Human Capital or Discrimination? Labor Market Entry Disadvantages of Second-Generation Turkish Migrants in Germany

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Abstract: Earlier studies disagree over whether differences in the human capital configuration or employer discrimination explain second-generation migrants' disadvantages when entering German labor markets. While the human capital explanation has been tested extensively, less convincing research explores employer discrimination. Furthermore, past research understood the successful completion of a vocational education as part of the human capital configuration and identified it as the major predictor of a successful transition into the labor market. This disregards, however, that for the most part companies are the providers of access to vocational education in Germany, and hence discrimination may occur when companies make their enrollment decisions for these programs. Importantly, this suggests investigating an earlier time point in the process when discrimination may occur than previous studies have considered. Therefore, using data from the German Socioeconomic Panel Study, we analyze the transition from secondary school into the labor market in two steps: first, the transition into vocational education, and second into employment. The GSOEP allows a comprehensive specification of human capital and testing of corollary hypotheses derived from statistical discrimination and taste discrimination.

Using discrete event history models for access to and completion of vocational education programs we find significant and substantial ethnic residuals especially for young Turkish men, even when controlling for receiving country specific capital. This raises serious doubts in specifying vocational education as part of human capital. For the second part of the process, the actual transition into regular employment, we use hybrid estimation modeling. This allows the simultaneous estimation of fixed and random effects, i.e. the estimation of the full set of theoretically relevant predictors. Human capital, including receiving country specific resources, such as German language abilities or the ethnic composition of networks, does not fully explain the ethnic penalties young males with Turkish migration background experience. Finally, interaction models show that a completed vocational education pays off less for Turkish as compared to Germans, again the effect is pronounced for Turkish men. The latter finding is direct evidence for statistical discrimination. Regarding taste discrimination we find no evidence, although, this is conducted through an indirect test. In conclusion, the inclusive human capital measures available in the GSOEP do not fully explain Turkish second-generation migrants' disadvantages; partly it can be attributed to statistical discrimination.

Keywords: inequality, statistical & taste discrimination, entry into labor market, vocational education, Turkish labor migrants, second-generation, migration.

Word count: 5,435

1 Introduction[1]

Ethnic inequalities persist, not only for first generation labor migrants but also for their descendants – the second-generation, who are born and raised in Germany (Pollak et al. 2007: 18; Kalter and Granato 2002; Granato and Kalter 2001; Bender and Seifert 1998). This paper explores the difficulties of structural assimilation for second-generation of labor migrants in Germany; i.e. for young adults with Turkish, or former-Yugoslavian, Spanish and Italian migration background[2]. Whereas migration theory has explanations for the labor market disadvantages of the first generation who migrated into Germany in the second half of the last century, the problems of their descendants are less understood. The question remains whether human capital deficits inherited through social origin and lack of receiving-country specific forms of capital, such as language fluency or network composition, is sufficient explanation for the disadvantaged placements in the labor market, or whether there are additional "ethnic" disadvantages in form of employer discrimination (Kalter 2006; Seibert & Solga 2005).

Our analysis connects to a recent debate in the *Zeitschrift für Soziologie*. Seibert and Solga analyzed Mikrozensus data and claim to find evidence for statistical discrimination, though they do not directly phrase it like that, and although their empirical findings rather speak against statistical discrimination being present (2005). In addition the Mikrozensus data does not include human capital measures except for educational degrees. Kalter criticizes the study on both the theoretical and empirical level (2006). On the *theoretical* side, he claims that statistical discrimination cannot result in group discrimination, but only in individual disadvantages/advantages that would cancel each other out on average. That is, he does not

[1] *Frank Kalter*'s pivotal study was the impulse for this research and his exemplary approach on extracting GSOEP data was extremely helpful. I would like to thank *Hartmut Esser* and *Clemens Kroneberg* for helpful discussions on this research. *Paul D. Allison* and *Josef Brüderl* gave me very valuable advice on the estimation strategy. *Christi M. Smith*, *Nicole Biedinger*, *Sebastian Weingartner* and *Tobias Hannemann* were a big help in preparing this manuscript.

[2] When I refer to the "Turkish" or the "other LM" (labor migrants from the other mentioned sending countries), we always imply the second-generation descendants of the original migrants.

expect an ethnic residual effect from statistical discrimination, as residual effects in regressions imply group disadvantages. *Empirically*, he argues that the more inclusive human capital measures available in GSOEP, especially receiving country specific capitals, explain the ethnic residuals. These measures for language fluency and network composition are not available in the Mikrozensus.

