

**Ethnic Minorities' Education and
Occupational Attainment:
The Case of Germany**

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Editorial Note:

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Abstract

The persistence of ethnic inequality in the German labor market, i.e. the fact that the 'classical labor migrants' and their descendants are still occupying lower positions, has been shown in many studies. However, theoretical discussions of the mechanisms through which ethnic inequality gains persistence and empirical testing of those mechanisms have been mostly neglected. In this contribution two basic theoretical arguments are considered: differences in educational attainment and labor market discrimination. Using data from the microcensus 1993 and 1997 our findings show that ethnic inequality in the German labor market is mainly a result of different human capital resources rather than of 'ethnic penalties' or different returns to those resources. Especially for the second generation of most immigrant groups ethnic disadvantages can hardly be found controlling adequately for educational qualifications.

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1. Background and problem: ethnic inequalities in the German labor market

This paper reports the first steps of the 'German part' of an international project which investigates the labor market performance of immigrants relative to natives in several European countries and the U.S. While there is an increasing amount of literature devoted to the disadvantages of ethnic groups in the labor market of single societies, comparative quantitative studies are scarce until now (Model/Lapido 1996: 486). Therefore, following the tracks of former successful enterprises (e.g. Shavit/Blossfeld 1993; Shavit/Müller 1998) an attempt is made to come to similar empirical analyses for different contexts in order to see whether and why the amount of ethnic disadvantages differs.

Obviously, one of the most distinctive differences between countries concerns the specific ethnic composition of the group called 'immigrants'. Looking at the German situation, there is no doubt that most interest and research focuses on the so-called 'guest-workers' from Greece, Italy, (Ex-) Yugoslavia, Portugal, Spain and Turkey. These 'classical labor migrants', as we refer to them in the following, were recruited to fill a gap of low qualified labor in a specific historical situation. Therefore, the existence of ethnic stratification in the German labor market was not really surprising in the 60's and 70's (Hoffmann-Nowotny 1973; Heckmann 1992: 81). However, most empirical studies agree to the general conclusion that ethnic inequalities in the labor market have persisted until today (Bender/Seifert 1996; Diekmann et al. 1993; Seifert 1992, 1997; Szydlik 1996; Velling 1995). Although the situation has noticeably improved over the last decades, it is nevertheless very clear that immigrants still occupy lower positions and that this holds true even for the descendants of the former migrants, i.e. the so-called 'second generation'.

In contrast to the empirical facts, the theoretical reasons for the persistence of ethnic inequality in the German labor market remain rather unclear until now. 'Easy' explanations for ethnic stratification in former decades, like selective migration or loss of country-specific human capital, cannot (totally) account for the situation in the nineties, especially not for the situation of the second – or even third – generation of immigrants. Therefore, a major task of research is to discover the main mechanisms through which ethnic inequality seems to have become a persistent characteristic of the German labor market. Obviously, the most basic question is whether differences in educational qualifications are responsible for ethnic disadvantages or whether immigrants experience some form of labor market discrimination. So far, however, surprisingly little research has been done to give appropriate answers. One of the reasons for this situation is that large scale data have not been available for social sciences for a long time. But even if such data is now used, some of the above mentioned studies do not contain adequate measures of educational qualifications, some of the studies do not differentiate between nationalities and generations, and none of the studies combines both aspects. However, a combined use of generation and appropriate educational measures is necessary in order to come to a more comprehensive understanding of the ethnic inequality structures. Recently some attempts have been made to consider these issues more seriously (Granato/Kalter 2001; Kalter/Granato 2002).

In this paper we try to further enhance the knowledge about the major paths of ethnic inequality in the German labor market setting it in the context of an international comparative project. We start with a look at the general theoretical arguments and the relevant specific contextual conditions in Germany (2.). All in all, the finding is that ethnic disadvantages with respect to occupational attainment are expected to be mainly a matter of qualifications rather than of discrimination. Then, we describe the data and the methods we use in order to analyze the situation empirically (3.). Section 4. provides the main empirical results (4.). Finally, we briefly discuss our findings (5.).

2. Theory: lack of human capital or discrimination?

Basically, there are two general starting points for an explanation of ethnic stratification. On the one hand immigrants may lack the resources which are relevant for achieving higher positions in the labor market, i.e. productivity or human capital. On the other hand they may receive different returns for their capital due to overt or hidden, personal or institutional forms of discrimination. Against the background of this distinction we try to derive more precise theoretical mechanisms *why* the amount of capital or the returns for capital may differ, *under which conditions* this may be more or less likely and whether or to what degree these conditions are met in the specific case of application. In this section we briefly sketch the corresponding arguments which seem to be relevant for the situation in Germany.

Let us start with the first aspect, i.e. with the question of why immigrants may differ from natives with respect to their human capital. In the literature on economic assimilation there are three prominent arguments which we call 'standard explanations'. All of them refer directly to the migration experience. 1. In-migration might be highly selective with respect to human capital, either positive or negative (e.g. Borjas 1987). This selectivity may arise from average human capital differences between the home country and the host country or from the fact, that immigrants are drawn from the upper or the lower end of the ladder in the country of origin. 2. Some aspects of human capital (e.g. language skills) are country-specific, i.e. they are more productive in some societal contexts than in others. Therefore, the act of migration leads to a loss of these aspects and, as a consequence, to a certain devaluation of human capital (Chiswick 1978, 1991; Friedberg 2000). 3. Immigrants often consider their stay in the host country as being only temporarily (Bonachich 1972). Therefore they may be more reluctant to invest in human capital that is specific for the host country.

Surely, in the case of labor migration to Germany in the 60's and 70's all three mechanisms seem to be relevant. First, there is no doubt that – due to the specific historical demand – in-migration in the sixties and seventies was predominated by low qualified workers leading to an instant ethnic stratification ("Unterschichtung") in the labor market (Hoffmann-Nowotny 1973; Heckmann 1992: 81). Second, German is not spoken in any of the six recruitment countries and cultural contexts were rather dissimilar to the German society three and four decades ago. Third, the workers initially entered Germany under the conditions of the rotation principle ("Rotationsprinzip") which included return migration after a couple of years.

While these standard arguments may explain the situation in the German labor market of the sixties and seventies, they cannot totally account for the present situation. Most obviously, without additional assumptions all three explanations only hold true for the first generation of immigrants. In contrast to them their descendants which are born in the host country never experienced migration nor do they, empirically, stick to ideas of temporary stay and future return migration. However, taking the concept of capital seriously some additional arguments lie near at hand. Above all, there are multiple ways in which different forms of capital are transformed into each other (e.g. economic capital into human capital) and – either physically or socially inherited – transmitted from generation to generation (Bourdieu 1977). While this point is important for social mobility in general, the additional aspect for immigrants is that country-specific capital of some kind (e.g. cultural and institutional knowledge) may also affect the accumulation of general capital of some other kind (e.g. educational qualifications). Therefore, given a first generation immigrant's lack of economic, social, cultural and human capital educational disadvantages of her children may not be very surprising. Still, however, much research has to be done to discover the exact mechanisms through which the transformation and intergenerational transmission processes operate. Here, decision models of investment under uncertainty (e.g. Breen/Goldthorpe 1997; Erikson/Jonsson 1996; Esser 1999) seem to be a very fruitful framework. Empirically, it is very clear from general research on social mobility that Germany provides a societal context where barriers to intergenerational social mobility and impact of social origin on educational attainment are relatively strong (e.g. Erikson/Goldthorpe 1992; Müller et al. 1989).

We now turn to the second point, i.e. the question of why immigrants may receive different returns to their human capital or productivity in the labor market. Here, economic theory has made great strides towards an understanding of the main mechanisms of discrimination and the conditions under which it is more likely to occur. Above all, the neo-classical approach clearly predicts that discrimination will not exist in perfect markets. Turning it the other way round this implies that market failure is a necessary condition for discriminative behavior to exist. Most prominent theoretical ideas may be fitted into this general idea.

