

Labour market outcomes after vocational training in Germany

Equal opportunities for migrants and natives?

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Auch mit seiner neuen Reihe „IAB-Discussion Paper“ will das Forschungsinstitut der Bundesagentur für Arbeit den Dialog mit der externen Wissenschaft intensivieren. Durch die rasche Verbreitung von Forschungsergebnissen über das Internet soll noch vor Drucklegung Kritik angeregt und Qualität gesichert werden.

Also with its new series "IAB Discussion Paper" the research institute of the German Federal Employment Agency wants to intensify dialogue with external science. By the rapid spreading of research results via Internet still before printing criticism shall be stimulated and quality shall be ensured.

Contents

List of tables.....	4
List of figures.....	4
Abstract	5
1 Introduction.....	6
2 An overview: structure of the education and in-firm training participation of German and migrant youth	7
3 Theoretical considerations on successful transitions and hypotheses	12
4 Data & variables.....	16
5 Risks at labour market entry	19
5.1 Unemployment.....	19
5.2 Occupational mismatch	23
5.3 Skill mismatch	27
6 Discussion and conclusion.....	29
References	31
Appendix.....	35

List of tables

Table 1: German and migrant school leavers (male/female), qualification obtained, year of leaving school (as %)	8
Table 2: Share of top five training occupations of male and female migrants, 2006 (as %)	11
Table 3: Composition of the subsample (as %)	18
Table 4: Summary of the results: ethnic groups that differ significantly from Germans concerning unemployment, occupational mis- match and skill mismatch in the transition from training to work	30
Table 5: Determinants of unemployment for men and women by nationality (logistic regression, odds ratio)	35
Table 6: Determinants of occupational mismatch for men and women by nationality (logistic regression, odds ratio)	36
Table 7: Determinants of unskilled jobs for men by nationality (logistic regression, odds ratio)	37

List of figures

Figure 1: Vocational training rates of young Germans and migrants by sex, 1993-2004 (as %)	9
Figure 2: Rates of unemployment after completion of vocational training for men by nationality (as %)	20
Figure 3: Rates of unemployment after completion of vocational training for women by nationality (as %)	20
Figure 4: Risk of unemployment after completion of vocational training for men and women by nationality (logistic regression, odds ratio)	21
Figure 5: Rates of occupational mismatch in the first job for men by year in which training was completed and by nationality (as %)	23
Figure 6: Rates of occupational mismatch in the first job for women by year in which training was completed and by nationality (as %)	24
Figure 7: Risk of occupational mismatch between training and first job for men and women by nationality (logistic regression, odds ratio)	26
Figure 8: Rates of unskilled first job after training for men by year in which training was completed and by nationality (as %)	28
Figure 9: Risk of unskilled jobs for men by nationality (logistic regression, odds ratio)	28

Abstract

German in-firm vocational training combines training on the job and learning in vocational schools. The so called 'dual system' absorbs roughly two thirds of German school leavers every year. After between two and four years of standardized training, it provides them with a generally accepted qualification in a wide range of occupations.

Using Spence's Signaling Theory, hypotheses are derived concerning different labour market outcomes of foreigners who successfully completed an in-firm vocational training course and their German counterparts. The integration potential of the dual system is tested empirically according to its risk factors *unemployment, occupational mismatch and skill mismatch* using longitudinal registration data (1977-2004). Different nationalities are compared with Germans with respect to their first employment after leaving the dual system.

Today, most of the young migrants who go through the dual system are as successful on the labour market as Germans. In-firm vocational training apparently provides migrant youth with the skills and techniques necessary for a successful transition to the labour market. However, they have restricted transition chances due to having higher unemployment rates, occupational mismatch and skill mismatch. But even if we control for relevant variables that determine transition chances, restrictions at labour market entry still remain for individual nationalities: compared to Germans, migrant men and especially migrant women have a higher risk of unemployment and occupational mismatch.

Key words: migration, integration, apprenticeship training, longitudinal registration data

JEL-Classifications: J62, J64, J71

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1 Introduction

The participation of migrants in the labour market plays a key role in the dialogue on integration policy and helps to reduce youth unemployment in Germany.

School education and in-firm training are not only important prerequisites for successful participation in the labour market.¹ Since the German labour market is also highly regulated by vocational qualifications, the dual system of school education and vocational training allows most people who complete training a smooth transition into the national labour market. However, the participation of young migrants in the German dual system is lower than that of their German counterparts (see section 2). They also participate to a lesser extent in upper secondary education (Allmendinger 1989, Riphahn 2003/2005, Entorf/Minoui 2004, Kristen 2006).

Against this background, in this paper we investigate whether migrants who have completed vocational training have the same opportunities and transition patterns after completing a course in the dual system as young Germans. To answer this question, we analyse the transition processes of different ethnic groups from vocational training to the first job between 1977 and 2004 in western Germany.² Our focus is on migrants' relative risks of becoming unemployed, of changing occupation (leaving the occupation in which the individual trained) and of experiencing a skill mismatch (working in jobs that do not require any vocational training) when compared to their German counterparts. Since the German dual system has a high capacity to provide access to skilled segments of the labour market, especially young migrants who have passed through the system should benefit. The dual system, therefore, should work as catalyst within the integration process.

This paper is structured as follows: first we provide an overview of the participation of German and migrant youth in general education and vocational training (section 2). We then review the literature, explain the theoretical approach of our study and derive hypotheses in section 3 of the

¹ We use in-firm (vocational) training and the dual system as synonyms.

² Migrants in Germany mainly live in western Germany. Consequently labour market competition between migrants and natives effectively only occurs in western Germany.

paper. Data, variables and methods are described in section 4. In section 5 we present our empirical findings and conclude with a discussion in the closing section of the paper (section 6).

2 An overview: structure of the education and in-firm training participation of German and migrant youth

Secondary school qualifications send a signal to employers. They indicate how well the vocational training applicant might perform. Although such qualifications are not a formal prerequisite for entering the “dual system”, access to a vocational training course depends strongly on the type and quality of such school qualifications (Solga 2002; Konsortium Bildungsberichterstattung 2006). Migrant youth is underrepresented in upper secondary schools, and overrepresented in lower and intermediate secondary schools. In the school year 2004/2005, only 15 percent of young Germans but 36 percent of young migrants attended a lower secondary school. In contrast, 40 percent of young Germans but only 17 percent of young migrants receive upper secondary schooling (see also Schnepf 2006). They are also disproportionately represented in schools for disadvantaged pupils or special needs schools (‘Sonderschulen’ or Förderschule; 12 percent vs. 6 percent; see Powell/Wagner 2002). Finally, young migrants have to repeat a school year more often than young Germans in all three types of German secondary schools (see Krohne et al. 2004).

PISA has shown that a large segment of migrant youth, whose parents are foreign born, belong to the lowest socio-economic class. This is very significant because in Germany statistics show that the probability of young people attending upper secondary school depends highly on the socio-economic status of their parents (see Konsortium Bildungsberichterstattung 2006).

Table 1 shows the distribution of school qualifications among German and migrant youth. Between 1992 and 2005 the school achievements of young migrants improved marginally.³

³ The unbalanced distribution is also shown in Konsortium Bildungsberichterstattung (2006: 147).

Table 1: German and migrant school leavers (male/female), qualification obtained, year of leaving school (as %)

	1992				2005			
	Germans		Migrants		Germans		Migrants	
	male	female	male	female	male	female	male	female
No school qualification	8.4	5.0	23.9	17.5	9.1	5.3	20.9	13.6
With lower secondary school certificate	27.7	22.2	44.6	44.1	26.5	19.7	42.9	40.2
With intermediate secondary school certificate	39.2	44.2	23.5	29.4	41.3	43.9	28.0	34.7
With general qualification for entrance to university of applied science/ university	24.7	28.6	8.0	9.0	23.1	31.1	8.2	11.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistisches Bundesamt (Federal Statistical Office) 2006, Fachserie 11, Reihe 1, Bildung und Kultur, Tab. 6.4; own calculations

Female migrants have better school qualifications than male migrants; they have managed to expand their positions since 1992. They have also reduced the education gap to German women. However, at the same time German women have improved their education level – compared to all other groups. It could be stated as an intermediate result that female migrants are much better educated than male migrants but less well educated (in terms of qualifications) than German women. The second part of this result gains importance within the application process: migrant women “compete” with better educated German women for a vocational training place. However, the better educated migrant women should at least have better chances than migrant men of getting vocational training places and of succeeding after completing vocational training.