This paper extends Kalter's analyses in three ways. *First*, we extend the analysis to the process of obtaining vocational degrees, i.e. we analyze the whole transition from secondary school completion to labor market entry. *Second*, we use hybrid models that allow estimating simultaneously fixed- and random-effects. This is important because the interesting ethnic residual effect cannot be estimated with fixed effect models, while random effect models cannot control for unobserved heterogeneity. *Third*, we use the now available three more GSOEP panel waves and deviate in the construction of some central variables. In contrast to other researchers we do not interpret ethnic residual effects as discrimination. Others used discrimination as a miscellaneous category for everything not explained by the *available (!)* human capital measures, e.g. Szydlik concludes that discrimination causes migrants to more often work in the secondary labor market, although he does not fully utilize the human capital measures available in the data (1998: 131). Yet, even if the most inclusive human capital equations are estimated, one might still omit important unmeasured average differences between groups. Therefore, for the central conclusions we rely on sound empirical tests of advanced corollary hypotheses derived from discrimination theory.

We proceed as follows. The first part introduces the peculiarities of the vocational education system in Germany. We highlight the importance of a vocational degree for labor market positioning for second-generation migrants, and argue that hiring for vocational education programs in the dual system is more prone to employer discrimination due to special boundary conditions. Next we derive testable hypotheses from Becker's taste

discrimination and Phelps statistical discrimination model. We then describe the data and methods. In the results section, we consecutively test the hypothesis on the transition between secondary school degree and (early) labor market positioning.

2 Vocational Education in Germany

Germany is somewhat unique concerning the fact that companies play a major role in vocational education and therefore employer discrimination may decrease chances of entering the labor market for certain groups at this earlier stage. The majority of students who do not pursue higher tertiary education enter the dual system of vocational education (about 60% of all school leavers, Lohmar and Eckhardt 2008: 103). Dual system refers to two- or three-year programs where companies offer on-the-job-training and cooperate in one course with state-run vocational schools that provide the vocational education. The Vocational Training Act, the Handicrafts Act and the training regulations heavily regulate dual system programs in terms of educational content, the relationship between company and apprentice, and so on (ibid: 104). Meanwhile, in one respect companies do not face any interference of the suitable candidates in terms of demanded school degrees, they are unhindered in hiring practices according to their preferences and hiring routines. It follows that employers may discriminate in whom to hire for dual system programs.

We argue that for access to dual system programs discrimination is even more likely than on other stages of the school to labor-market transition. Furthermore, labor market chances for young migrants may be reduced above average due to this. Petersen and Saporta argue that hiring decisions in general are the most prevalent source of inequality in the labor market (2004: 895f.). Reasoning in Becker's "taste"-tradition suggests in addition that discrimination is "cheapest" and therefore most likely when employers operate in a non-competitive environment (Kalter 2003: chapter 9 especially). As dual system trainees will for the most part not contribute very much to a company's earnings, at least within the training period, we

argue that these hiring decisions are more prone to employer discrimination. In other words, hiring apprentices according to "non-economic" preferences or maintaining an inefficient selection process at this stage will hurt companies less. Especially in Germany apprenticeships "provide the port of entry" into the labor market (Winkelmann 1993: 13). Hence, possible discrimination imposes a very high burden on those who are detained from acquiring these qualifications. This argument actually applies to all who seek dual system training, but especially Turkish and other LMs' chances to enter the labor market are reduced above average. This is because they have to rely more on this pathway into the labor market. Descendants of Turkish and other labor migrants still obtain a medium or higher secondary school degree less often (Geißler 2005; Alba, Handl and Müller 1994). Szydlik makes a further argument that highlights the importance of dual system education access (2002): Because job allocation in Germany depends more heavily on formal qualifications, actual job-specific productivity is of less importance. That is, even very high skills for a specific occupation may not offset the disadvantages of not having the respective formal dual system degree.

3 Discrimination

We omit a discussion of human capital theory and only briefly summarize the receiving country specific resources perspective here, before proceeding to taste and statistical discrimination (see e.g. Heath and Cheung 2007 or Kalter 2006 for more extensive reviews). The receiving country specific resources approach argues first that migrants often lack the kinds and levels of human capital necessary to obtain qualified labor market positions in the receiving country. Second not being fluent in the receiving country's language, may hinder even highly educated migrants to be fully productive. Third, the transferability of foreign qualifications and work experience may be reduced, which should be especially problematic

in Germany (see above). In addition the lack of country specific network resources may reduce chances of finding suitable jobs (Granovetter 1983; Lin 1999).

For second-generation migrants who were raised and educated in Germany, however, it should be possible to obtain the same level of human capital as *comparable* natives, when controlling for possibly outlasting disadvantages in relevant network access and German language fluency. We must stress comparable natives, as it is a well-known mechanism of social reproduction that social origin has a high impact on educational outcomes and in turn labor market positioning (Kalter, Granato and Kristen 2007; Müller and Pollak 2004; Erikson and Jonsson 1996; Alba, Handl and Müller 1994). Hence, we have to control for parents' socio-economic standing and educational attainment to not conflate social origin and ethnic effects.