To begin with, the theories of monopsonistic discrimination start from the assumption that there is a lack of competition on the demand side for labor. It can be shown that it is rational for a monopsonistic firm to pay different wages to workers belonging to separate groups, if these groups show different elasticity of supply and can – as in the case of ethnic characteristics – be distinguished clearly (Madden 1973). The arguments do not only hold true for monopsonies in a narrower sense, but also if cartels or mobility barriers for labor exist. With respect to the situation in Germany we expect that these forms of discrimination are relatively weak in comparison to other countries. It has been argued that the German labor market is strongly segmented along occupational lines rather than segmented between firms (Marsden 1990). Therefore the monopsonistic power of the firms will be relatively low. Now, one could argue that strong segmentation along occupational lines may result in crowding effects (Bergmann 1974), however, in this case it is occupation that accounts for different pay rather than ethnicity itself which may only be a correlated factor.

In his seminal work on 'the economics of discrimination' Becker (1971) relies on another mechanism that is also incompatible with the assumptions of perfect competition, namely personal preferences or, in his words, 'tastes for discrimination'. He shows that such tastes – appearing either on the side of employers, employees or customers – will result in effective market discrimination. However, it seems doubtful whether tastes for discrimination will exist over time in markets that are otherwise competitive (e.g. Arrow 1972: 192; Arrow 1998). The same doubt holds true for a third form of discrimination, namely the so-called 'error discrimination' (e.g. England 1992: 60). Here, it is assumed that employers lack full information (another assumption of perfect competition) about the 'true' productivity of workers and impute false beliefs instead. If there are no other market failures (e.g. monopsonies), so the critic goes, actors with either tastes for discrimination or false beliefs will not be able to compete against other actors having no tastes and true beliefs.¹ Therefore, the explanatory power of taste discrimination and error discrimination seem to be questionable for inequality processes in the middle and long run.

Closely related to the idea of error discrimination, but different in the consequences, are theories of statistical discrimination. In these approaches it is also assumed that employers do not have full information on the productivity of workers and impute some other information instead. However, in contrast to error discrimination the imputed values are not really seen as 'false' but rather as being a statistical approximation. In principle, at least three different models of statistical discrimination can be distinguished (Phelps 1972; Arrow 1972; Aigner/Cain 1977; England 1992: 56ff). Groups are assumed to differ either with respect to the mean productivity, to variances in productivity or to the reliability of tests trying to measure productivity. If one uses formal education as the test variable in the third type, this leads to the so-called signaling theory (Arrow 1973) which seems to be very important in our context. In this view formal qualifications are seen as being an estimator of productivity from which the true value may more or less deviate. If groups differ with respect to the absolute amount of these deviations this may result in different treatments. However, it is worth noting, that this will not lead to a systematic disadvantage of one of the groups in total. While the group with the smaller reliability tends to be disadvantaged when the test performances (or the formal educational qualifications) are above average, the theory predicts that they are in advantage if the test performances (or the educational levels) are below average.

In contrast to the concepts of taste discrimination and error discrimination the idea of statistical discrimination seems to be more important for empirical applications. However, looking at what is known about the German labor market from a comparative perspective, we find that in Germany the link between educational and vocational qualifications and the labor market is especially close (Müller et al. 1998). This means, in other terms, that the signaling power of educational qualifications (the reliability of the test variable) is relative strong. Therefore, if at all, the returns for education may only slightly differ for ethnic groups in Germany.

¹ Recently, some models have been suggested that show that tastes could be stable over time if search costs exist (Black 1995; Borjas/Bronars 1989).

3. Data, variables, methods and hypotheses

Data

To examine ethnic differences in the labor market we use data from the German 'Mikrozensus' (MZ). The MZ is an annual 1-percent household survey of the population in Germany (Lüttinger/Riede 1997). Scientific use files exist for several years, each consisting of a 70%-subsample. In the context of our topic the MZ seems well-suited for at least two reasons. On the one hand it contains detailed information on educational attainment as well as on a range of labor market variables. On the other hand the number of cases is large enough to distinguish between different relevant ethnic groups.

For our analysis we use the MZ of 1993 and 1997. At present the scientific use file of the MZ 1997 is the most recent sample that is available. As the MZ is a rotating panel, i.e. every year one quarter of the respondents is renewed so that one single respondent is included in four subsequent samples, we also use the MZ93 to prevent that some respondents are included in both of our samples. To avoid difficulties concerning the reference group of Germans resulting from the process of reunification we select cases only from the Western part of Germany. This seems reasonable as the majority of immigrants lives and works there. Further, we select only respondents with current labor force participation which is defined as working at least 15 hours per week, not being in marginal employment, and not having unemployment benefit as main means of subsistence. Moreover we focus on the labor force aged between 25 and 45.

Variables

The dependent variable of our core analysis is the categorical class schema by Erikson, Goldthorpe and Portocarero (1979). The 'EGP' can be used to measure social mobility or in our case to show a minority specific class distribution. A specific distribution suggests ethnic differences in the labor market, as the class position is to some extent defined by labor market attainment. However, we make some modifications to the EGP² schema, resulting in the following five regrouped classes:

Regrouped Classes	EGP
1 Higher and lower salariat	I, II
2 Non manual class	III
3 Petty bourgeoisie	IV
4 Skilled manual workers	V, VI
5 Semi- and unskilled manual workers	VII

² The EGP schema is not directly measured in the MZ, but we use an approximation derived from some occupational information. This approximation was developed by Brauns et al. (2000).

Unfortunately the EGP schema can only be generated for the MZ 1993, so that our first analysis is restricted to this sample. The number of observations in this analysis is 84,200.

The second dependent variable contrasts the two most typical categories of occupational status, i.e. worker and salaried employee. Compared to workers salaried employees in general tend to get higher wages and to have better working conditions. Therefore access to an employee position can be seen as higher labor market attainment. In this analysis we combine the MZ 1993 and 1997 and the number of observations is 140,887.³

The independent variables in both analyses are the same. *Ethnicity* is measured by the nationality of the respondent as the MZ – like most other German data sets – does not contain information on parents country of birth for all individuals.⁴ This may seem to be a rather restricted understanding of ‘immigrants’, however the implications are not very severe in the German case as naturalization of immigrants did not happen very often until the end of the nineties. Traditionally, citizenship has been based on the rules of ‘*ius sanguinis*’ and until 1993 naturalization of those without at least one German parent or German ancestry was only an exceptional case and a matter of discretion. From 1974 (one year after the stop of recruitment) to 1992 a sum of only 311,000 foreigners were naturalized and the yearly rates ranged between 0,3% and 0,6% with respect to the total foreign population (Münz et al. 1999: 125). After the first revision of the citizenship law in 1993 immigrants with a duration of stay of 15 years or more are legally entitled to become naturalized resulting in slightly increasing figures. However, from 1993 until 1997 the yearly rates were still very low ranging between 1,0% and 1,2%.⁵

We classify the *nationality* categorization used in the MZ into 10 nationality groups: German⁶ (as reference category), Greek, Italian, (former) Yugoslav, Portuguese, Spanish, Turkish, Western Europeans and USA⁷, Eastern Europeans⁸, and others. With this categorization we distinguish between immigrants from the classical ‘guest worker’ countries, with their specific migration history, ‘new’ immigrants from Eastern European countries and the CIS (commonwealth of independent states) and migrants from other European countries and the USA, who are not typical labor migrants in Germany. *Age at immigration* is grouped into three categories: 0 to 6, 7 to 18, and at age 19 or older. The first group is born in Germany or arrived before starting school, the second group comes after starting school, whereas the third group has no schooling experience in Germany. This grouping allows to control for the amount of country specific (human) capital. In our analyses we combine the

³ In addition to the restrictions already mentioned, we also exclude persons with missing data on any variable included in the analysis.

⁴ Information on parents country of birth is only available if the respondent is still living with them in the same household.

⁵ Recently, the situation has changed more severely as the figures for Turks noticeably increased since 1999 and a second – more liberal – revision of the citizenship law took place in 2000. However, these developments do not concern our data.

⁶ Including individuals who have a dual citizenship (German and other).