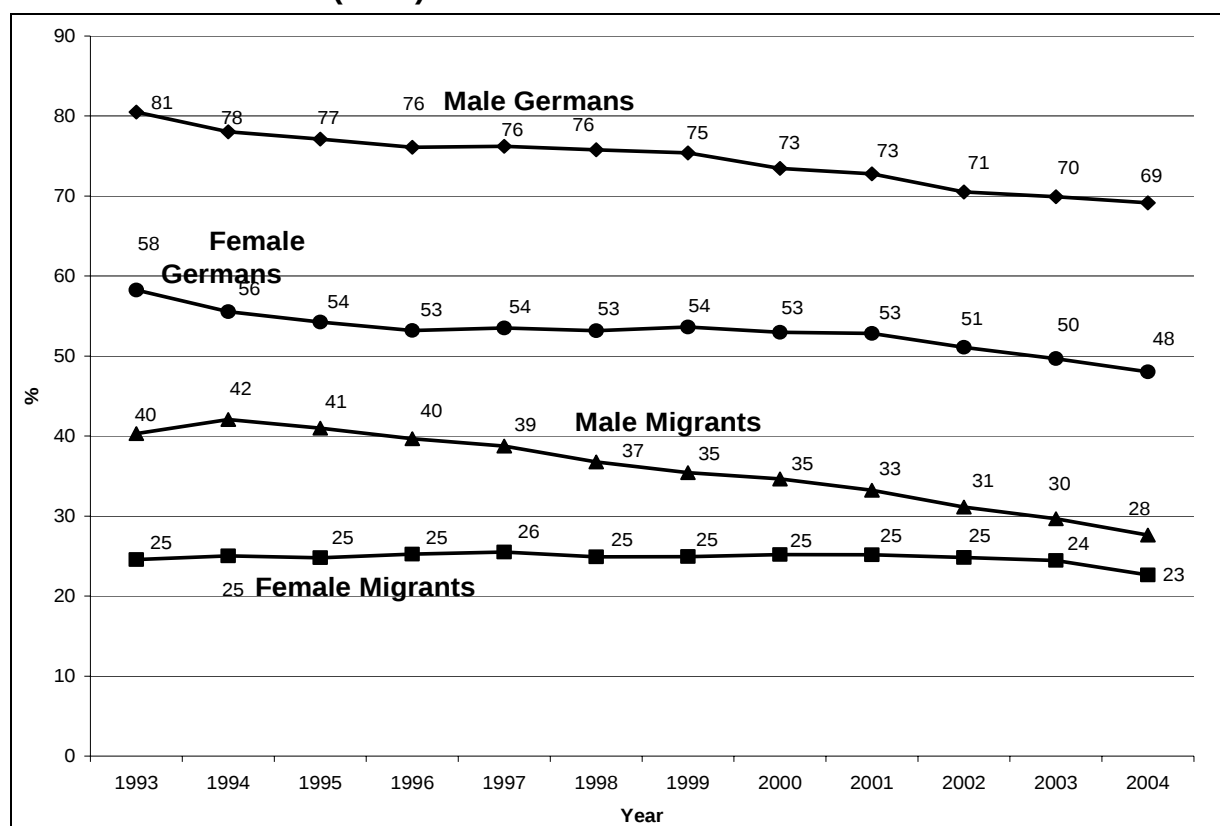
Transition from school to vocational training

In Germany, the dual system is the most important form of vocational education. Almost two thirds of school leavers start their careers with in-firm vocational training. Combining theoretical instruction and firm-based training, the dual system is quite unique to German-speaking countries (Germany, Switzerland and Austria). Vocational training enables the apprentice to gain broad basic vocational knowledge and acquire qualified vocational skills. The approximately 340 training schemes within the dual system in Germany vary greatly. The training programmes, however, are highly regulated, standardised and binding for participating firms. A sys-

tem of neo-corporatist co-operation (made up of the federal government, the German states “Länder”, employers’ associations and unions) runs, supervises and develops the dual system. At the end of the vocational training the apprentice has to pass an examination to gain an occupation-specific vocational qualification (Konietzka 2003).

In-firm vocational training is considered a very important path to a skilled job in the labour market (BMBF 2006). The underrepresentation of migrant youth in upper secondary schools has a negative effect on the transition from school to vocational training (“first barrier”). Vocational training participation rates (number of apprentices in relation to the population aged 18 to 21) show considerable differences between Germans and migrants and between men and women (see Figure 1).

Figure 1: Vocational training rates of young Germans and migrants by sex, 1993-2004 (as %)



Source: Statistisches Bundesamt (Federal Statistical Office) 2006, Fachserie 11, Bildung und Kultur, Reihe 3; The Federal Institute of Vocational Training and Education

As shown in Figure 1, the rate of participation in vocational training has decreased for each group since 1993. However, migrants fare worse than Germans at this crossroads into the labour market. The strongest de-

crease in the participation rate was registered for male migrants: from 40 percent in 1993 to 28 percent in 2004. This steep decline is mainly a result of the diminishing demand for industrial apprenticeships, traditionally a male domain (BMBF 2006). The situation for migrant women is especially precarious: their participation rate is lowest and has not changed over time although female migrants obtain better school qualifications than male migrants (Granato 2004). Compared to German women, their participation in vocational training is far below average (2004: 23 vs. 48 percent) and lower than that of migrant men. The difference between German men and women results from the higher participation rate of German women than German men in full-time school-based vocational education schemes (BMBF 2006).

According to a survey of school leavers carried out by the Federal Institute for Vocational Training and Education in 2005, migrants and Germans express equal interest in starting vocational training upon leaving school. However, only 52 percent of the Germans and about 25 percent of the migrants actually started vocational training (Ulrich/Granato 2006). For both migrant and German applicants it is true that an upper secondary school certificate, high maths scores, as well as living in a region with an above-average employment situation, raise the chance of getting an apprenticeship place. The success rate, however, is lower for migrant applicants than for their German counterparts (Ulrich/Granato 2006).

Gender-specific segregation and the occupational range of vocational training

Gender-specific segregation on the labour market is one characteristic of industrial nation states despite the increasing labour force participation of women. Segregation describes a heterogeneous representation of women in sectors/branches, occupations and hierarchical levels. Gender-specific horizontal segregation means on the one hand the polarization of the occupation structure into gender-specific occupations and on the other hand that the range of occupations in which women are to be found is much smaller than that of men. Gender-specific segregation could be regarded as an important dimension of social inequality (e.g. gender-specific wage inequality) (Achatz 2005).

Occupations that require training are not equal in terms of prestige and labour market chances. Differences in vocational training opportunities

also affect the transition from school to work and labour market outcomes, e.g. salaries and career options. The various training opportunities result in better or poorer prospects of school-to-work transition, pay and career options (e.g. unemployment rates of different occupations).⁴ The hierarchical structure of these jobs can be seen easily from the different school qualifications which are required for access to a vocational training place for these jobs.

Table 2 shows the sex-specific occupation structure and the range of occupations for male and female migrants and Germans:

Table 2: Share of top five training occupations of male and female migrants, 2006 (as %)

	Women			Men	
	Migrants	Germans		Migrants	Germans
Clerks	16.3%	19.4%	Mechanics	7.2%	6.4%
Doctor's assistants	14.7%	10.2%	Clerks	6.4%	7.1%
Sales clerks	10.7%	7.9%	Wholesalers	5.1%	3.9%
Hairdressers	9.5%	4.7%	Sales clerks	5.0%	2.3%
Nurses	7.6%	8.9%	Electricians	4.7%	5.4%
<i>SUM</i>	<i>58.8%</i>	<i>51.2%</i>	<i>SUM</i>	<i>28.3%</i>	<i>25.0%</i>
Other occupations	41.2%	48.8%	Other occupations	71.7%	75.0%
<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>	<i>Total</i>	<i>100.0%</i>	<i>100.0%</i>

Source: Statistics Federal Employment Services, own calculations

Nearly 60 percent of all female migrants who take part in training concentrate on five jobs only. And some of those five jobs have the poorest prospects of pay and career options (like clerks, hairdressers and doctor's assistants). German women show a broader spectrum of chosen occupations – around 50 percent of them concentrate on these top five jobs of female migrants.⁵ This share is also very high but significantly lower compared to migrant women.

The top five training occupations of male migrants involve just 28 percent of migrant men (and a quarter of German men). They therefore have a much wider range. However, male migrants are overrepresented in handi-

⁴ <http://www.pallas.iab.de/bisds/alphabet.asp> shows the unemployment rate for every single occupation.

⁵ Please note that nearly 340 training courses are available.

crafts and underrepresented in industry/trade. Those occupations in which migrant men are overrepresented are highly affected by structural and cyclical change. Both earning possibilities and opportunities for advancement are much lower (e.g. salesmen). In contrast, migrants are underrepresented in modern IT, media and services occupations (Damelang/Haas 2006).

In sum, distinct differences prevail between German and migrant apprentices concerning their education and the “choice” of jobs for which they receive vocational training. On average, migrants leave school with lower qualifications and participate significantly less in vocational training programmes than Germans. Especially migrant women are losing out on the track from school to vocational training: although they have good school qualifications, they often struggle more than migrant men and female Germans in the first transition phase (school to vocational training). And their “choice” of training occupations is not ideal, as they choose jobs with lower earning possibilities as well as fewer opportunities for advancement.