3.1 Taste Discrimination

Becker proposed the most famous employer discrimination model, usually referred to as 'taste discrimination' (1971, 2nd ed.). He assumes employers to not only maximize according to human capital endowments of applicants but also according to their subjective preferences or 'tastes' (ibid: 40). With the famous discrimination coefficient d he models the total costs for an employee from a group as $\pi(1+d)$. That is, to the real wage π_{an} additional $d \cdot \pi$-factor is added. In turn, total costs of an employee out of a disliked group is perceived higher by the employer by a factor of $d \cdot \pi$, even when the raw wages of all groups are the same. He understood the nonmonetary costs implied in d as based on preferences or possibly based on ignorance towards the real productivity of a group (which is strikingly close to the models of statistical discrimination discussed below).

Discrimination of this kind is difficult to test directly as measures on employers', customers' or employees' tastes are hardly available in linked datasets. In the absence of data to directly conduct strong tests, one can still derive and test corollaries with the available data

(e.g. Palloni et al. 2001: 1269). To that end, we take advantage of a rarely discussed property of Becker's formula. In better paid positions, an employer must perceive proportionally higher costs of hiring an applicant of the disliked group[3]. Using ethnic background as indicator for the average *d*s among employers we hypothesize: the higher the wage level, the more taste discrimination will influence the employment chances of a group that is discriminated. Hence we will observe larger residual effects for higher wage levels *(Hypothesis 1)*.

The taste-discrimination model has been criticized for various other aspects, most prominently for the introduction of the additional taste utility term that obviously contradicts the employers' assumed profit maximizing motive (e.g. Arrow 1998). Market forces should eliminate such preferences in the long run, except all employers would hold homogeneous preferences (this is already mentioned by Becker 1971: 44f.). However, the taste argument is compatible with standard economic conceptions of the labor market under the condition that employers derive their 'non-economic' preferences from employees' or customers' tastes against certain groups. Then it is rational for employers to act on these tastes so as to avoid inefficiencies within the production process or movement of customers to concurrent companies.

3.2 Statistical Discrimination

Statistical discrimination starts from the notion of employers' incomplete information about the real productivities of applicants, even some time after hiring (see Aigner and Cain 1977; Arrow 1973; Arrow 1998; Oaxaca 2001; Spence 1973: 355f). Because employers face

[3] However, if nonzero *d*s denote preferences or motives to maintain social distance to a certain group, why should these motivations then vary according to productivity or wage level? An attempt at an explanation could be that an employer collaborates more closely with employees who have a higher productivity/wage level. E.g. employers may want to hire managers of their own ethnicity because they have to meet them every day and collaborate close; while with a caretaker they do not interact that close and hence are less willing to pay for a caretaker of a specific ethnicity.

an investment decision under uncertainty, they base their decisions on the interpretation of easy accessible characteristics. Spence introduced two kinds of characteristics: *indices* are observable and not changeable traits as e.g. gender or race; *signals* refer to observable and changeable traits, the most important being educational degrees. Inferences from indices and signals about applicants' actual productivity are possible because employers have made experiences with different employees in the past, and hence possess knowledge about the general distribution of productivity. For example employers can hold the "statistical belief" that an applicant who possesses a higher education degree is more productive in a certain job than another applicant who only finished an intermediate or lower secondary school degree.

Usually one distinguishes three models of statistical discrimination: differences in average group productivity, differences in group variances of (the same average) productivity, and the so called measurement model of statistical discrimination (Correll and Benard 2006; England 1992; Kalter 2003). We will focus on the measurement model only as the other two cannot explain group inequality without additional assumptions (ibid). The measurement model exists in several specifications, we focus on the original "Phelps-model" as it is described in Aigner and Cain (1977). It assumes productivity information to be conveyed by signals (or indices) denoted by y, where y is thought of as a test score. Therefore, y is a function of the true productivity q and of a 'well behaved' error term u: $y = q + u$. The employer is interested only in the expected value of true productivity q given an observable test score y, i.e. $E(q|y)$. To make valid inferences about $E(q|y)$, employers need to have some statistical beliefs about the average productivities of groups, denoted as α, and about the reliability of the signal denoted by γ (see formula 1). Rational employers should rely more on the test score, the higher the reliability of this signal is. When dealing with an applicant of a group whose test scores are less reliable, employers should base their decision more on their beliefs about the average productivity of that group. Formula (1) shows the mechanism: the signal y is

weighted by the reliability parameter γ. The average expected productivity α is therefore weighted by the inverse term 1-γ. Plugging in subscripts to denote different groups, it follows that a smaller γ results in more reliance on group averages and a bigger γ in more reliance on individual signals.

$$E(q_G \mid y_G) = (1-\gamma^G)\alpha^G + \gamma^G y^G \quad (1)$$

Testing directly for statistical discrimination of this kind is difficult as measures on employers' average beliefs on group averages and reliabilities are hardly available. Again we can derive and test corollary hypothesis. If employers assume different reliabilities for the same signals from e.g. Turkish vs. German applicants, we expect an interaction effect between the respective signal and group-membership *(Hypothesis 2)*. That is if $\gamma^G \neq \gamma^T$, we will see an interaction effect with the signal (assuming the same signal: $y^G = y^T$), regardless of the beliefs about average group productivity α^G and α^T.