⁷ This group consists of the following countries: France, Great Britain, the Netherlands, Austria, Belgium, Denmark, Finland, Ireland, Luxemburg, Sweden and the USA.

⁸ This group includes Romania, Hungary, Czech Republic, Slovakia, Poland and the CIS.

nationality and the age-at-immigration categories, resulting in 28 groups⁹ allowing a very detailed examination of the combined effects. The MZ records the highest general and vocational qualification obtained by the respondents. Therefore it is possible to measure *education* with the CASMIN classification (König et al. 1987), that combines the level of general and vocational qualification. We use an update of the CASMIN classification for Germany developed by Brauns and Steinmann (1999) and slightly modify it by combining lower and higher tertiary education.

CASMIN classification of educational attainment

- 1a Inadequately completed general education
- 1b General elementary education
- 1c Basic vocational qualification or general elementary education and vocational qualification
- 2b Intermediate general qualification
- 2a Intermediate vocational qualification or intermediate general qualification and vocational qualification
- 2c_gen General maturity certificate
- 2c_voc Vocational maturity certificate or general maturity certificate and vocational qualification
- 3a, 3b Lower and higher tertiary education

Next to nationality, age at immigration, and education we also control for gender, age and marital status (single, married, widowed, divorced). When both samples are used an additional dummy for the year of survey is also included.

Methods

To estimate the impact of ethnicity, generation and education on occupational attainment we run logistic regression models when analyzing the odds of being a salaried employee versus being a worker and the multinomial logit model when addressing different access to social classes. Since the multinomial logit model delivers a rather complex picture resulting in several sets of parameters we relate the parameters of the models to segregation indexes, especially the well-known Dissimilarity Index. This link of the segregation and regression tools to measure social inequality has recently been suggested as a appropriate means to combine the advantages of both approaches (Kalter 2000; Kalter/Granato 2002): It delivers single figures to capture inequality structures (the strength of the segregation measures), but allows a very convenient control of independent variables (the strength of the regression approach).

⁹ Due to the number of cases we have to reduce the number of groups somewhat when using only the data of the MZ93 and the EGP class schema as the dependent variable.

The link between the Dissimilarity Index (D) and the multinomial logit model (MNL) is straight forward. If we compare two groups A and B the index D is defined by

$$D = \frac{1}{2} \sum_{k=1}^J \left| \frac{A_k}{A} - \frac{B_k}{B} \right|,$$

where J is the number of categories of the variable at interest, A is the number of persons belonging to group A, B is the number of persons belonging to group B, A_k is the number of persons belonging to group A and category k, and B_k is the number of persons belonging to group B and category k.¹⁰ We see that D can be calculated from the conditional probabilities of belonging to each of the categories of a variable at interest, dependent on group membership. Now, the MNL allows one to regress these conditional probabilities on a set of independent variables. In its general form the probability of an actor i belonging to category j is given by

$$\Pr(y_i = j | x_i) = \frac{\exp(x_i \beta_j)}{\sum_{k=1}^J \exp(x_i \beta_k)},$$

where x_i is a vector containing the values of m covariates for person i, and β_k is a vector of m+1 parameters ($\beta_{0k}, \beta_{1k}, \dots, \beta_{mk}$) for each $k = 1, \dots, J$.¹¹ If one chooses J as the reference group and includes a dummy variable x_1 for group membership ($x_{1i} = 0$ for all i belonging to A and $x_{1i} = 1$ for all i belonging to B) as the only independent variable, the column percentages of a Jx2 cross-table can be expressed by the parameters β_{0k} and β_{1k} . As a consequence we find that:

$$D = \frac{1}{2} \left(\sum_{k=1}^J \left| \frac{\exp(\beta_{0k})}{\sum_{l=1}^J \exp(\beta_{0l})} - \frac{\exp(\beta_{0k}) \exp(\beta_{1k})}{\sum_{l=1}^J \exp(\beta_{0l}) \exp(\beta_{1l})} \right| \right)$$

with $\beta_{0J} = 0$ and $\beta_{1J} = 0$. That means D can be computed from the odds and odds ratios of a one-independent-variable-MNL.

Now, it is possible to include further independent variables into the MNL. Let us assume m-1 additional variables x_2, \dots, x_m which leads to estimating m+1 parameters ($\beta'_{0k}, \beta'_{1k}, \beta'_{2k}, \dots, \beta'_{mk}$) for each $k = 1, \dots, J$. The parameter β'_{1k} is now the effect of group membership controlling for all other variables. In other words, the expression $\exp(\beta'_{1k})$ may be interpreted as the factor by which the odds

¹⁰ In the standard interpretation, D expresses the proportion of members belonging to one of the two groups which had to move to another category in order to achieve an equal distribution of both groups over all categories.

¹¹ In order to identify the parameters it is common to choose one reference category and set the corresponding vector of parameters equal to a vector of zeroes.

of a member of A must be multiplied in order to get the odds of a member of B, assuming that both have the same values for all x_2, \dots, x_m . In order to control for independent variables within D, our proposal now is to use these ‘controlled’ odds ratios instead of the overall odds ratios, or more precisely to compute an *adjusted Index of Dissimilarity D'* by:

$$D' = \frac{1}{2} \left(\sum_{k=1}^J \left| \frac{\exp(\beta_{0k})}{\sum_{l=1}^J \exp(\beta_{0l})} - \frac{\exp(\beta_{0k}) \exp(\beta'_{1k})}{\sum_{l=1}^J \exp(\beta_{0l}) \exp(\beta'_{1l})} \right| \right),$$

with $\beta_{0J} = 0$ and $\beta'_{1J} = 0$. Here β_{0k} are the constants of a Multinomial Logit Model containing only a group membership dummy x_1 , and β'_{1k} are the coefficients of x_1 in a model also containing independent variables x_2, \dots, x_m .¹² The interpretation of D' resembles that of D , but it is assumed that variables x_2, \dots, x_m are controlled for. A sufficient condition for $D'=D$ is $\beta'_{1k}=\beta_{1k}$ for all $k = 1, \dots, J-1$.

Hypotheses

With our strategy of analysis we try to follow the general ideas outlined in the theoretical part above. All in all, the theoretical discussion suggests that the main mechanisms for the persistence of ethnic inequalities in the German labor market seem to be related to processes of intergenerational transmission of human capital rather than to systematic discrimination in the labor market itself. Therefore in our analyses attention is paid to comparing the net effects of ethnicity (controlling for educational qualifications and other independent variables) to the gross effect (controlling only for other independent variables, but not for educational qualifications). More precisely we derive the following hypotheses out of our theoretical discussion.

- i. Following the “standard explanations” and looking at the historical case of labor migration to Germany we expect large gross effects of ethnicity on occupational attainment for the first generation of classical labor migrants.
- ii. As the “standard explanations” connect inequalities to the amount of human capital we expect severely smaller net effects of ethnicity for the first generation controlling for educational qualifications.
- iii. However, as human capital also consists of country-specific skills we do not expect the net effect of the first generation to be completely absent.
- iv. As the amount of host-country-specific aspects of capital increases over time, we expect differences according to the length of stay (age of entry) within the group of first generation immigrants.
- v. For the same reasons different nationalities may differ with respect to the net effect of the first generation according to the “cultural distance” of the home country to Germany.
- vi. Due to the transformation and intergenerational transmission of capital we also expect gross effects of ethnicity for the second generation, but on a lower level than for the first generation as the standard explanations are not applicable here.

¹² We still use β_{0k} instead of β'_{0k} because this reflects the ‘mean’ covariate constellation of x_2, \dots, x_m , which seems more appropriate for our purposes than modeling the reference value for each covariate.

- vii. As the country-specific aspects of capital play only a minor part for the second generation and as there are no severe hints at the relevance of discrimination (in terms of 'ethnic penalties') resulting from monopsonistic power, tastes or false beliefs we expect the net effect of ethnicity to be nearly absent for the second generation.
- viii. According to the theories of statistical discrimination we expect an interaction effect of ethnicity and educational qualifications resulting in disadvantages of ethnic minorities if the level of education is high while there will be advantages if the level of education is low.
- ix. As the signaling power of educational qualifications are higher if they were gained in the host country, these interaction effects will be stronger for the first generation and lower for the second generation.