3 Theoretical considerations on successful transitions and hypotheses

In the following we examine the labour market entry of young migrants and Germans. We analyse the transition from vocational training to the first job (“second barrier”). Our focus is on each group’s relative chances of a successful entry into the German labour market.

First, our theoretical considerations regarding the determinants of young migrants’ labour market chances are presented. We take into account the general institutional framing of the transition from school to vocational training in Germany, and describe the application procedure in more detail. Finally, hypotheses are developed on how the “second barrier” can be overcome successfully.

The occupation-specific vocational certification described in section 2 is an important prerequisite for entering the German “occupational labour market” (Konietzka 1999, Konietzka/Solga 2000) and therefore has a high career relevance. A change of occupation is generally difficult because the occupational training can usually not be applied to different occupations.

Changing one's occupation often results in a loss of income and human capital (Velling/Bender 1994; Fitzenberger/Spitz 2004).

In Germany, the certification of vocational training allows individuals access to skilled job opportunities and job prospects (Mayer 1995, 1996; Konietzka 1999). Apprenticeship "enables youth who do not enroll in higher education to move directly into primary-labor-market careers" (Hamilton 1987: 314). Since certificates are highly standardised, they indicate to employers what skills and abilities applicants have achieved (Allmendinger 1989, Müller/Shavit 1998). Without certification of vocational training, job applicants are not very likely to get a skilled job (Solga 2005).

Hence we assume that, at a very basic level, all individuals with a vocational training qualification have similar opportunities for access to the labour market regardless of their nationality. We can also assume that migrants who have successfully completed vocational training have sufficient German language skills to apply for jobs (Seibert/Solga 2006: 415).

After completion of vocational training and during the application process, an interdependence emerges between the applicant and the employer's recruiting practice. This interdependence is embodied in the application documents produced by the job-seeker. According to *signalling theory* (Spence 1973, 1974), employers use criteria that are easy to observe and reliable for their decision in the recruiting process. In the screening process, these criteria serve as indicators of the applicant's ability, potential for achievement, motivation and willingness to perform. These indicators can be an applicant's observable and alterable characteristics ("signals"), for example education credentials, or observable and unalterable characteristics ("indices") like sex, age and ethnicity.⁶ Both signals and indices are used by employers when making their decisions about job applicants based on the behaviour probabilities of employee groups (Blossfeld/Mayer

⁶ Due to the limited data available for analysis we use nationality as an indicator for ethnicity. Consequently we underestimate total numbers of ethnic groups. The German population census of 2005 shows that about 15% of Germany's population belongs to ethnic minorities, whereas the share of foreigners is only about 7% (Statistisches Bundesamt [Federal Statistical Office], Fachserie 1, Reihe 2.2, Bevölkerung mit Migrationshintergrund – Ergebnisse des Mikrozensus 2005).

1988). Attributes, in other words, are referred to groups. Employers have cut and dried opinions as well as assumptions about these groups concerning their average productivity and therefore judge an applicant within the limits of his or her group membership. This mechanism is also discussed as *statistical discrimination* (Phelps 1972; Arrow 1973). The difference between *signalling theory* and *statistical discrimination* is that according to signalling theory an employer uses his own past experience to predict an applicant's productivity. Statistical discrimination on the other hand assumes that productivity predictions are made on the basis of external information (statistical data, prejudices, or ascriptions).

According to signalling theory, a formal vocational training qualification, due to its informative character, indicates applicants' past abilities and is valuable for the judgement of expected abilities and performance. The employer uses the qualification as a signal in the selection process.

The signalling value of a qualification can be altered by taking more information into account, e.g. ethnic origin. If employers believe that differences in abilities are grounded in ethnic or cultural origin, migrant applicants could be regarded as having fewer abilities – despite the fact that they have acquired the same qualification standards. As a consequence, the signalling value of migrants' vocational training qualifications could be devalued and deformed at the same time because of employers' assumptions of ethnicity-specific abilities. Employers' perceptions about the work-related behaviour of different ethnic groups (e.g. punctuality, loyalty etc.) may alter productivity expectations as well (Borjas/Goldberg 1978, Seibert/Solga 2005). In this way, expectations can vary between different ethnic groups so that certain groups are considered less productive than other minorities – even when they have vocational qualifications.

According to Moss/Tilly (1995), employers often use alternate reasoning for their personnel decision ("perceived ability differences based on the ethnicity of the applicant"). For example, to justify favouring native over migrant candidates, employers argue that native candidates possess soft skills of particular importance for the job, regardless of whether these skills were indeed necessary for the vacancy. This reasoning, however, helps the employer to avoid revealing publicly a discriminatory practice based on applicants' ethnicity, a practice that is prohibited by law.

One consequence of this type of discrimination in the job application process could be that migrant applicants holding the same qualifications as German applicants are penalised by prospective employers (Seibert/Solga 2005).

In the following we track the question of whether there are differences in the employment chances of Germans and migrants who have completed vocational training at the transition from vocational training to labour market entry: do formal qualifications have the same signalling value for employers regardless of the applicants' ethnicity? How well is the German dual system able to integrate into the labour market migrants who have completed vocational training? To examine empirically the labour market integration of German and migrant youth, we use three indicators: unemployment, occupational mismatch and skill mismatch at labour market entry.

The following competing hypotheses with respect to the transition from training to work can be summarized:

H1: No differences exist between Germans and migrants with respect to labour market transitions from vocational training to work.

If H1 is true, and all other things are considered equal, there is no difference between Germans and migrants as regards the signalling value of their vocational qualifications, i.e. an ethnically modified signalling value does not exist. Consequently, German and migrant youth holding vocational qualifications have the same opportunities of finding appropriate jobs ("integration hypotheses").

H2: Differences exist between Germans and migrants in the transition from vocational training to work.

Vice versa, if all other things are equal and if H2 holds, there is a difference in the signalling value of vocational qualifications depending on ethnicity ("differentiation hypotheses").

These differences can vary:

H2a: The difference is between Germans and all other ethnic groups/all other nationalities.

H2b: There are differences in the transition from vocational training to work between Germans and some ethnic groups while other groups are as likely as Germans to make the labour market transition.

4 Data & variables

Data on transitions from vocational training to the labour market are rare and in most cases are restricted to cross-sectional information. We use longitudinal official registration data of the Institute for Employment Research (IAB), and draw on a subsample of the so-called employment and benefits history which covers all stages of in-firm education and training, employment and unemployment.⁷ With this data it is possible to trace the development of nearly 160,000 individuals moving from vocational training to employment in the years between 1977 and 2004. The data is a subsample which covers 2 percent of all Germans and 20 percent of all non-Germans who were registered at any time within the observation corridor.

To track our research question, we observe the first transition from in-firm vocational training into the labour market only. Labour market is defined by the first employment period following the completion of vocational training. If a person participates in more than one vocational training course before entering the labour market we consider the last training period.

We do not take into account university graduates because we are interested in the transition from vocational training into the occupational labour market. Full-time school-based vocational education schemes are not included in the sample. This leads to a slight underrepresentation of women in our sample because the share of women who attend full-time school-based vocational education schemes tends to be larger than that of men. We define training-completion cohorts instead of birth cohorts. This is because members of a training-completion cohort leave the vocational education system at the same time to enter the labour market and they are exposed to almost the same labour market conditions. Hence, train-

⁷ If those unemployed received benefits from the Federal Employment Services between 1977 and 2004.

ing-completion cohorts provide more homogeneous units than birth cohorts.⁸

As dependent variables, i.e. risk factors in the transition process, we consider unemployment, mismatch between training and work (shifts are defined by the German Federal Employment Services' classification of occupations) and status mismatch (unskilled vs. skilled labour market positions). With respect to the status match we can only compare skilled and unskilled blue collar workers, as this differentiation is not possible for white collar workers. As only a minority of women is found among blue collar workers, we only include men in the corresponding multivariate analyses.

The following control variables are taken into account: nationality, sex, school education, occupation trained for, size of training firm and employment with training firm after completion of training as a counterpart to the risk factor of change of training firm.

Nationality: we differentiate between groups of nations: Germans, Turks (largest ethnic group of the migrant population in Germany), individuals from other labour recruitment countries (Italians, Greeks, Spaniards, Portuguese, nationals from former Yugoslavia), and individuals from all other countries.

Our data includes only basic information on education. We distinguish between individuals with a lower/intermediate secondary school certificate (Hauptschule/Realschule) and individuals with an upper secondary school certificate (Abitur). People with a lower/intermediate secondary school certificate are usually channelled into the vocational education system, those with upper secondary school certificates qualify for higher education at universities. Unfortunately with our data we are not able to distinguish between lower and intermediate secondary school certificates.