Sociologists assume that this model of statistical discrimination cannot explain group discrimination but only individual discrimination (e.g. England 1992; Kalter 2003); usually they cite a review by Cain (1986: 724). We agree with Cain, however must stress that his analysis refers to wages only. For access to positions his assertion of only individual discrimination does not hold. Furthermore, his analysis depends on "standard economic" assumptions that should be challenged. *First*, to follow Cain's argument, one has to assume perfectly informed employers in terms of their statistical beliefs, in the context of imperfect knowledge about individual productivities. Only if employers hold *correct* and *up to date* statistical beliefs about any groups' average productivity whose members apply with them, no group inequality arises. If they have less experience with *minority!* groups, maybe because they did not hire members of these groups very often, having correct beliefs about them is questionable. Furthermore, statistical discrimination assumes actors to form beliefs from *past*

experiences; this makes it at least questionable whether αs based on the past are the accurate basis for actual decisions. Consider e.g. beliefs formed about the less educated first generation migrants to be the basis for assessing their second-generations' productivities. *Second*, Cain comes to the conclusion that "…, for a given y-score (…), majority workers receive a higher wage than minority workers for y-scores above the mean, α, and lower wages for y-scores below the mean." (Cain 1986: 724). Cain's analysis centers on wages being paid, once employees were hired. If we however apply this conclusion to hiring decisions, e.g. interpret received wage as probability to be hired, this translates to majority workers getting easier access to good jobs, while minority workers have better access to not so good positions in the labor market. This should create group inequality, as it is denoted by residual effects in regression models (see Hunkler 2008 for details).

4 Data and Methods

4.1 Data

We analyze all available 24 waves of the German Socio-Economic Panel (GSEOP). Starting in 1984 the GSOEP has collected information on 61,545 individuals until 2007. Labor migrants are overrepresented in the data, which allows analyses for single groups.[4] The construction of the analysis sample follows closely Kalter's very meaningful approach (2006). Deviating at some points and using the four newly available panel waves somewhat limits the comparability of the results. Because we are interested in the transition into the labor market and additionally some of the central independent variables are collected in the youth questionnaire, which is issued at entry into the GSOEP usually at age of 17, we first exclude all individuals who entered the panel with age 18 or older. Following Kalter, we restrict the analysis sample furthermore on those living in West-Germany at age 17 and whose parents

[4] See Haisken-DeNew and Frick for details on sampling and weighting in the GSOEP (2005: 153ff.). All analyses presented here are conducted without weights.

both are either German, Turkish or from another typical labor-migration country (i.e. Italy, Spain, Greece, Portugal and former Yugoslavia; hereafter referred to as "other LM"). The paper focuses on second-generation migrants, therefore we drop all individuals who migrated after they turned 14; this is before they may have started vocational education.

With these individuals we construct a panel dataset covering the years after finishing secondary education until 2007 or until the subjects leave the panel. We are only interested in those person years that are available for entering vocational education and/or entering the labor market. Therefore, we exclude those person years/persons when they enter or completed higher tertiary education. Finally person years of individuals who are on maternity leave and/or in community or military service are dropped. In total the analysis covers 2,795 Germans, 468 Turkish, and 488 other LMs. However, depending on the different dependent variables and the implied selection of person years, and on missing values the actual estimation sample sizes differ.

4.2 Independent Variables

The construction of the independent variables is inspired by Kalter (2006), to allow maximum comparability (deviations are denoted by an asterisk). *Ethnic background* is coded according to both parents' place of birth. *Secondary school education* is a recode of the CASMIN variable the DIW supplies; it distinguishes inadequately completed or other degrees, and lower, intermediate, or higher secondary school degree and includes additionally a binary missing value indicator *. *Social origin*, i.e. parents' socioeconomic standing and attained education, is extracted from the GSOEP's wave-specific annual files* ("$pgen") for the year the target individual was 17 years old*; if not available from the nearest available information*. We extracted father's ISEI status and the supplied years of education variable as the most parsimonious measures. To reduce selection bias we include a binary father's ISEI missing indicator for those cases no valid information on ISEI is available. *German*

language fluency and *network composition* are asked in various but non all panel waves. We use earlier measures and project them to later panel waves to maximize the observation window; if needed we also make projections to earlier panel waves. For Germans, GSOEP usually does not ask language fluency questions, but it is reasonable to assume maximum language fluency. The nationality of the closest three friends are in contrast available also for Germans. To avoid another missing indicator, we assume a complete German network for those Germans who did not report the nationality of their closest three friends.

