	0.063	0.086	0.231	0.044	0.051	0.780	0.078	0.073	0.901	0.048	0.034	0.705
Family status												
Single	0.698	0.394	0.000	0.722	0.420	0.000	0.667	0.375	0.000	0.698	0.322	0.000
Household size												
Number of persons	1.412	2.050	0.000	1.333	2.032	0.000	1.422	2.260	0.000	1.270	2.288	0.000
Region												
East Germany	0.020	0.008	0.193	0.028	0.025	0.896	0.022	0.010	0.526	0.032	0.034	0.947
Labor market history 2 years before program start (measured in number of half-months)												
Employment	12.576	15.992	0.001	10.511	11.261	0.582	9.089	9.896	0.629	5.317	8.746	0.035
Unemployment	14.385	14.192	0.836	18.978	19.854	0.488	23.978	26.010	0.218	28.413	29.322	0.631
Job seeking while employed	0.890	0.558	0.088	1.000	0.516	0.102	1.022	0.677	0.365	0.825	0.254	0.127
Program participation	3.080	2.625	0.407	2.533	2.331	0.777	1.744	1.458	0.669	2.476	2.102	0.703
Out of labor force	17.068	14.633	0.066	14.978	14.038	0.588	12.167	9.958	0.273	10.968	7.576	0.122
Labor market history 4 years before program start (measured in number of half-months)												
Employment	30.420	36.836	0.002	27.878	30.006	0.471	29.422	29.927	0.895	20.635	30.254	0.022
Unemployment	22.593	22.619	0.985	27.539	30.076	0.198	31.022	36.146	0.052	41.698	41.881	0.961
Job seeking while employed	1.266	1.100	0.552	1.644	1.038	0.178	1.289	1.135	0.727	1.762	0.559	0.074
Program participation	4.837	4.217	0.411	4.939	4.573	0.743	4.167	3.510	0.678	6.397	3.508	0.097
Out of labor force	36.885	31.228	0.026	34.000	30.306	0.290	30.100	25.281	0.268	25.508	19.797	0.261
Observations	410	360		180	157		90	96		63	59	

Table A.8: Means of selected variables for female participants of combined training programs

	Quarter 1		Quarter 2		Quarter 3		Quarter 4					
	Natives	Immigr.	p-value	Natives	Immigr.	p-value	Natives	Immigr.	p-value			
Age												
18-24	0.345	0.281	0.169	0.327	0.326	0.986	0.197	0.268	0.358	0.188	0.091	0.234
25-34	0.246	0.421	0.000	0.327	0.253	0.240	0.288	0.500	0.016	0.354	0.545	0.090
35-49	0.345	0.236	0.017	0.265	0.337	0.265	0.394	0.179	0.009	0.375	0.212	0.122
50-57	0.065	0.062	0.907	0.080	0.084	0.905	0.121	0.054	0.197	0.083	0.152	0.344
Schooling												
No school leaving certificate	0.082	0.191	0.001	0.142	0.242	0.065	0.076	0.125	0.367	0.042	0.273	0.003
Secondary general school	0.332	0.303	0.540	0.398	0.389	0.898	0.470	0.536	0.472	0.375	0.485	0.331
Intermediate secondary school	0.254	0.169	0.037	0.292	0.147	0.013	0.227	0.107	0.081	0.375	0.121	0.011
Vocational diploma (Fachabitur)	0.086	0.039	0.058	0.035	0.063	0.354	0.061	0.054	0.869	0.062	0.061	0.973
University entrance diploma	0.073	0.084	0.682	0.035	0.032	0.880	0.045	0.054	0.838	0.062	0.000	0.147
Missing	0.172	0.213	0.295	0.097	0.126	0.509	0.121	0.125	0.950	0.083	0.061	0.705
Family status												
Single	0.565	0.427	0.006	0.584	0.326	0.000	0.500	0.339	0.075	0.542	0.212	0.003
Household size												
Number of persons	1.612	1.899	0.007	1.425	2.084	0.000	1.455	2.196	0.000	1.729	2.061	0.208
Region												
East Germany	0.017	0.006	0.289	0.044	0.011	0.149	0.015	0.000	0.359	0.042	0.061	0.703
Labor market history 2 years before program start (measured in number of half-months)												
Employment	12.608	12.792	0.902	10.761	12.779	0.275	8.424	6.857	0.452	8.083	9.848	0.460
Unemployment	11.440	11.292	0.905	18.920	17.242	0.346	21.879	23.625	0.433	26.833	29.152	0.309
Job seeking while employed	0.716	0.820	0.747	0.743	1.032	0.435	0.773	0.786	0.978	0.958	0.485	0.412
Program participation	2.478	1.494	0.128	2.690	1.074	0.039	1.015	1.750	0.370	2.667	2.000	0.629
Out of labor force	20.759	21.601	0.670	14.885	15.874	0.673	15.909	14.982	0.742	9.458	6.515	0.249
Labor market history 4 years before program start (measured in number of half-months)												
Employment	26.310	27.646	0.647	26.142	29.726	0.341	25.773	21.286	0.358	22.896	29.364	0.282
Unemployment	16.599	15.876	0.690	25.947	23.221	0.324	30.167	32.929	0.472	35.958	40.697	0.288
Job seeking while employed	1.043	0.961	0.836	1.257	1.758	0.309	0.985	1.125	0.799	1.062	0.515	0.350
Program participation	3.901	1.966	0.032	4.354	1.632	0.016	1.894	2.679	0.542	6.458	4.121	0.450
Out of labor force	48.147	49.551	0.706	38.301	39.663	0.770	37.182	37.982	0.897	29.625	21.303	0.202
Observations	232	178		113	95		66	56		48	33	

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