In vocational training, Germans and migrants participate in different occupations. Hence their chances of successfully moving from training to work

⁸ In 1991 the reporting system was modified, which also affected the records of our training data set. The results of the 1991 job entry cohort may be biased. Therefore, we do not take the 1991 job entry cohort into account in our analyses.

are not the same. To take differences between training occupations into account, the top five occupational groups among migrants are considered and compared with those of their German counterparts. The remaining groups are aggregated.

German firms apply different training strategies and firm size is an important determinant for their respective strategies. Smaller firms train more people than they need to satisfy their demand and use their trainees as cheap workers. Therefore they retain their trainees after completion of training less frequently than larger firms (Büchel/Neubäumer 2001). In contrast, larger firms usually have the capacity and the means to employ trainees after completion of training. We differentiate between two firm sizes in our analyses (1-99 employees and 100 and more employees). Table 3 shows the distribution of the main dependent and independent variables in our data:

Table 3: Composition of the subsample (as %)

		Germans	Migrants
Nationality	Germany	75.5	
	Turkey		10.0
	Other recruitment countries		10.2
	Remaining countries		4.2
Sex	Men	55.9	62.7
	Women	44.1	37.3
School education	below upper secondary school	92.9	95.9
	upper secondary school	7.1	4.1
Size of training firm	1-99 employees	61.9	59.2
	100 or more employees	38.1	40.8
Unemployment after training	Yes	16.3	19.4
	No	83.7	80.6
Occupational mismatch at labour market entry	Yes	20.7	26.9
	No	79.3	73.1
Occupational status at labour market entry*	unskilled blue collar worker	13.6	18.6
	skilled blue collar worker	86.4	81.4
n		120,141	38,990

*Germans: n=61,717; migrants: n=24,924

Note: Sample selection: people who completed firm-based vocational training in the years 1977-2004, only people who entered the labour market as full-time employees, western Germany

Source: IAB Employment Subsample, 1975-2004

5 Risks at labour market entry

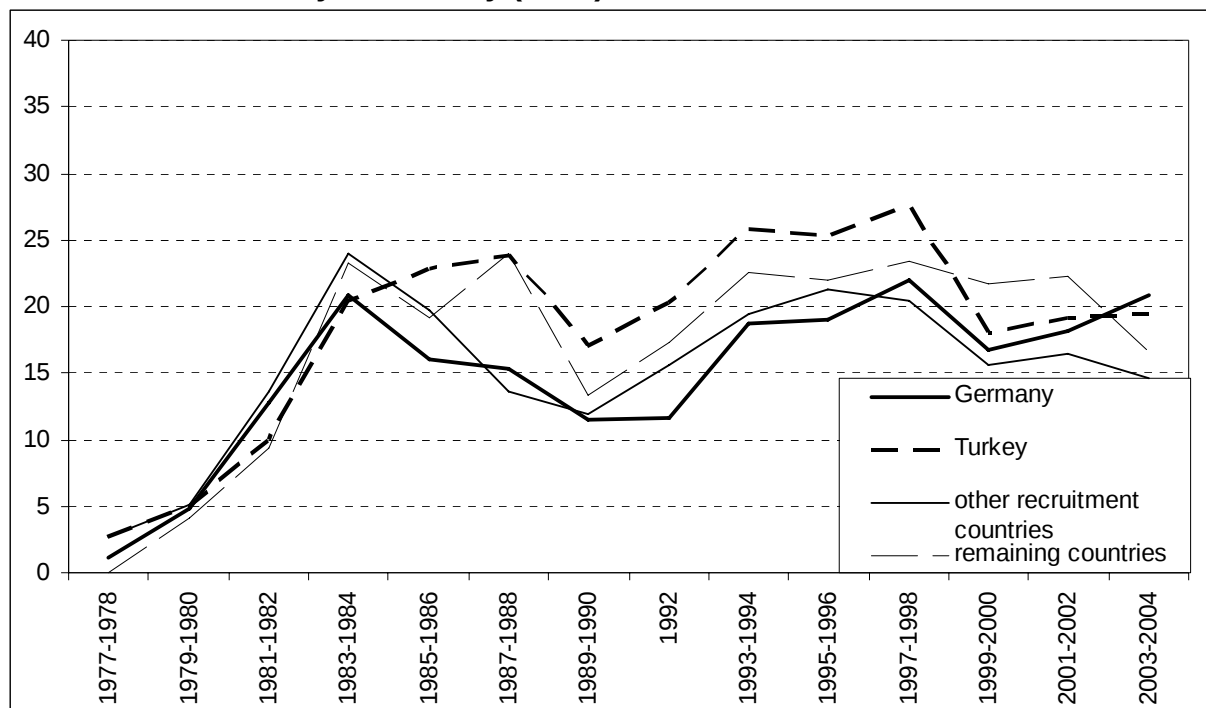
We present the empirical results in three steps. Firstly, we describe and examine unemployment as an indicator of failure in the transition from vocational training to work. Secondly, we analyse occupational mismatch in the first job after vocational training. Finally we examine skill mismatch, i.e. working in an unskilled job despite being properly trained for another job.

5.1 Unemployment

Unemployment after completion of training implies failure in the transition from in-firm training to the labour market. Figure 2 shows the extent of unemployment after completion of vocational training for men by nationality in the years between 1977 and 2004. In summary, individuals completing vocational training were confronted with period-specific economic conditions and with unfavourable labour market conditions in the mid 1980s and the early 1990s. Until the mid 1980s, both the development of unemployment and its level were roughly the same for all nationalities under consideration. In the subsequent years we observe a divergence of the paths for the different ethnic groups: Turkish men experience the highest level of unemployment (up to 27 percent), followed by men from the other countries, and German men with the lowest level of unemployment, at least until 1998.

The pattern for women is fairly similar, although there are some notable differences. While women do not differ from men regarding the increase in unemployment after completion of training until the mid-1980s, they were affected by unemployment to a larger extent than men across all the nationalities under consideration (see Figure 3). Despite the fact that the gender gap in unemployment has disappeared, the differences between nationalities prevailed after the mid 1980s. Turkish women, like their male counterparts, suffer from the highest level of unemployment throughout. For women from the traditional recruitment countries and from other countries we observe an even lower rate of unemployment than among Germans.

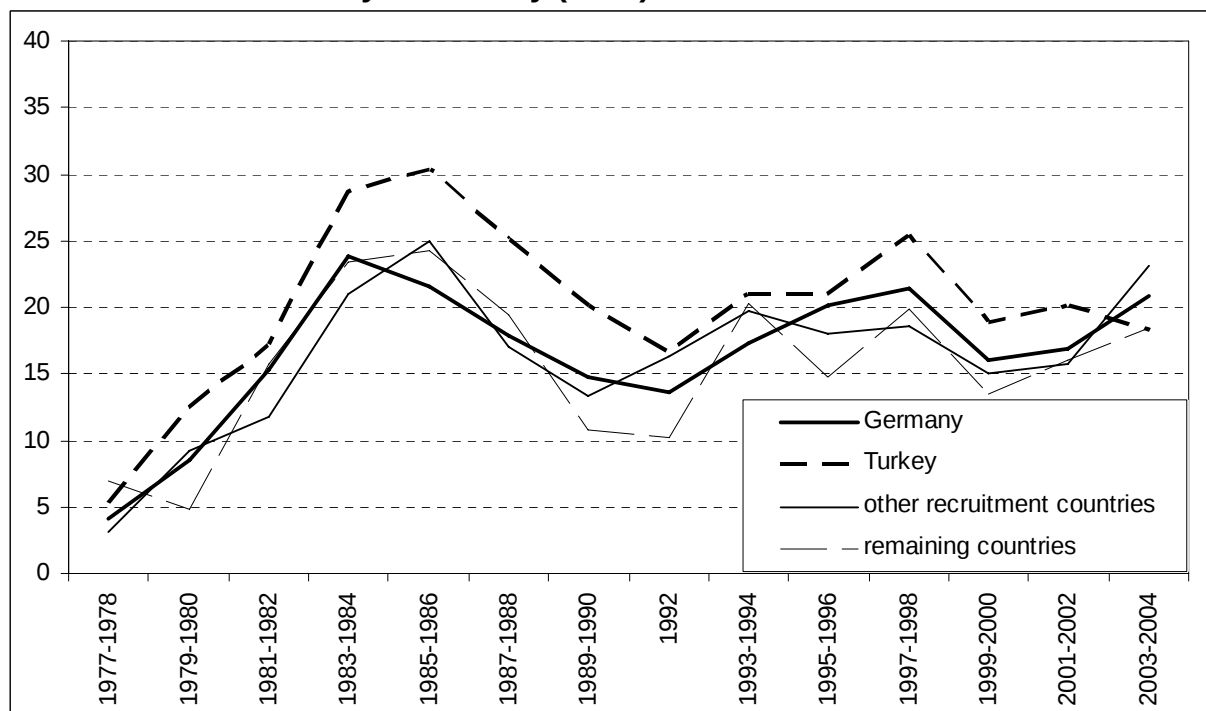
Figure 2: Rates of unemployment after completion of vocational training for men by nationality (as %)