4.3 Analytic Strategy

For the dependent variables *employment* and *qualified position*, we can fully exploit the panel design of the GSOEP by using a mixing estimators strategy, also known as hybrid modeling (Allison 2005; Halaby 2004). For panel data, fixed effects are usually preferred over random effects because they do not rely on the (unrealistic) assumption of a zero correlation between the person specific error terms and the measured variables (Wooldridge 2006: 497). That is, time-constant unobserved heterogeneity is no longer a problem when using fixed effects and the true effects can be estimated (ibid; Petersen 1993: 447).[5] The fixed effects estimator implies a within-logic that prevents to estimate the theoretically important effects of all time-invariant explanatory variables, especially migration background. Therefore, we use hybrid models, which allow estimating fixed effects for the time-varying explanatory variables (e.g. German language fluency) whereas in the same model random effect estimates for the time-invariant predictors can be obtained. Technically, we decompose the time-varying predictors into their within-person and between-person components, and include both components in a random effects model (as suggested by Allison 2007: 39ff.). To control for possible endogeneity due to period effects, we include wave-controls dummies in all models.

[5] However, this is no remedy to time-varying unobserved heterogeneity (Petersen: 1993: 447).

$$y_{it} = \alpha_0 + \beta_1 x_i + \beta_2 (x_{it} - \bar{x}_i) + \beta_3 \bar{x}_{it} + \beta_4 x_t + v_{it} \quad (2)$$

β_1 refers to the time-constant independent variables; β_2 to the interesting deviation effect for the time-varying covariates, β_3 controls for the person-means of the time-varying covariates as suggested by Allison (2005). Period effects are controlled with β_4 as a set of binary wave indicators. For the error term v_{it}, the usual random effect model properties apply.

First *access to vocational education and first vocational degree received* are non-repeatable one-way transitions between discrete states, thus we cannot use within-estimators, but use standard event history analysis methodology (hereafter EHA). As we deal with fairly large intervals (years) we estimated piecewise-constant discrete-time EHA models (Allison 1984: 14ff.; Brüderl 2008: 24f.; Yamaguchi 1991: 15ff.). Again, we control for possible period effects by including a set of binary wave indicators in all models. Due to fewer observations of transitions per year we use a reduced dummy set controlling for three year periods. Technically we estimate logit regression models as defined in equation (2):

$$\log\left(\frac{P(T)}{1-P(T)}\right) = \alpha(T) + \beta_1 x_i + \beta_2 x_{it} + \beta_3 x_t \quad (3)$$

where P(T) denotes the probability that an individual has an event at time T, given the individual is still at risk at time T. We model the function of duration at risk $\alpha(T)$ as piecewise-constants, i.e. we allow the baseline hazard to take on any shape (technically using a set of binary duration time indicators), β_1 refers to the time-constant covariates, β_2 to the time-varying covariates and β_3 to the period control effects.[6]

[6] Note capitalized T denotes duration or process time and a small t panel waves.

5 Results

We omit a detailed descriptive discussion of the well known facts of especially young Turkish to come from significantly disadvantaged social backgrounds in terms of fathers' education and socioeconomic standing. As has been studied in greater detail elsewhere, they obtain lower secondary school degrees and are more disadvantaged in terms of receiving country specific capitals (German language fluency and access to German social networks). Young adults from other LM fare better than those from a Turkish background, yet still lag behind the German reference population. Young adults from other LMs have significantly lower level school certificates and come from more socially disadvantaged backgrounds than their German peers. In terms of receiving country specific capitals, they are significantly "better off" than the Turkish, however, still significantly different from the German reference population.

In the following section, we instead proceed directly to the multivariate analyses, first to the question if there are inequalities in access to vocational education and in finishing a vocational degree. This is crucial for the second part of the analyses where we first replicate Kalter's models on employment, and then estimate gender-specific equations to show that even when controlling extensively for human- and receiving country capitals, there is an ethnic residual effect for Turkish men. The third part of the analyses targets the two hypotheses derived from the economic discrimination theories.