4. Results

4.1. The impact of education on the dissimilarity with respect to social class

In this section we analyze how dissimilar immigrants are to Germans with respect to social class and to what degree this dissimilarity can be explained by differences in educational qualifications. To answer these questions we use the data of the MZ93 and the reduced EGP-class-scheme as the dependent variable. We begin with a descriptive look at the distribution of Germans and several subgroups of immigrants over the five class categories considered (Table 1).

Table 1: Distribution of Germans and immigrants over the reduced EGP-class-scheme

	EGP class (row percentages)					number of cases	Index of Diss. (to Germans)
	I + II	III	IV	V+VI	VII		
Germans	29.4	27.5	6.5	22.9	13.7	78227	
GRE, POR, SPA: – 2nd gen.	17.0	15.1	13.2	29.2	25.5	106	.25
– imm. 7–18	6.9	13.3	10.1	21.8	47.9	188	.38
– imm. 19+	6.5	13.2	8.7	15.5	56.1	310	.45
Italy – 2nd gen.	12.7	21.8	6.4	28.2	30.9	110	.23
– imm. 7–18	4.1	11.1	12.2	23.7	48.9	270	.42
– imm. 19+	6.4	14.7	9.4	14.2	55.3	374	.45
(Ex-) Yug. – 2nd gen.	2.9	25.7	8.6	25.7	37.1	35	.28
– imm. 7–18	7.2	19.9	8.4	19.9	44.6	166	.33
– imm. 19+	8.4	12.0	5.0	24.0	50.7	766	.38
Turkey: – 2nd gen.	5.3	15.1	7.9	30.3	41.4	152	.37
– imm. 7–18	4.2	5.6	5.2	18.8	66.3	810	.53
– imm. 19+	4.9	3.9	3.1	11.2	76.9	687	.63
Western EU: – 2nd gen.	32.1	24.1	10.9	22.6	10.2	137	.07
– imm. 7–18	18.1	23.6	2.8	25.0	30.6	72	.19
– imm. 19+	42.4	22.7	8.2	14.5	12.3	684	.15
Eastern Europe	21.4	17.5	3.2	22.2	35.7	378	.22
Others	26.0	19.5	6.3	11.7	36.5	728	.23
Total	28.3	26.5	6.5	22.6	16.1	84200	

Source: Mikrozensus 1993 (70% Subsample; ZUMA-File), own computations

The groups of Italians, Ex-Yugoslavs, Turks and Western European immigrants are subdivided into respondents born in Germany or immigrated until the age of six ('second generation'), respondents who immigrated at ages seven to eighteen (imm. 7-18) and respondents who immigrated at age nineteen or later (imm. 19+). Due to the number of cases we combine the remaining classical labor migrants from Greek, Spain and Portugal also distinguishing the three age-at-immigration categories. Finally, immigrants from Eastern Europe and the group of others are considered without further differentiations.

Table 1 shows that most of the immigrant groups clearly do worse on the German labor market in terms of occupational attainment measured by social class. Above all, except for the immigrants from Western European countries (including the U.S.) all non nationals are less likely to get access to the salariat (class I+II) and are more likely to be amongst the semi-skilled or unskilled workers (class VII). However, apart from this general impression we find large differences within the group of immigrants. If one measures the degree of dissimilarity to Germans by the Index of Dissimilarity all classical labor migrants show large values if they immigrated at age 19 or later, slightly lower values if they immigrated at age 7 to 18 and considerably smaller values if they belong to the second generation. In addition to that general tendency it gets obvious that Turks do worst of all six classical labor migrant groups.

Next, two multinomial logit models are run in order to assess the effect of education on class attainment. As independent variables the first model contains a set of 17 dummy variables for the immigrant groups listed in Table 1 (omitting the dummy for Germans) and control variables gender, age, age² and marital status. The second model additionally includes dummies for educational qualifications according to the CASMIN classification. The parameter estimates and estimated standard errors of these models can be found in Table 3 in the appendix. Here, we do not want to go too much into detail but focus our discussion on a summarizing picture. Using the link between the Index of Dissimilarity and the Multinomial Logit Model (see above, 3.) we estimate the degree of dissimilarity to Germans controlling for independent variables – with and without inclusion of education. The results of these estimations are presented in Figure 1.

The dissimilarities controlling for gender, age, age² and marital status only slightly deviate from the unadjusted values shown in Table 1. That means that the demographic composition only plays a minor role in explaining ethnic inequalities with respect to social class. Controlling also for education, however, the patterns severely change. Most notably, dissimilarity to Germans is considerably reduced for all groups of classical labor migrants. This holds true for the 1st as well as for the second generation. However, while there are only minor differences to Germans for the second generation Greeks, Portuguese, Spaniards and Italians when educational qualifications are taken into account, there remain substantial dissimilarities for second generation Turks and the first generation of all labor

migrant groups. (We leave the second generation Yugoslavs out of our discussion since we assume that there is some problem with the data in this case.¹³)

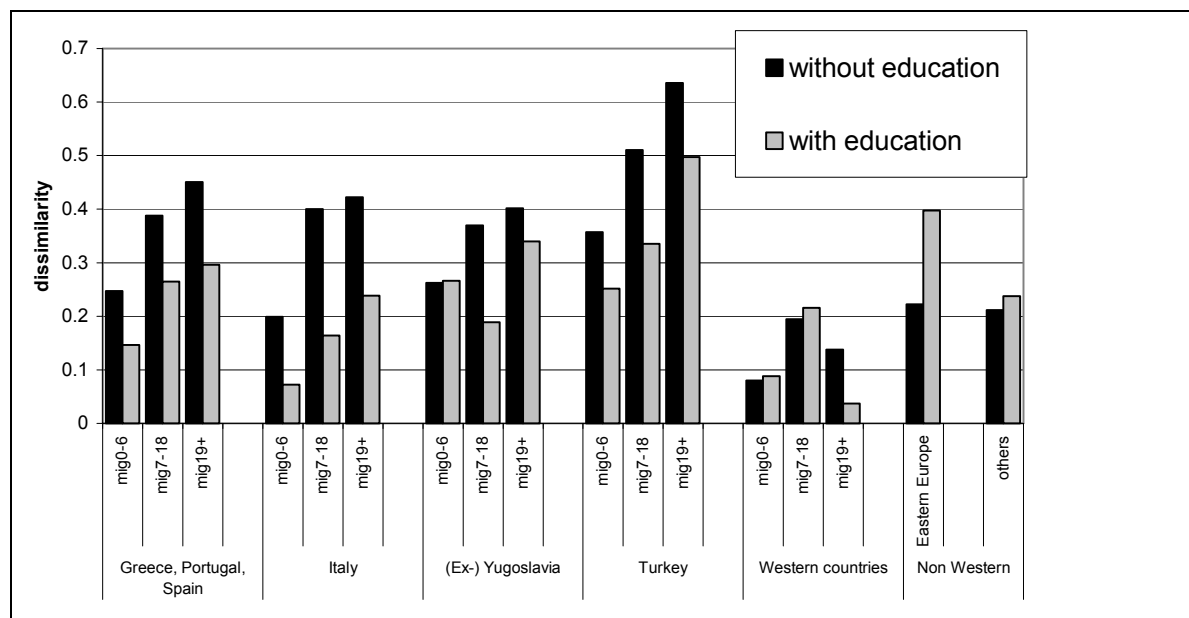


Figure 1: Dissimilarity to Germans concerning social class (EGP) controlling for gender, age, age² and marital status (MZ93)

Although we do not concentrate on a discussion of these groups here, it is interesting to compare the patterns of the remaining immigrant groups to those of the classical labor migrants. Besides the differences in the level of dissimilarity and the differences with respect to the impact of age at immigration, we find that controlling for educational qualifications even increases the amount of ethnic inequality with respect to social class.