Note: 1991 cannot be shown because of the reorganization of administrative rules

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

Figure 3: Rates of unemployment after completion of vocational training for women by nationality (as %)



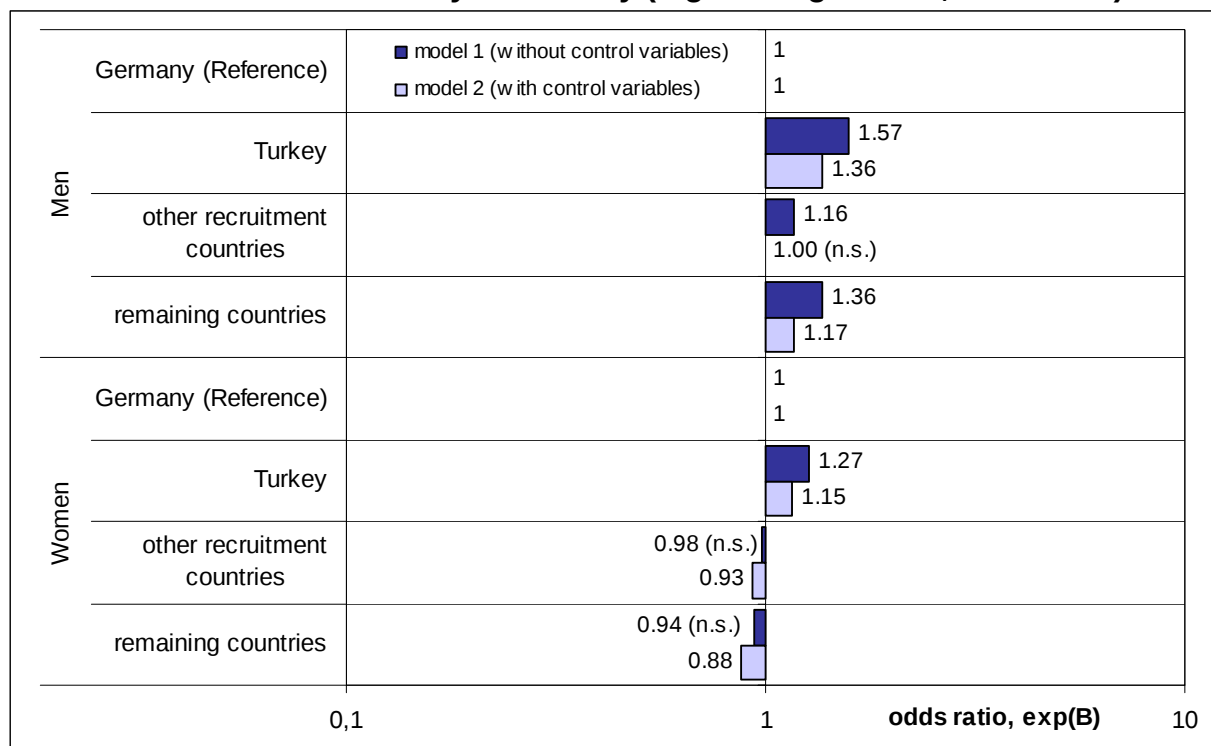
Note: 1991 cannot be shown because of the reorganization of administrative rules

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

In order to specify the determinants of unemployment after completion of training, we ran a series of binary logistic regression models. In the first model we include nationality (model 1). We then add other variables to the model: education, occupation trained for, size of training firm, and year in which training was completed (model 2).

Figure 4 presents the coefficients for the different ethnic groups only and compares the effects before and after the addition of control variables. Comparing models 1 and 2 allows us to see what importance the control variables have in explaining the observed differences between ethnic groups. The results for men and women are presented separately. The effect coefficients estimate the relative chances (odds ratios) of entering unemployment at labour market entry compared to Germans.

Figure 4: Risk of unemployment after completion of vocational training for men and women by nationality (logistic regression, odds ratio)



n.s.: not significant

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

There are considerable gender-specific differences regarding the strength and directions of the coefficients. Model 1 for men shows that Turks are 1.57 times more likely to be unemployed compared to Germans, while the probability for men from other recruitment countries is 1.16, and 1.36 for men from other countries. Chances decrease for all nationalities if we take

into account our control variables (model 2). School education (upper secondary school), occupation trained for and firm size (100 or more employees) have a positive impact on reducing the unemployment risk after completion of training (for details see Table 5 in the appendix).

The risk of Turkish women becoming unemployed is one third higher than that of German women (model 1). The inclusion of control variables reduces the risk for Turkish women (1.15; see model 2). For women of other nationalities the likelihood of being unemployed after completion of training is even lower than that of German women (0.93; 0.88). As with their male counterparts, school education (upper secondary school), occupation trained for (especially in banking) and firm size (100 and more employees) reduce the risk of unemployment after training (for details see Table 5 in appendix).

With respect to our hypotheses we can summarize that the transition to the first job after completion of training has become less smooth over time as regards prospective unemployment. An increasing share of newly trained individuals has an unsuccessful labour market entry, regardless of their nationality. When the different ethnic groups are compared to Germans, the unemployment risk is particularly high for Turkish men. For the men in our sample, we can confirm *hypothesis 2b*: differences in labour market transitions exist only between Germans and some nationalities (Turks and men from remaining countries), other nationalities (other recruitment countries) are not affected in the transition to the labour market when compared to Germans who have completed training. For the female sample we confirm *hypothesis 2a* after taking into account our control variables: the difference is between German women and women from all other nationalities (model 2), although the effects show different directions. The negative effects for the other recruitment countries and remaining countries in model 2 may be caused by the choice of occupations or may be due to a higher level of motivation among women from these countries. Further research would help to answer this question.

Comparing both models – without and with control variables – reveals that some of the observed differences between Germans and other nationalities with completed training are due to composition effects. On the one hand, Germans and other individuals with completed training are not distributed equally across the relevant “risk factors” apart from nationality.

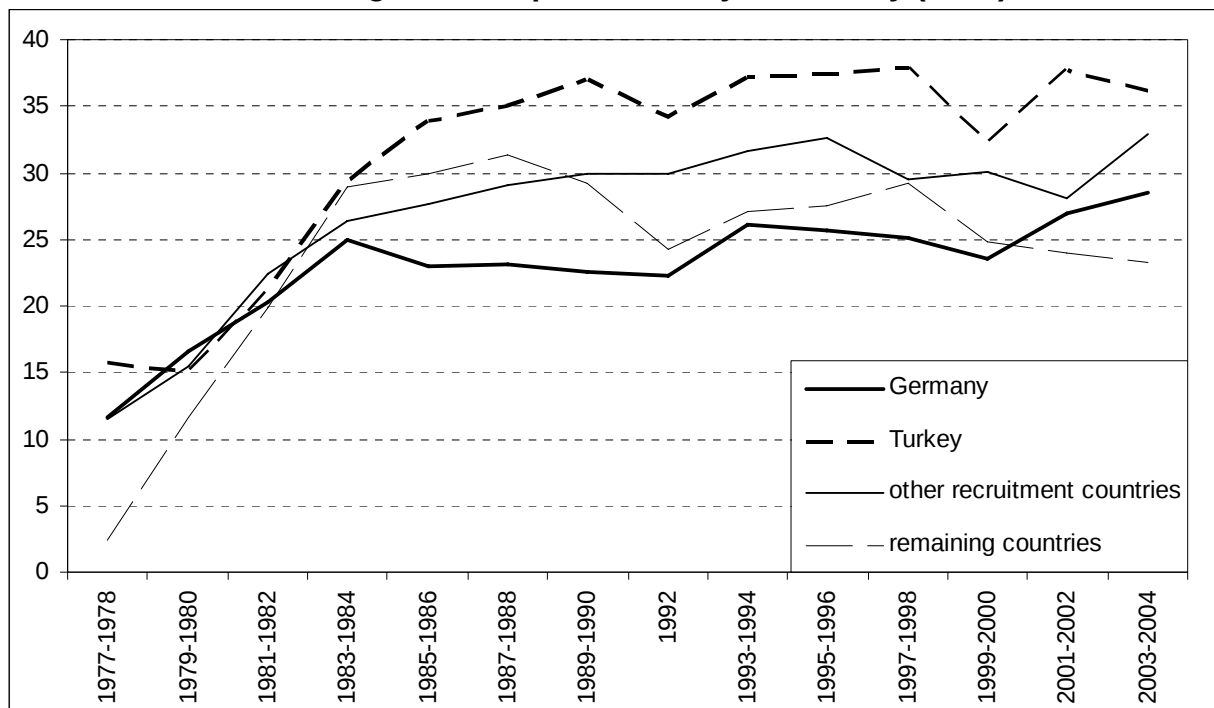
On the other hand, not decomposing the effect of nationality implies that other disadvantages must be explained by factors not included in our models.