5.1 Inequality in access to vocational education

The ideal dependent variable for this analysis is transition into dual vocational education. However, we can only construct (first) access to *any* vocational education program and (first) completion of dual system degrees. The first includes a hard to assess share of "turning loop" programs, i.e. includes programs not leading to a degree. The second cannot account for the

share of those who quit their apprenticeships out of their own accord. By running analyses for both, we compile a sufficiently accurate picture of possible inequalities in access to dual system education. We restrict our discussion here to the central ethnic residual net coefficients. Table 1 includes models on the total population under risk as well as gender specific models of first access to vocational education and completion of dual system degrees. All models control for secondary education, social origin, and country specific capitals. Yet, we find substantial significant residuals in access to vocational education for all groups, except for female from other LMs. Thus, the odds of entering vocational programs are lower by a factor of about ½ for Turkish and 0.68 for other LM, holding all other variables constant. Residuals for males are even more pronounced. For completion of degrees, only Turkish males show substantially reduced odds of finishing these degrees, for other LM no significant residuals remain. We conclude that there is no equal access to the dual system. Hence, when estimating labor market entry models in the following we may already "hide" prior discrimination and/or other explanations of lower access rates within the vocational degree variable.

(Table1)

5.2 Is it merely human capital? Ethnic residual effects in employment

"Employment" is a recode of the GSOEP variable labor force status, where we coded "Working" and "Working, but not working in past 7 days" as employed, all other values as not employed. In contrast to Kalter (2006), we exclude person years when a subject actually attends vocational education (indicated by GSOEP's pbbil03 variable). The majority of these is in dual system education and therefore classified as working. Hence, using these cases overestimates the effect of vocational education. Table 2 replicates Kalter's original models only using hybrid models and the above described changes in variable construction and person years included (2006: 153, table 3a). We can perfectly replicate his substantial

findings: only when controlling for social origin and especially for country specific capitals, the ethnic residual effects for the Turkish get insignificant (table 2, model 3).

(Table2)

In table 3 we go one step further and estimate gender specific models using the full set of controls (except for gender). Models 1 and 2 show impressively that the total population insignificant residual for Turkish hides substantial ethnic disadvantages for Turkish men (cf. model 2: -.66) while for women and other LMs no or even positive ethnic residuals cover this. The next section explores whether taste or statistical discrimination is an explanation for these remaining ethnic residuals.

(Table3)

5.3 Testing for taste and statistical discrimination

We derived from *taste discrimination* that we should see larger residual effects in higher wage levels when employers had tastes against groups and would act according to these in their hiring decisions. One would ideally use gross income to test for this hypothesis. Unfortunately, for young labor market participants the wage distribution is fairly condensed; additionally income measures are very prone to non-response and/or social desirable responding. Therefore, we use access to qualified positions as indicator for higher wage levels. Usually, recodes of GSOEP's Erikson-Goldthorpe scheme are used to distinguish qualified positions. We code semi and unskilled manual work and the few self-employed as unqualified positions; and consider all else as qualified. To avoid selection bias due to the EGP being only available for those who are employed, we use a modified version of the above employment variable. We set those person years from one to zero who are employed in unqualified positions according to their EGP status and leave the remaining cases on one. Cases with missing EGP information are set to zero as well, again to avoid selectivity. Table 4

includes the same equations as table 3 did, only with the new dependent variable qualified positions. Comparing the ethnic effects, we find no pronounced residuals in the qualified position equations. All residuals are more positive in the latter than in the employed equations. It is only for Turkish men that we observe a residual effect of almost the same magnitude, however, it is not significant. We conclude that at least the specific formulation in Becker's taste model is not supported by this data.

(Table4)

From *statistical discrimination* we predicted interaction effects between productivity signals and ethnic background, i.e. a vocational degree to pay off more for Germans as compared to migrants. We included these interaction effects for the gender specific models in tables 3 and 4 (models 3 and 4 in both). In the employment equations the interactions between Turkish and vocational degree are the largest significant negative effects in the equations for males (model 4 in table 3). Whereas Germans have significantly better chances to access employment, when they completed a vocational degree, for Turkish a vocational degree does not pay off at all. This is evidence for statistical discrimination. For qualified positions again, we find significant interaction effects for Turkish men (model 4 in table 4). Here as well a vocational degree pays off less, whereas for the German reference population a vocational degree helps to access these positions. We find the same pattern also for men form other LM, though less pronounced. For females no such effects are present.

6 Summary & Conclusions

Second-generation Turkish, and to a less extend the descendants of other classical labor migrants, have continuous deficits in obtaining access to German labor markets. The main aim of this paper has been to explore these difficulties. We thereby not only focus on the final entry into the labor market but extend our analysis to the complete transition from completing

secondary school education to paid employment. Usually, explanations refer to the lack of general and receiving country specific human capital and/or to employer discrimination. While human capital effects, e.g. school and vocational education, are easy to measure, direct measurements for employer discrimination are not included in any large scale dataset. Some researchers have interpreted implicitly or explicitly that after controlling for human capital, all remaining ethnic residual effects can be attributed to employer discrimination. This approach can only yield very weak evidence for employer discrimination since no dataset provides an inclusive measurement of human capital. We follow an approach that allows us to conduct a stronger test with the available data. From the most prominent discrimination theories – Becker's taste model and statistical discrimination – we derive non-trivial corollary hypotheses that can be empirically tested. We use the GSOEP as the most inclusive data source on relevant human capital measures for Germany. Because it is well established that Turkish and other labor migrants descendants' chances to obtain a higher secondary school degree are very low, we focus on the classical transition into the labor market via vocational education.