4.2. The effect of education on the odds of attaining salaried employee positions

In the last section we have seen that the distributions over classes vary between members of ethnic groups and Germans and that controlling for education substantially reduces this difference, above all for the second generation. As mentioned before (3.) these results are based on data from the beginning of the 90's and on a number of cases which makes it necessary to combine some groups

¹³ In the MZ93 the number of cases of second generation Yugoslavs is surprisingly low (see Table 1). We assume that due to the questionnaire there went something wrong in classifying the respondents of former Yugoslavia. The category was presented as a list beginning with 'Croatia', 'Slovenia' and then adding 'remaining areas of former Yugoslavia'. This may have been a reason for the Serbs to classify themselves as 'other'. In the MZ97 'Serbia and Montenegro' was given as a distinct category and we combined those cases with the other groups belonging to former Yugoslavia and here the number of cases is considerably higher. Analyzing the data of the MZ96 (with categories like 1997) we found that the patterns for Ex-Yugoslavs are very similar to that of Greeks and Italians (Granato/Kalter 2001).

(with possibly interesting differences) and which do not allow further differentiations. In this section we therefore want to extend our data set adding more recent data from 1997. However, since some of the relevant information for constructing the class schema is lacking in this recent MZ-file and because we want to include additional interactions in section 4.3, we use a different, much simpler, dependent variable. Now we analyze the odds of being a salaried employee vs. being a worker. Although this may not be an extremely precise measure of occupational attainment, as for some positions wages and working conditions might be very similar in both categories, nevertheless these labor market positions reflect occupational attainment to a large extent. There is no doubt that on average lower wages and worse working conditions are to be found among workers than amongst salaried employees. Moreover, distinguishing between workers and salaried employees can be approximately understood as further regrouping of the EGP class schema, as in the MZ93 92% of workers belong to EGP classes V, VI or VII, while 87% of salaried employees belong to EGP classes I, II or III.

We use logistic regression to estimate the effects of independent variables on the odds of entering one type of position rather than another. Next to gender, age, marital status and Mikrozensus year we include all the combined nationality and age-at-immigration groups described in section 3 (omitting German as reference category). The detailed parameter estimates and standard errors of the full models can be found in Table 4 in the appendix. Additionally, Figures 2a and 2b visualize the impact of nationality depending on age-at-immigration group. While the length of a bar reflects the size of the parameter (the linear effect on the logit), the logarithmic scale of the vertical axis may be used to determine the size of the corresponding odds ratio.

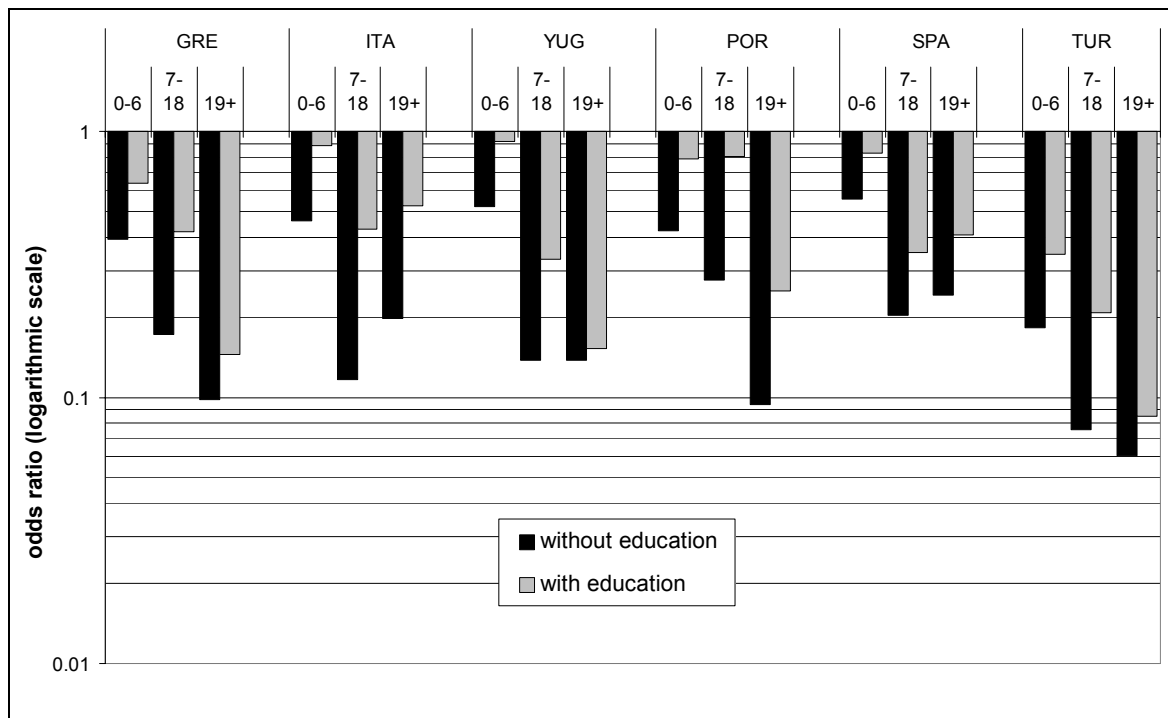


Figure 2a: Odds ratios of salaried employee vs. worker positions for classical labor migrants in a model controlling also for gender, age, age² and marital status (MZ93+MZ97)

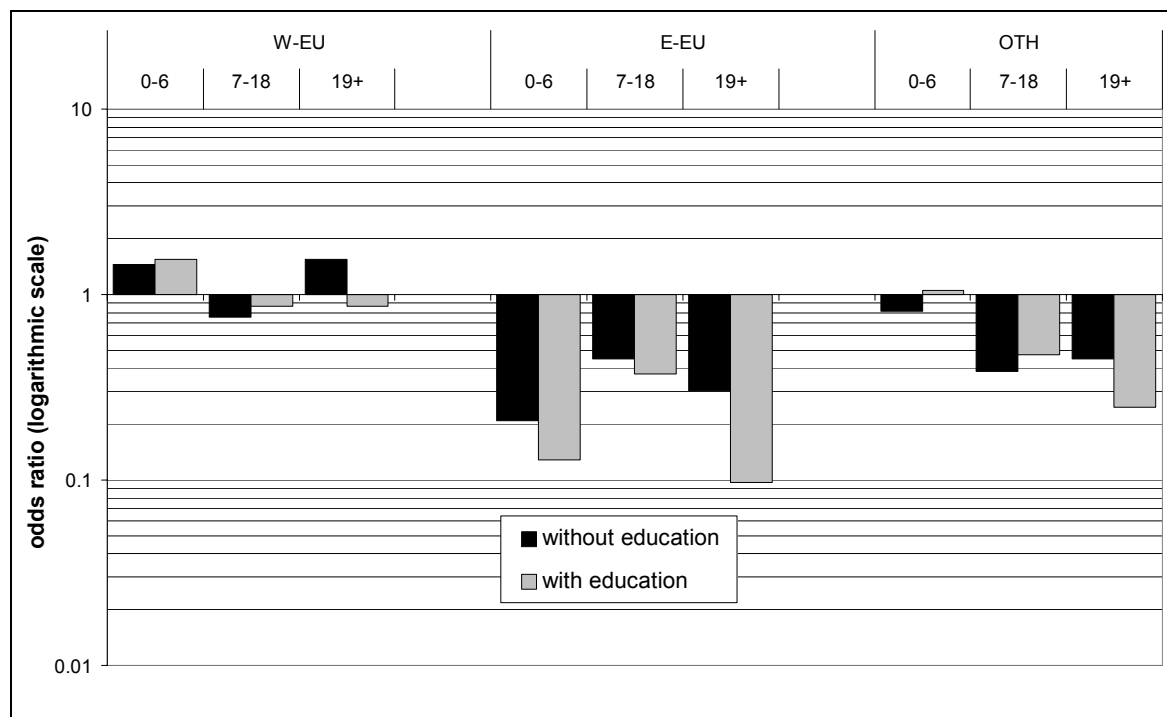


Figure 2b: Odds ratios of salaried employee vs. worker positions remaining immigrants in a model controlling also for gender, age, age² and marital status (MZ93+MZ97)

First, we do not control for educational qualifications (Model 3 in Table 4, 'without education' in Figures 2a and 2b) and find that all the distinguished groups of classical labor migrants have negative parameter estimates, i.e. odds ratios below 1. For immigrants from Greece, Portugal and Turkey the negative parameters are smallest for the second generation and largest for the group that immigrated at the age of 19 or later. Respondents from Turkey show the largest negative estimates in all three age-at-immigration categories. Respondents from Spain have the smallest negative parameters for the second generation and for the age-of-immigration category of 19 years and older, while the Portuguese have the smallest negative effect for the age-at-immigration category 7 to 18.