5.2 Occupational mismatch

The extent of occupational mismatch is another indicator to gauge successful transitions from vocational training to work. In the first step we consider the development of occupational mismatch rates comparing cohorts of men and women completing training from 1977 to 2004.

Until the mid-1980s, there are hardly any differences in occupational mismatch rates between men from Germany and other nations. From the mid-1980s onwards, however, differences between nationalities begin to occur. While the mismatch rate stands at a stable 25 percent from the mid-1980s onwards in the German sample, the mismatch rate among men from other nationalities increase continuously until the end of the 1980s. Since then, the rate for Turkish men is constantly up to 10 percentage points above the mismatch rate of German men (Figure 5).

Figure 5: Rates of occupational mismatch in the first job for men by year in which training was completed and by nationality (as %)

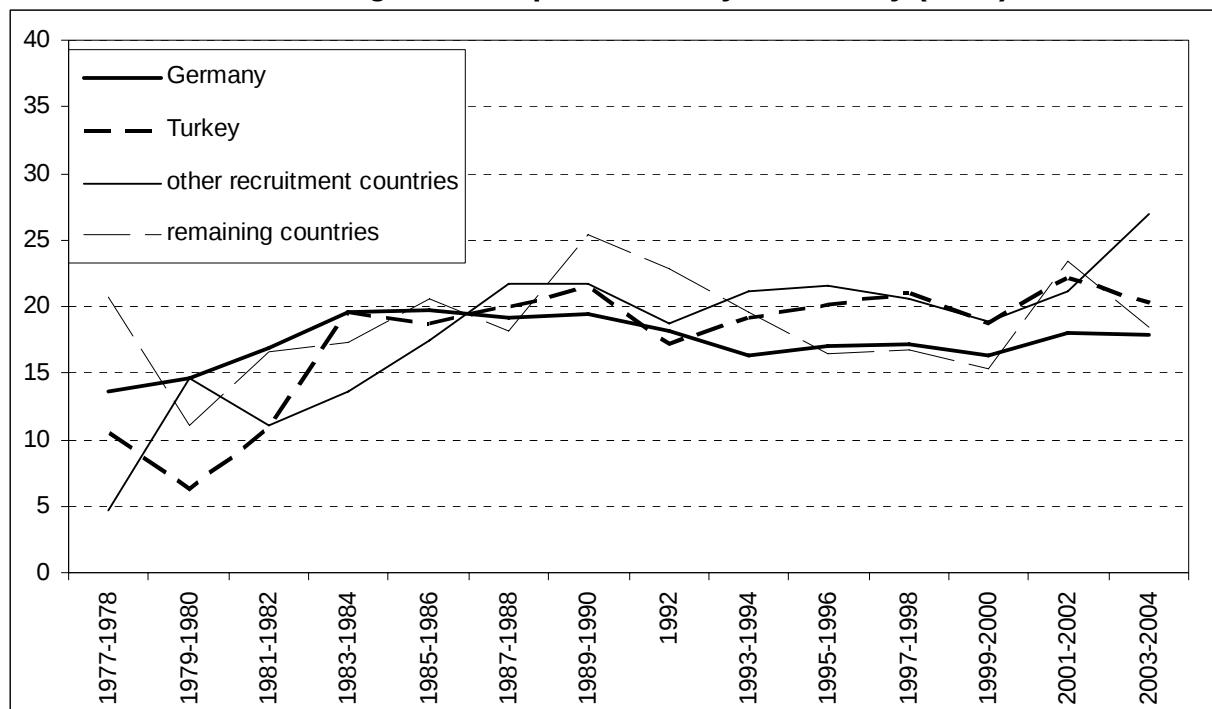


Note: 1991 cannot be shown because of the reorganization of administrative rules

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

In the female sample, the transition chances are higher and there are fewer differences between nationalities than in the male sample. Until the mid-1980s, occupational mismatch rates increase for both women and men. Since then they have fluctuated around the 20 percent level with a decrease in the sample for German women. The rate for women from Turkey and from other recruitment countries is around four percentage points higher (see Figure 6).

Figure 6: Rates of occupational mismatch in the first job for women by year in which training was completed and by nationality (as %)



Note: 1991 cannot be shown because of the reorganization of administrative rules

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

These results show that different nationalities have different chances of a successful occupational match at the time of labour market entry. To probe its determinants, we estimated binary logistic regression models for men and women separately on the probability of a change of occupation, observing several control variables simultaneously in the process. Again, model 1 provides information on the impact of nationality. Model 2 adds school education, occupation trained for, size of training firm, duration of unemployment between completion of training and start of employment,

change of employer and year in which training was completed to the estimation.⁹

Figure 7 shows the results for men (upper half) and for women (lower half) (see full model in appendix). The effect coefficients (exp (b) or odds ratio) provide information on the likelihood of experiencing occupational mismatch after transition from vocational training to the first job (compared to Germans, our reference category).

We start with the estimated results for men. If we only take nationality into account (model 1), the risk of leaving the original training occupation is higher for young newly trained people from all nationalities when compared to young Germans. But it is the Turkish men in particular who have a very high probability of experiencing an occupational switch (1.82). The risk for men from other recruitment countries (1.37) is lower than that of Turkish men, but still a third higher than that of the German reference group. Adding additional variables in model 2 decreases the probability of a change of occupation for all nationalities, but Turkish men are still exposed to the highest risk when compared to German men (1.38). Again we find a lower risk for men from other recruitment countries (1.19), and a non-significant effect for men from the remaining countries.

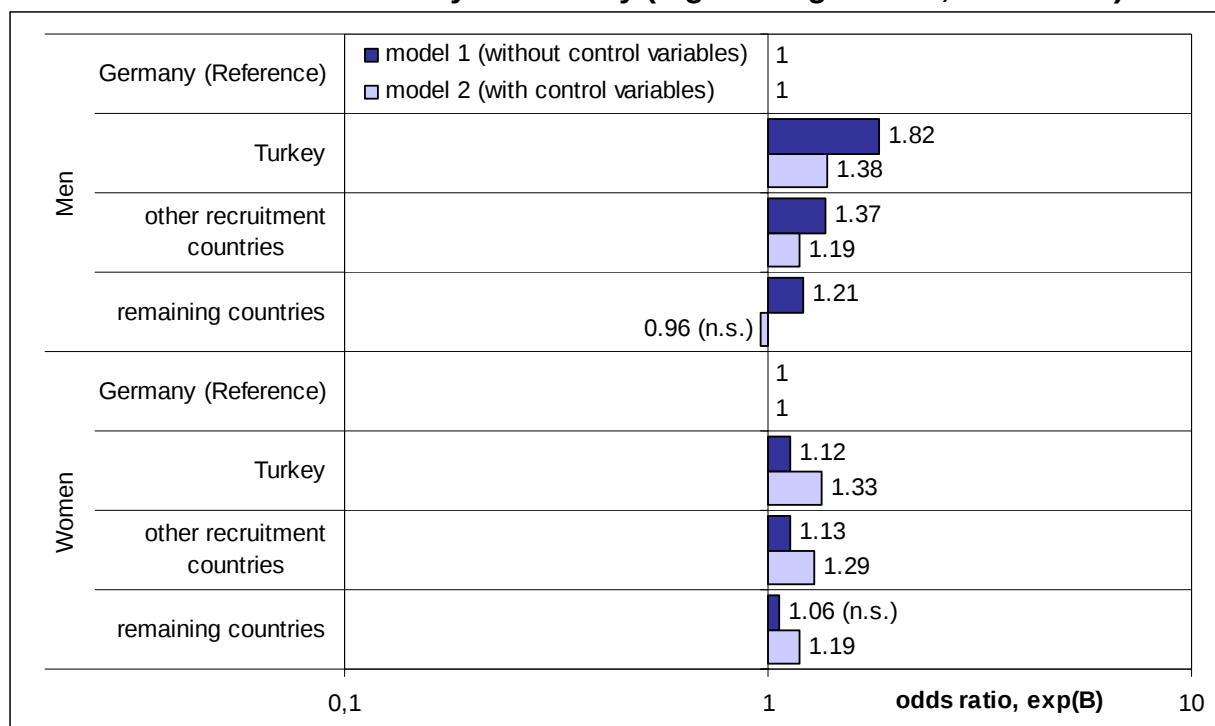
Having an upper secondary school certificate decreases the risk of occupational mismatch (0.84). Being trained in a larger firm (100 or more employees) increases it (1.97). Regarding different occupations, with the exception of locksmiths, all training occupations show a lower mismatch risk than mechanics (reference group). But the most important determinant of occupational mismatch is a change of employer after training: leaving the training firm has to be paid for with a 7.7 times higher risk of occupational mismatch when compared to individuals who stay with their training firm on completion of training (for details see Table 6 in appendix).