We find very strong evidence for differences in human capital to affect each step of the school to work transition. Besides the classical dimension of education, adding receiving country specific forms of capital, as language fluency and network composition, for some sub-groups even explains the total ethnic residual effects. For some, however, even the very inclusive human capital measures supplied by GSOEP can not explain all ethnic differences. This is especially true for Turkish men. On top of human capital disadvantages impeding second-generation labor migrants from successfully entering the labor market, we also find evidence for employer discrimination. We tested corollary hypotheses derived from Becker's taste discrimination model and from statistical discrimination theory. From Becker's formula follows that taste discrimination should be more pronounced for higher wage levels.

Comparing employment in general and access to qualified positions, we find no evidence for this idea. Statistical discrimination as suggested in Phelps measurement model predicts productivity signals, in our test a vocational degree, to result in different returns. Testing for interaction effects of having a vocational degree times ethnic background, we find strong and significant negative effects especially for male Turkish migrants. A vocational degree pays off less for them, as compared to Germans and the other LM's descendents.

In sum, human capital and especially its receiving country specific dimensions explain second-generation migrants' disadvantages to a large extent. However, there is already selectivity in who is getting access to vocational education. Turkish migrants obtain these degrees less often. Therefore, when estimating labor market entry models the strong positive effect of a vocational degree may already imply preceding discrimination processes. From a theoretical point of view one may even suspect stronger discrimination effects when companies decide whom to employ for a vocational education. For the next stage, the entry into paid employment, we conclude that vocational degrees for Turkish second-generation migrants pay off less. This effect points to statistical discrimination: employers trust less in a degree when the applicant is of Turkish descent.

Our conclusions depend on several factors. First, due to small sample sizes we could not control for labor market segments, although it is known that foreigners and Germans are distributed differently across segments (e.g. Seifert 1994: 57ff.) and that these segments make a difference (Winkelmann 1993). Second, the analysis implies that all vocational degrees are of the same quality. In addition, to labor migrants choosing less advantageous labor market sectors, they also might pursue vocational degrees of lower quality or lower market value. Finally, and here we can only assume, as most other researchers did, that second-generation migrants try to pursue vocational education and successful transitions into the labor market with the same motivation as the reference population. Future research should tackle these

issues, though we suspect that this will be difficult with the GSOEP as the number of cases for analyses may not be large enough.

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Table 1: Maximum Likelihood Estimates for EHA Models of Access to Vocational Programs and Completion of Company Vocational Degrees

	Access to vocational programs			Completion of dual system vocational degrees		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
	All	*Females*	*Males*	*All*	*Females*	*Males*
Turkish [1]	0.54***	0.66*	0.39***	0.68**	0.66	0.68*
Other LM [1]	0.68**	0.71	0.64**	0.97	0.96	0.95
Female	0.98			0.83**		
Intermediate sec. school degree [2]	0.75***	0.98	0.58***	1.10	1.24	1.03
Higher sec. school degree [2]	0.66***	1.00	0.44***	0.60***	0.82	0.46***
Education father (years)	0.90***	0.92***	0.89***	0.97	1.02	0.94**
ISEI father	0.99**	1.00	0.99***	1.00	0.99	1.00
Share German friends	1.40***	1.72***	1.06	1.51***	1.91***	1.32*
German language fluency	1.88***	1.76**	2.02***	1.35	1.29	1.41
N person-years in risk-set	4084	2003	2081	10671	5048	5623
χ^2	1469.87	784.90	743.91	1143.13	537.67	624.05
Rho	4235.67	2032.65	2180.81	4876.57	2165.40	2736.53

Notes: Odds-Ratios; *p<0.10, **p<0.05, **p<0.01 (two-tailed tests); [1] Reference: Germans; [2] Reference: lower sec. school degree. Person-years with inadequately completed / other degrees were excluded from this analysis as only few transition events into vocational programs and no transition event of completing a company vocational degree is reported. All models additionally include (not reported): missing indicator for ISEI father and education, 7 binary wave indicators to model 3-year period effects. The models for access to vocational programs include furthermore 3 binary indicators to model duration dependence; the models for completion of dual system vocational degrees include 8 binary indicators for duration dependence (the average process time at risk is higher in the latter). Age and age^2 are not controlled for they are obviously highly correlated with duration dependence dummies, i.e. process time under transition risk.