Positive ethnic parameters can only be found for immigrants from Western European countries (including the U.S.), who belong to the second generation or immigrated at the age of 19 or later. The third Western European estimate (immigration at ages 7 to 18) is negative but not significant. This indicates that the chances for salaried positions are more favorable for Western Europeans than they are for Germans. It is worth noting that in the case of immigrants from Eastern Europe the negative parameter is larger for the second generation than for the other two age-at-immigration groups. For immigrants from all other countries there is no significant parameter for the second generation and the other two estimates for this rather miscellaneous group are negative and medium in size. The estimates in Model 3 thus give us an overall impression of the differences between the ethnic groups and their success in reaching a more favorable labor market position.

Model 4 (Table 4, appendix) also controls for education. As with the analysis of class position the question is to what extent the disadvantaged positions of different ethnic groups can be explained by their educational qualifications. Inspecting the parameter estimates for education, not surprisingly, we

can see that access to a salaried position is strongly connected to qualifications. The higher the level of education the larger the odds of being a salaried employee. The improvement in the fit of the model also indicates the high impact of educational qualifications on occupational attainment.

Most importantly, inclusion of education not only improves the model fit but also reduces the size of the negative estimates for all classical labor migrant groups (next to Model 4 also see 'with education' in Figure 2a). In the case of Italians who immigrated at the age of 19 or later the odds improve from 0.2 to over 0.5 when controlling for education and for Italians from the middle age-at-immigration category (7-18) the odds even improve from 0.1 to 0.4. Looking at the parameters and their standard errors it is also worth noting that the negative estimates for the second generation are no longer statistically significant for five of the six classical labor migrant groups. Only for second generation Turks the odds of being a salaried employee are significantly lower than for Germans (odds ratio \approx 0.3).

Also note that the Turkish estimates for all three age-at-immigration groups, although somewhat reduced, remain relatively high compared with the other classical labor migrants. Comparing the size of the estimates between the age-at-immigration categories within one nationality group we can find two expected results. First, among the classical labor migrants the negative parameter of the middle age-at-immigration category (7 to 18) is smaller than that of the highest category (age 19 or later) for respondents from Greece, (former) Yugoslavia, Portugal and Turkey. Second, for all groups of classical labor migrants the negative estimates of the second generation are smaller than those of the first generation.

As to the positive effect of Western Europeans only the estimate for the second generation is still positive and significant when controlling for education (next to Model 4 see also 'with education' in Figure 2b). In the case of the Eastern Europeans inclusion of education even increases the negative estimates for all three age-at-immigration groups. For the group without schooling experience in Germany (immigration at age 19 or later) this effect might indicate that educational qualifications gained in an Eastern European country are not fully approved by German employers.¹⁴

4.3. Different returns to education?

In Model 4 we have only analyzed whether immigrants receive some kind of ethnic penalty assuming that education affects occupational attainment in the same way for all ethnic groups as it does for Germans. However, in section 2 we have discussed some theoretical arguments why educational qualification might not bring the same benefit to immigrants. Following the arguments of the theories of statistical discrimination respectively the signaling theory we would expect ethnic disadvantages for immigrants with an educational level above average and ethnic advantages for immigrants with an educational level below average. To test this hypothesis in Model 5 (Table 4, appendix) we construct a

¹⁴ A similar result is found in Konietzka/Kreyenfeld (2001) analyzing data of the German Socioeconomic Panel.

reduced variable of age at immigration that distinguishes only three categories: Germans, members of ethnic groups who immigrated at the age of 7 or later (first generation) and the second generation. We compute interactions by combining this variable (taking Germans as the reference group) with the CASMIN classification of education.

The inclusion of these interactions does not improve the model very much as can be seen in a comparison of the χ^2 -values between Model 4 and Model 5. Also the main effects, i.e the coefficients for ethnic groups and for educational levels, do not change in any substantial or systematic way. All this points to the fact that, in general, different returns to educational qualifications are not a very important factor in explaining ethnic inequalities in the labor market.

Table 2: Interaction effects between educational level and immigration status (Model 5)

Categories of reference:	1st gen. immigrant		2nd gen. immigrant	
Germans, 1c				
1a	.79*	(.19)	1.47*	(.48)
1b	.23*	(.10)	.28	(.25)
2b	-.40*	(.17)	.16	(.44)
2a	-.41*	(.10)	-.14	(.19)
2c_gen	-.58*	(.17)	1.90	(1.08)
2c_voc	-.66*	(.12)	-.38	(.36)
3a & 3b	-1.42*	(.12)	-1.90*	(.36)

Estimated interaction coefficients (standard errors in parentheses), see Model 5 in Table 4 (appendix)

Although the impact of the interaction seems to be rather weak, we take a more detailed look at the concrete pattern. For the convenience of the reader the corresponding effects and standard errors of Model 5 in Table 4 (appendix) are copied into Table 2. We see that – assuming the returns for level 1c (the mode in each of the groups) to be equal for all – only two significant deviations from the educational returns of Germans can be found for second generation immigrants: Having an incomplete general education improves the odds of being a salaried, whereas the impact of having the highest educational level (lower or higher tertiary education) is reduced. For the first generation all interactions are significant and show the expected sign. At the lowest educational level the estimates are positive (although less in size than for the second generation), i.e. the odds of attaining better positions are higher than for Germans. With higher educational level they monotonously decline in size, turning negative at level 2b and showing the largest negative value at the highest level 3a&3b.

These findings seem to indicate that, although the strength of the interaction in general is not very large, there are ethnic disadvantages for immigrants with an above-average educational level and ethnic advantages for immigrants whose educational level is below average therefore confirming the

theory of statistical discrimination or the signaling theory. Still, this interpretation of Table 2 is dependent on the assumption of equal returns of education at level 1c for all groups. If we look at the estimates of Model 5 we find that group specific effects also exist which may be interpreted as ethnic penalties independent of the level of education. However, if one would choose another reference category both the size of ethnic penalties and the size of the interaction effects would change.

Therefore, an additional impression of the interaction pattern shall be gained by looking at the overall effect for a specific ethnic group at a specific educational level summing up both main effects and the corresponding interaction coefficient. In Figure 3 this is exemplified by comparing Italians to Germans based on the results of Model 5. Choosing Germans with education 1c as the reference, the vertical axis measures the total effect on the logit for each of the groups depending on the level of education and holding all other independent variables constant.