For women, taking only nationality into account shows that in comparison to German women there is a slightly higher risk for all other nationalities but to a notably lesser extent than in the male sample (model 1). Unlike in the male sample, the risk of occupational mismatch increases in the

⁹ For an extended model with labour market conditions and interaction effects of labour market conditions with nationality see Seibert (2005).

female sample if control variables are added (model 2). For women of Turkish nationality and other recruitment nationalities we find a probability of a change of occupation of 1.33 and 1.29 respectively when compared to German women. Again the risk is higher for people who trained in larger firms (1.23) and those with a change of employer (6.31). The risk varies considerably according to the occupations trained for, e.g. sales clerks have the highest risk of occupational mismatch (6.21) (for details see Table 6 in appendix).

Figure 7: Risk of occupational mismatch between training and first job for men and women by nationality (logistic regression, odds ratio)



n.s.: not significant

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

We argued that a match between the occupation trained for and that at the beginning of the employment career may serve as an indicator of a successful labour market entry. Our results show that the chances of this sort of occupational match differ between women and men, and more importantly, between different nationalities. The risks of suffering an occupational mismatch are higher for some nationalities than for others when compared to Germans. In our data, however, we only find support for hypothesis 2b in the male sample, in particular for Turkish men. For the female sample, the results lend support to hypothesis 2a since differences in

the transition from training to work are evident between German women and all women of other national origins.

5.3 Skill mismatch

As a third indicator of a successful labour market entry after training we analyse skill mismatch between training and first job. A skill mismatch is observed if someone is working in an unskilled job that is not adequate for young people who have obtained vocational qualifications. Due to data restrictions (see section 4), women are excluded from the analysis.

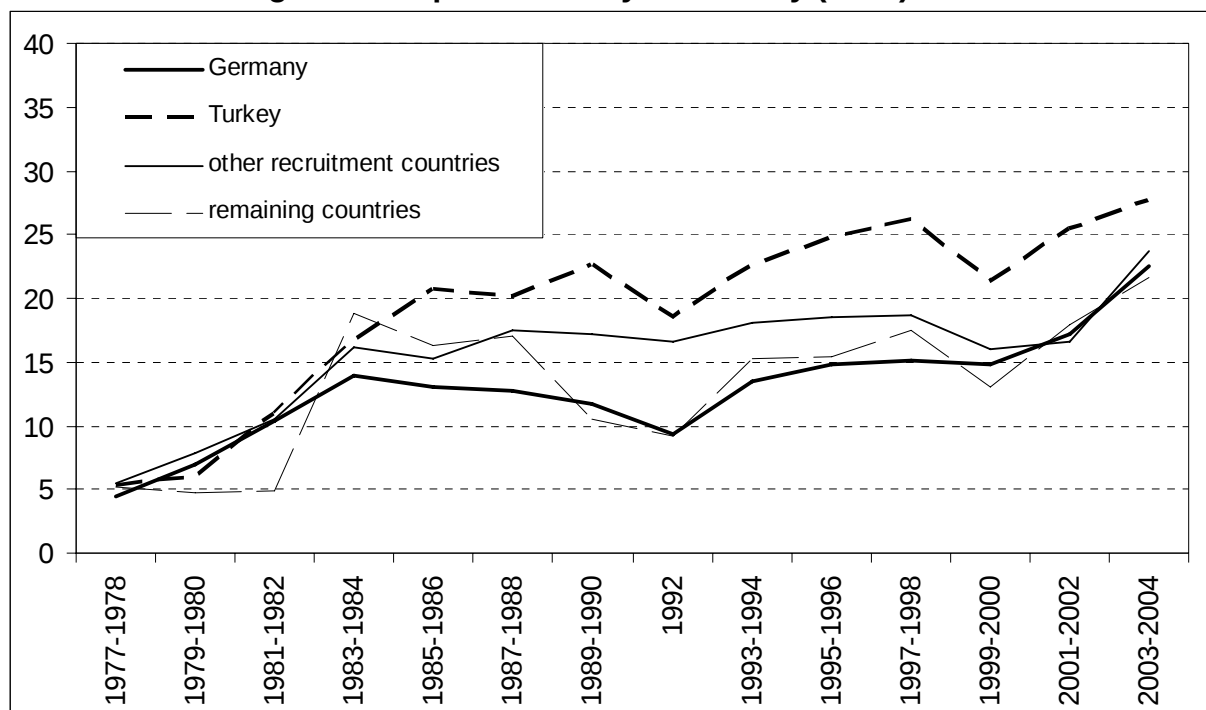
If we consider the proportion of skill mismatch in the first job after training by the year in which training was completed, Figure 8 shows first a continuous increase regardless of nationality. Tight labour market conditions in the second half of the 1980s, the second half of the 1990s and from 2001 onwards explain this trend. Second, substantial differences between the nationalities under consideration are evident. Non-Germans with completed training are found in unskilled jobs at labour market entry to a disproportionate extent when compared to their German counterparts. This gap emerged in the mid-1980s and has not been closed since then. Newly trained Turkish nationals have the highest level of skill mismatch in the whole observation period, and their proportion is more than twice that of the Germans in the first half of the 1990s. Men from other recruitment countries have managed to reduce their share of unskilled jobs and reached the same level as Germans in 2001. Turkish men seem to be significantly disadvantaged with respect to their chances of transition from training to work.

Do these differences remain if additional control variables are added? Again, we estimate two binary logistic regression models (for details see Table 7 in the appendix).¹⁰ Figure 9 shows the results for men. Compared to Germans, freshly trained Turkish nationals have an odds ratio of 2 to 1 of getting an unskilled job as their first job (model 1). Adding more variables (model 2) leads to a risk reduction across all groups: Turkish men are now 1.43 times more likely to get an unskilled job. The effect for newly trained individuals from the other recruitment countries decreases

¹⁰ For an extended model with labour market conditions and interaction effects of labour market conditions with nationality see Seibert (2005).

to 1.12. For freshly trained people from the remaining countries the effect is no longer significant.

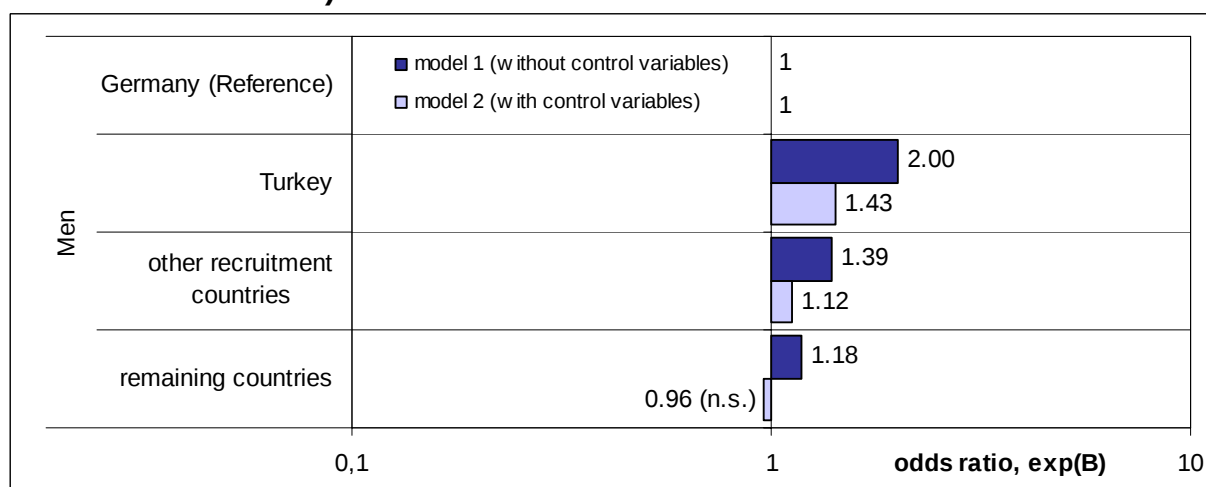
Figure 8: Rates of unskilled first job after training for men by year in which training was completed and by nationality (as %)



Note: 1991 cannot be shown because of the reorganization of administrative rules

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

Figure 9: Risk of unskilled jobs for men by nationality (logistic regression, odds ratio)



n.s.: not significant

Source: IAB subsample of the so-called employment and benefits history, 1977-2004

The most powerful and highly significant influence on skill mismatch is a change of occupation: people leaving the occupation they were trained for are 12.5 times more likely to get an unskilled job. A change of employer, and training in a larger firm also increase the risk of skill mismatch (for details see Table 6 in appendix).

With respect to skill mismatch, hypothesis 2b is confirmed: there are differences between Germans and other nationalities in finding skilled work after vocational training.