Table 2: Maximum Likelihood Estimates for Hybrid Models of Employment

	All		
	Model 1	Model 2	Model 3
Turkish [1]	-0.33**	-0.62***	-0.30
Other LM [1]	0.25*	-0.02	0.25
Female	-0.17	-0.18	-0.17
Lower sec. school degree [2]	0.90***	0.84***	0.83***
Intermediate sec. school degree [2]	0.95***	0.95***	0.90***
Higher sec. school degree [2]	0.73***	0.80***	0.78***
Vocational degree	0.83***	0.81***	0.80***
Vocational degree × Female	-0.01	0.01	0.01
Education father (years)		-0.09***	-0.10***
ISEI father		-0.01	-0.00
German language fluency			0.11
Share German friends			0.36*
N person-years / Individuals	12984 / 2300	12981 / 2299	12889 / 2242
χ^2	1111.00	1113.01	1115.54
AIC	10532.72	10511.06	10391.33

Notes: β-coefficients; *p<0.1, **p<0.05, ***p<0.01 (two-tailed tests); [1] Reference: Germans; [2] Reference: inadequately completed/other degree. All models additionally include (not reported): age, age^2, missing indicator for ISEI father and education, 23 binary wave indicators to model period effects, mean controls for the time-variable independent variables (i.e. for vocational degree, vocational degree × Female, Share of German friends, German language fluency), and a constant.

Table 3: Maximum Likelihood Estimates for Hybrid Models of Employment (gender specific)

	Model 1	Model 2	Model 3	Model 4
	Females	*Males*	*Females*	*Males*
Turkish [1]	-0.07	-0.66**	0.33	-0.18
Other LM [1]	0.40	-0.01	0.99***	0.24
Lower sec. school degree [2]	0.92***	0.78***	0.92***	0.79***
Intermediate sec. school degree [2]	1.10***	0.78***	1.09***	0.78***
Higher sec. school degree [2]	1.38***	0.11	1.38***	0.12
Vocational degree	0.91***	0.69***	0.91***	1.38***
Education father (years)	-0.10**	-0.09**	-0.09**	-0.09**
ISEI father	-0.00	-0.00	-0.00	-0.00
German language fluency	0.17	0.05	0.17	0.08
Share German friends	0.52*	0.39	0.51*	0.40
Vocational degree × Turkish			-0.48	-2.24***
Vocational degree × Other LM			0.34	-1.21**
N person-years / Individuals	6107 / 1050	6782 / 1192	6107 / 1050	6782 / 1192
χ^2	490.41	695.89	497.17	693.98
AIC	5365.05	4948.79	5360.28	4915.58

Notes: β-coefficients; *p<0.1, **p<0.05, ***p<0.01 (two-tailed tests); [1] Reference: Germans; [2] Reference: inadequately completed/other degree. All models additionally include (not reported): age, age^2, missing indicator for ISEI father and education, 23 binary wave indicators to model period effects, mean controls for the time-variable independent variables (i.e. for vocational degree, vocational degree × Turkish, vocational degree × Other LM, Share of German friends, German language fluency), and a constant.

Table 4: Maximum Likelihood Estimates for Hybrid Models of Employment (gender specific)

	Model 1	Model 2	Model 3	Model 4
	Females	*Males*	*Females*	*Males*
Turkish [1]	0.31	-0.47	0.79	0.14
Other LM [1]	0.78*	0.42	1.33***	0.70
Lower sec. school degree [2]	0.81***	1.14***	0.80***	1.18***
Intermediate sec. school degree [2]	1.52***	1.24***	1.53***	1.29***
Higher sec. school degree [2]	1.86***	1.74***	1.88***	1.81***
Vocational degree	1.26***	0.87***	1.23***	1.50***
Education father (years)	-0.10*	-0.11**	-0.09*	-0.11**
ISEI father	0.01	0.01*	0.01	0.02**
German language fluency	0.14	-0.03	0.15	-0.02
Share German friends	0.72**	0.52**	0.71**	0.56**
Vocational degree × Turkish			0.25	-1.67***
Vocational degree × Other LM			0.08	-1.72***
N person-years / Individuals	6107 / 1050	6782 / 1192	6107 / 1050	6782 / 1192
χ^2	455.04	463.45	457.50	475.92
AIC	5556.26	6163.62	5558.27	6135.49

Notes: β-coefficients; *p<0.1, **p<0.05, ***p<0.01 (two-tailed tests); [1] Reference: Germans; [2] Reference: inadequately completed/other degree. All models additionally include (not reported): age, age^2, missing indicator for ISEI father and education, 23 binary wave indicators to model period effects, mean controls for the time-variable independent variables (i.e. for vocational degree, vocational degree × Turkish, vocational degree × Other LM, Share of German friends, German language fluency), and a constant.