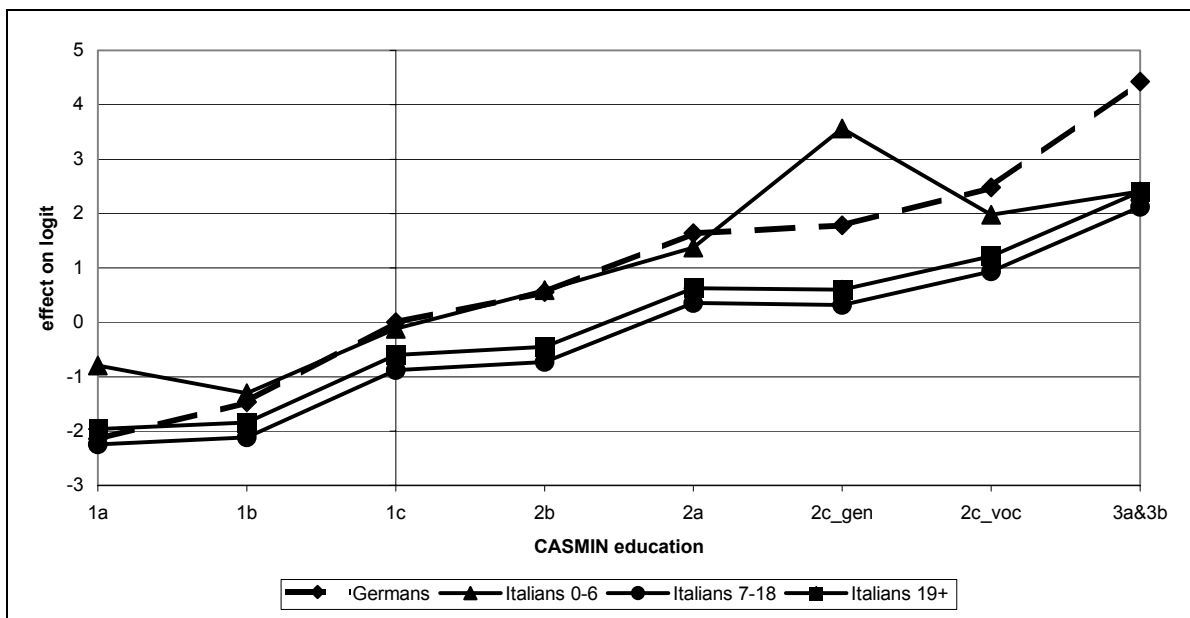


Figure 3: Interaction between education and immigrant status according to Model 5 in Table 4 (appendix) exemplified by Italians (MZ93+MZ97)

We see that Italians of the second generation indeed do better than Germans at the lowest educational level. While the returns for second generation Italians are nearly the same as for Germans at the middle educational levels (with an outlier at 2c_gen), they are lower at the highest level 3a&3b. The returns for first generation Italians are comparable to those of the Germans at the lowest educational level 1a. However, the slope of the 'German' line is steeper indicating an increasing gap to the first generation Italians as the level of education gets higher. As a consequence of how interaction effects are implemented in Model 5 the respective figures for other ethnicity groups would only differ with respect to the constant at level 1c.

5. Conclusions and next steps

So far, our analyses mostly confirm the expectations expressed in hypotheses [i]–[ix] in the third part of this paper. The general finding is that ethnic inequality in the German labor market seems to be mainly a matter of human capital, i.e. of educational qualifications and factors directly related to the migration experience (country-specific capital), rather than a matter of discrimination in the labor market. This holds true, at least, for most of the classical labor migrant groups. Measuring occupational attainment in terms of social class and in terms of getting salaried employee positions instead of worker positions, hypotheses [i]–[vi] in principle can be confirmed – with only minor restrictions – for all six groups (assuming that Turkey shows the largest cultural distance to Germany [v]). Moreover, ethnic penalties for the second generation seem to be nearly absent for five classical guest worker countries [vii], while the situation is different for Turks.

Looking at the interaction between ethnicity and education we find that different returns to educational qualifications are not a very important factor for the explanation of ethnic stratification (again: with respect to classical labor migrants) in the German labor market especially not for the second generation [ix]. Nevertheless, there is a slight tendency for the immigrants to suffer higher losses if the educational level is relatively high, while suffering smaller losses if the level is low. For some groups belonging to the second generation we even find advantages for immigrants at the lowest educational levels therefore confirming an expectation resulting from the theories of statistical discrimination [viii].

In addition to the detailed analyses of classical labor migrant groups, we got also hints that the situation of new immigrants from Eastern Europe strongly differs. For this group, we do neither find the expected decrease in disadvantages according to age at immigration or generation, neither can educational qualifications explain its position in the labor market. On the contrary, the amount of disadvantages even increases if one takes the educational level into account.

Therefore, in further analyses we will try to address the situation of the new immigrant groups more closely, theoretically as well as empirically. Besides that we will try to confirm the basic findings in this paper choosing additional dependent variables, i.e. other measures of occupational attainment. Moreover, we will try to include social origin and more direct measures of country-specific capital (language skills) in our models to come to a more detailed understanding of the intergeneration transmission of ethnic disadvantages. As the MZ does not contain the necessary variables, we consider doing supplementary analyses with the data from the German Socioeconomic Panel (GSOEP).

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Table 3: The impact of ethnicity and education on social class (estimates of multinomial regression models)

Dependent Variable: Reduced EGP 0 = Semi- and Unskilled Manual Workers (EGP VII)	Higher and Lower Salarial (EGP I, II)		Non Manual Class (EGP III)		Petty Bourgeoisie (EGP IV)		Skilled Manual Workers (EGP V, VI)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender, CR** : Male								
Female	.31* (.02)	.73* (.03)	1.71* (.02)	1.91* (.03)	.03 (.04)	.21* (.04)	-1.53* (.03)	-1.29* (.03)
Age	.27* (.03)	.11* (.03)	-.07* (.03)	-.02 (.03)	.25* (.04)	.27* (.04)	-.14* (.03)	-.09* (.03)
Age squared	-.00* (.00)	-.00 (.00)	.00* (.00)	.00* (.00)	-.00* (.00)	-.00* (.00)	.00* (.00)	.00* (.00)
Marital status, CR** : single								
Married	-.34* (.03)	-.04 (.03)	-.08* (.03)	-.04 (.03)	.21* (.04)	.27* (.04)	.15* (.03)	.12* (.03)
Widowed	-1.13* (.15)	-.59* (.19)	-.39* (.14)	-.16 (.15)	-.44 (.23)	-.27 (.23)	-.29 (.18)	-.21 (.19)
Divorced	-.68* (.05)	-.17* (.07)	-.17* (.05)	-.05 (.06)	-.18* (.08)	-.07 (.08)	-.12* (.06)	-.11 (.06)
Nationality * Age at Immigration, CR** : German								
Greek, Port., Span.								
0 - 6	-.99* (.31)	-.24 (.39)	-1.25* (.33)	-.73* (.36)	.45 (.33)	.84* (.35)	-.47 (.27)	-.09 (.29)
7 - 18	-2.73* (.30)	-1.47* (.37)	-2.13* (.23)	-1.27* (.25)	-.88* (.25)	-.27 (.26)	-1.19* (.20)	-.46* (.21)
19 years and more	-2.95* (.24)	-2.39* (.32)	-2.22* (.18)	-1.36* (.20)	-1.22* (.21)	-.61* (.22)	-1.76* (.17)	-.96* (.18)
Italian,								
0 - 6	-1.47* (.32)	-.56 (.40)	-.92* (.28)	-.34 (.31)	-.49 (.42)	-.03 (.43)	-.77* (.25)	-.33 (.27)
7 - 18	-3.26* (.31)	-.92* (.35)	-2.03* (.21)	-.69* (.22)	-.75* (.20)	.16 (.20)	-1.29* (.16)	-.35* (.17)
19 years and more	-2.89* (.22)	-1.98* (.29)	-1.83* (.16)	-.82* (.18)	-1.08* (.18)	-.34 (.19)	-1.98* (.16)	-1.04* (.17)
(Ex-)Yugoslav,								
0 - 6	-3.15* (1.04)	-2.02 (1.18)	-.87 (.46)	-.16 (.50)	-.40 (.65)	.13 (.66)	-1.11* (.44)	-.69 (.47)
7 - 18	-2.68* (.31)	-.95* (.35)	-1.95* (.22)	-1.04* (.23)	-1.00* (.29)	-.35 (.30)	-.92* (.22)	-.36 (.24)
19 years and more	-2.62* (.14)	-2.05* (.17)	-2.27* (.12)	-1.79* (.13)	-1.74* (.17)	-1.42* (.18)	-1.14* (.09)	-.81* (.10)
Turkish,								
0 - 6	-2.49* (.38)	-1.54* (.44)	-1.71* (.26)	-1.06* (.27)	-.52 (.32)	.00 (.33)	-1.02* (.20)	-.50* (.22)
7 - 18	-3.33* (.18)	-2.01* (.22)	-3.05* (.16)	-2.06* (.19)	-1.68* (.16)	-.90* (.17)	-1.95* (.10)	-1.03* (.10)
19 years and more	-3.51* (.18)	-3.21* (.25)	-3.68* (.20)	-2.85* (.21)	-2.65* (.22)	-2.11* (.23)	-2.45* (.12)	-1.66* (.13)
West. European,								
0 - 6	.46 (.31)	.57 (.37)	.30 (.33)	.45 (.35)	.97* (.37)	1.06* (.38)	.17 (.32)	.30 (.34)
7 - 18	-1.33* (.35)	-1.31* (.46)	-.96* (.34)	-.92* (.38)	-1.66* (.74)	-1.60* (.75)	-.69* (.33)	-.46 (.35)
19 years and more	.49* (.12)	-.02 (.16)	.02 (.14)	.03 (.16)	.33 (.17)	.28 (.18)	-.38* (.15)	-.19 (.16)
Eastern European	-1.26* (.14)	-2.69* (.19)	-1.46* (.16)	-1.99* (.17)	-1.72* (.30)	-2.22* (.31)	-.95* (.14)	-1.17* (.15)
Others	-1.07* (.10)	-1.71* (.14)	-1.12* (.11)	-1.11* (.13)	-1.05* (.16)	-1.04* (.17)	-1.76* (.13)	-1.31* (.14)
Educational Level, CR** : 1c								
1a		-2.39* (.25)		-2.07* (.13)		-1.63* (.17)		-2.35* (.12)
1b		-2.55* (.09)		-1.71* (.04)		-1.21* (.06)		-1.94* (.04)
2b		.13 (.12)		.19* (.09)		-.05 (.13)		-1.14* (.12)
2a		2.40* (.04)		1.62* (.04)		1.17* (.05)		.64* (.04)
2c_gen		2.02* (.11)		1.07* (.11)		1.24* (.14)		-.79* (.14)
2c_voc		3.37* (.07)		2.00* (.07)		1.58* (.08)		.76* (.07)
3a & 3b		5.56* (.10)		2.13* (.10)		2.10* (.11)		.60* (.11)
Constant (b ₀)	-4.27	-4.04	.94	-.82	-6.04	-6.98	3.39	2.48
χ ² -Value	26147	66827	26147	66827	26147	66827	26147	66827
Pseudo-R ²	0.10	0.26	0.10	0.26	0.10	0.26	0.10	0.26
Number of Cases	84200	84200	84200	84200	84200	84200	84200	84200