Regarding unemployment, occupational mismatch and skill mismatch at the time of labour market entry, our analysis showed that the impact of nationality on the transition from training to work decreases if other factors are taken into account. The exception is the change of occupation in the female sample. Nationality, however, rarely ceases to make a difference between Germans and the rest of the population. Only in a few cases do differences between the respective ethnic group and Germans disappear after the consideration of control variables. In all other cases differences cannot be explained by group composition. The reasons have to be sought in variables which we could not control for in our data, e.g. fluency in German, social background, network resources (Kalter 2006), hiring strategies of employers (Imdorf 2006), or processes of self-selection by migrants themselves.

6 Discussion and conclusion

In this article we analysed the labour market entry of people who have completed in-firm vocational training. We compare Germans and migrants concerning their performance in this transition process. For this purpose we regarded unemployment, occupational mismatch and skill mismatch as indicators of failure in the transition from vocational training to the first job. We hypothesised either no differences between newly trained Germans and migrants in the transition from vocational training to the labour market (H1) or differences between all nationalities under consideration (H2a) or just between a few nationalities (H2b) when compared to their German counterparts. The combined results are shown in Table 4:

Table 4: Summary of the results: ethnic groups that differ significantly from Germans concerning unemployment, occupational mismatch and skill mismatch in the transition from training to work

Failure indicator	Model 1 (without control variables)		Model 2 (with control variables)	
	men	women	men	women
Unemployment	H2a: All nationalities	H2b: Turks	H2b: All recruitment countries	H2a: All nationalities
Occupational mismatch	H2a: All nationalities	H2b: All recruitment countries	H2b: All recruitment countries	H2a: All nationalities
Skill mismatch	H2a: All nationalities		H2b: All recruitment countries	

Reading: only significant results are shown:

Example: H2b: Turks = people from Turkey have a different risk compared to Germans

Legend: H2a: Differences between all nationalities and Germans

H2b: Differences only between some nationalities and Germans

After controlling for relevant factors, the impact of nationality on a successful transition to the labour market is still evident. When compared to Germans, migrants face a higher risk of unemployment, occupational mismatch and skill mismatch – especially over the last decade. This is especially true for Turkish men. Since these young men as a group unify many negative stereotypes within German society, ethnicity-specific selection mechanisms might be responsible for the comparatively poor performance of these individuals after training. Employers often use meritocratic arguments to justify this selection mechanism. As we only know from our data that individuals have completed their apprenticeships but not how successful they were in terms of the final marks or real productivity, we cannot test this aspect of the transition process. Further research is necessary if we want to shed light on these mechanisms, e.g., in the search process of applicants or employers' recruitment practices.

Besides the reported disadvantages, we have shown that in-firm vocational training apparently provides migrant youth with skills and techniques that integrate more than three quarters of them successfully into the labour market. This underlines the integration potential of the dual system. Although migrants and especially migrant youth have many problems on the German labour market, e.g. higher unemployment rates, lower occupational positions etc., those young migrants who have passed

through the dual system are comparatively successful on the German labour market. The bigger problem for young migrants, however, is getting into the dual system. Barriers here are much higher compared to the transition from training to work. However, overcoming this barrier is a certain entry ticket to skilled work and consequently to integration into society.

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Appendix

Unemployment

Table 5: Determinants of unemployment for men and women by nationality (logistic regression, odds ratio)

	men Model 1 exp(B)	men Model 2 exp(B)	women Model 1 exp(B)	women Model 2 exp(B)
Citizenship				
Germany (reference)	1	1	1	1
Turkey	1.574 ***	1.361 ***	1.274 ***	1.153 ***
Other recruitment countries	1.165 ***	1.001	0.979	0.927 *
Remaining countries	1.364 ***	1,172 ***	0.940	0.878 *
School education				
Below upper secondary certificate (reference)		1		1
Upper secondary school certificate		0.742 ***		0.754 ***
Occupation trained for				
<i>men</i>				
<i>women</i>				
mechanic(ref.)		1		1
locksmith		0.738 ***		1.325 ***
electrician		0.694 ***		0.959
plumber		0.650 ***		1.065 *
clerk		0.601 ***		0.273 ***
other occupations		0.609 ***		1.441 ***
Size of training firm				
1-99 employees (reference)		1		1
100 or more employees		0.616		0.750
Year of vocational training completion				
1977-1978		0.081 ***		0.233 ***
1979-1980		0.350 ***		0.522 ***
1981-1982		1.011		1.017
1983-1984		1.915 ***		1.793 ***
1985-1986		1.454 ***		1.628 ***
1987-1988		1.408 ***		1.271 ***
1989-1990		1		1
1992		1.189 **		0.946
1993-1994		1.832 ***		1.315 ***
1995-1996		1.847 ***		1.448 ***
1997-1998		2.066 ***		1.614 ***
1999-2000		1.475 ***		1.144 **
2001-2002		1.666 ***		1.253 ***
2003-2004		1.927 ***		1.690 ***
Fit Chi²	334.225	3430.621	49.156	1925.648
Improvement of Fit		3096.396		1876.492
Pseudo-R² (McFadden)	0.006	0.062	0.001	0.046
Degrees of freedom	3	23	3	23
n	91,550	91,550	67,555	67,555

IAB subsample of the so-called employment and benefits history, 1977-2004

Significance: *** <0.001; **<0.01; *<0.05

Occupational mismatch

Table 6: Determinants of occupational mismatch for men and women by nationality (logistic regression, odds ratio)

	men Model 1 exp(B)	men Model 2 exp(B)	women Model 1 exp(B)	women Model 2 exp(B)
Citizenship				
Germany (reference)	1	1		1
Turkey	1.824 ***	1.379 ***	1.123 **	1.333 ***
Other recruitment countries	1.367 ***	1.188 ***	1.132 ***	1.286 ***
Remaining countries	1.205 ***	0.962	1.064	1.190 **
School education				
Below upper secondary certificate (reference)		1		1
Upper secondary school certificate		0.839 ***		1.054
Occupation trained for				
<i>men</i>				
<i>women</i>				
mechanic(ref.)		1		1
locksmith		1,451 ***		1.935 ***
electrician		0.564 ***		6.210 ***
plumber		0.540 ***		3.230 ***
clerk		0.619 ***		1.275 **
other occupations		0.631		5.851 ***
Size of training firm				
1-99 employees (reference)		1		1
100 or more employees		1.969 ***		1.234 ***
Unemployment (months)		1.098 ***		1.097 ***
Retention by training firm				
Yes (reference)		1		1
No		7.683 ***		6.312 ***
Year of vocational training completion				
1977-1978		0.719 ***		0.857
1979-1980		0.876 **		0.873 *
1981-1982		0.943		0.889 *
1983-1984		1.074		1.005
1985-1986		1.020		1.017
1987-1988		0.975		0.972
1989-1990		1		1
1992		0.979		0.985
1993-1994		1.094 *		0.922
1995-1996		1.148 ***		0.970
1997-1998		1.128 **		0.957
1999-2000		1.094 *		0.905
2001-2002		1.212 ***		1.002
2003-2004		1.366 ***		0.955
Fit Chi²	785.070 ***	20065.209 ***	22.077 ***	11766.679 ***
Improvement of Fit		19280.138		11766.678
Pseudo-R² (McFadden)	0.013	0.291	0.001	0.262
Degrees of freedom	3	25	3	25
n	91,550	91,550	67,555	67,555

IAB subsample of the so-called employment and benefits history, 1977-2004

Significance: *** <0.001; **<0.01; *<0.05

Skill mismatch

Table 7: Determinants of unskilled jobs for men by nationality (logistic regression, odds ratio)

	men Model 1 exp(B)	men Model 2 exp(B)
Citizenship		
Germany (reference)	1	1
Turkey	2.000 ***	1.426 ***
Other recruitment countries	1.390 ***	1.115 **
Remaining countries	1.179 **	0.959
School education		
Below upper secondary certificate (reference)		1
Upper secondary school certificate		1.626 ***
Occupation trained for		
mechanic (ref.)		1
locksmith		0.630 ***
electrician		0.752 ***
plumber		0.764 ***
clerk		2.528 ***
other occupations		0.922 *
Size of training firm		
1-99 employees (reference)		1
100 or more employees		1.282 ***
Unemployment (months)		1.034 ***
Retention by training firm		
Yes (reference)		1
No		2.175 ***
Occupational match (training – first job)		
Yes (reference)		1
No		12.523 ***
Year of vocational training completion		
1977-1978		0.626 ***
1979-1980		0.720 ***
1981-1982		0.920
1983-1984		1.105
1985-1986		1.108
1987-1988		1.071
1989-1990		1
1992		0.839 *
1993-1994		1.039
1995-1996		1.178 **
1997-1998		1.286 ***
1999-2000		1.306 ***
2001-2002		1.448 ***
2003-2004		1.884 ***
Fit Chi²	600.505 ***	17418.697 ***
Improvement of Fit	–	16818.192
Pseudo-R² (McFadden)	0.015	0.382
Degrees of freedom	3	26
n	72,542	72,542

IAB subsample of the so-called employment and benefits history, 1977-2004

Significance: *** <0.001; **<0.01; *<0.05

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