Source: Mikrozensus 1993 (70% Subsample; ZUMA-File), own computations

** CR: Category of Reference; * p < .05

Table 4: The impact of ethnicity and education on the odds of attaining salaried employee positions (estimates of logistic regression models)

Dependent variable		Model 3		Model 4		Model 5	
0 = Worker							
1 = Salaried Employee							
Gender, CR**:		Model 3		Model 4		Model 5	
Male							
Female		1.38*	(.01)	1.69*	(.02)	1.69*	(.02)
Age		.14*	(.01)	.04*	(.02)	.04*	(.02)
Age squared		-.00*	(.00)	.00	(.00)	.00	(.00)
Marital status, CR**:		Model 3		Model 4		Model 5	
single							
Married		-.25*	(.01)	-.06*	(.02)	-.06*	(.02)
Widowed		-.71*	(.08)	-.29*	(.09)	-.29*	(.09)
Divorced		-.37*	(.03)	-.02	(.03)	-.02	(.03)
Mikrozensus year, CR**:		Model 3		Model 4		Model 5	
MZ93							
MZ97		.09*	(.01)	-.05*	(.01)	-.06*	(.01)
Nationality * Age at Immigration, CR**:		Model 3		Model 4		Model 5	
German							
Greek,	0 - 6	-.93*	(.20)	-.45	(.25)	-.40	(.25)
	7 - 18	-1.75*	(.18)	-.87*	(.20)	-.82*	(.20)
	19 years and more	-2.32*	(.17)	-1.93*	(.21)	-1.70*	(.20)
Italian,	0 - 6	-.77*	(.14)	-.13	(.17)	-.12	(.18)
	7 - 18	-2.15*	(.14)	-.84*	(.15)	-.88*	(.15)
	19 years and more	-1.62*	(.10)	-.64*	(.13)	-.60*	(.13)
(Ex-)Yugoslav,	0 - 6	-.65*	(.24)	-.08	(.28)	-.06	(.28)
	7 - 18	-1.98*	(.14)	-1.11*	(.16)	-1.08*	(.16)
	19 years and more	-1.98*	(.07)	-1.88*	(.09)	-1.63*	(.09)
Portuguese,	0 - 6	-.86*	(.40)	-.24	(.47)	-.21	(.46)
	7 - 18	-1.28*	(.29)	-.22	(.33)	-.19	(.32)
	19 years and more	-2.36*	(.30)	-1.38*	(.36)	-1.30*	(.34)
Spanish,	0 - 6	-.59*	(.23)	-.19	(.27)	-.15	(.27)
	7 - 18	-1.59*	(.27)	-1.05*	(.32)	-.90*	(.30)
	19 years and more	-1.42*	(.23)	-.90*	(.29)	-.81*	(.28)
Turkish,	0 - 6	-1.70*	(.13)	-1.06*	(.16)	-1.07*	(.18)
	7 - 18	-2.58*	(.09)	-1.57*	(.10)	-1.47*	(.10)
	19 years and more	-2.80*	(.11)	-2.47*	(.13)	-2.15*	(.13)
West. European,	0 - 6	.37*	(.15)	.43*	(.18)	.53*	(.19)
	7 - 18	-.28	(.18)	-.14	(.22)	.05	(.21)
	19 years and more	.43*	(.07)	-.14	(.09)	.19*	(.10)
Eastern European,	0 - 6	-1.57*	(.64)	-2.05*	(.81)	-1.83*	(.76)
	7 - 18	-.80*	(.36)	-.98*	(.43)	-.63	(.41)
	19 years and more	-1.19*	(.09)	-2.34*	(.11)	-1.76*	(.12)
Others,	0 - 6	-.21	(.32)	.06	(.42)	.09	(.40)
	7 - 18	-.95*	(.20)	-.74*	(.26)	-.46	(.24)
	19 years and more	-.80*	(.06)	-1.40*	(.09)	-.93*	(.10)

(continued on next page)

(Table 4 continued)

Educational Level, CR**: 1c			
1a		-1.83* (.09)	-2.15* (.11)
1b		-1.43* (.03)	-1.47* (.03)
2b		.53* (.05)	.55* (.06)
2a		1.63* (.02)	1.64* (.02)
2c_gen		1.74* (.07)	1.78* (.07)
2c_voc		2.45* (.03)	2.48* (.03)
3a & 3b		4.20* (.04)	4.43* (.05)
Educational Level * Generation, CR**: German, 1c			
1a,	1. Generation		.79* (.19)
	2. Generation		1.47* (.48)
1b,	1. Generation		.23* (.10)
	2. Generation		.28 (.25)
2b,	1. Generation		-.40* (.17)
	2. Generation		.16 (.44)
2a,	1. Generation		-.41* (.10)
	2. Generation		-.14 (.19)
2c_gen,	1. Generation		-.58* (.17)
	2. Generation		1.90 (1.08)
2c_voc	1. Generation		-.66* (.12)
	2. Generation		-.38 (.36)
3a & 3b,	1. Generation		-1.42* (.12)
	2. Generation		-1.90* (.36)
Constant (b ₀)		-2.43	-2.27
χ^2 -Value		19378	61138
Pseudo-R ²		0.10	0.32
Number of Cases		140887	140887

** CR: Category of Reference

* p < .05

Source: Mikrozensus 1993 and 1997 (70% Subsample; ZUMA-Files), own computations

Educational level

- 1a Inadequately completed general education
- 1b General elementary education
- 1c Basic vocational qualification or general elementary education and vocational qualification
- 2b Intermediate general qualification
- 2a Intermediate vocational qualification or intermediate general qualification and vocational qualification
- 2c_gen General maturity certificate
- 2c_voc Vocational maturity certificate or general maturity certificate and vocational qualification
- 3a, 3b Lower and higher tertiary education