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# The role of parents' native and migrant contacts on the labour market in the school-to-work transition of adolescents in Germany

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## Abstract

This study investigates how parents' native and migrant contacts in the German labour market affect the likelihood of children obtaining a company-based apprenticeship [dual vocational education and training (VET)] after lower secondary education. Furthermore, it assesses the extent to which characteristics of parents' social networks explain ethnic inequalities in this school-to-work transition. Using longitudinal data from Starting Cohort 4 (ninth-graders) of the National Educational Panel Study, we show that the number of migrant contacts in parents' networks does not affect the outcome of adolescents' apprenticeship search. This applies to both migrant and native adolescents. However, if parents have many native contacts, the chances of adolescents obtaining a company-based apprenticeship increases in both groups. In addition, controlling for the composition of parents' networks substantially reduces the gap between natives and migrants in the transition to dual VET. Further analyses show that this is mainly due to differences in the number of native labour market contacts between native and migrant parents. Our findings indicate that differences in parents' endowment with labour market relevant social capital constitute yet another hurdle for immigrant children in the transition from school to working life.

## Introduction

Today, a large share of school-leavers in Western countries have a migration background, and their successful economic integration is a growing challenge for European societies.<sup>1</sup> Many studies have shown that adolescents with a migration background face considerable disadvantages in the transition from school to the labour market compared to native youths, even when controlling for standard explanatory variables such as socio-economic background and educational attainment (De Vries and Wolbers, 2004; Helland and Støren, 2006; Kalter and Kogan, 2006; Silberman, Alba and Fournier, 2007; Diehl, Friedrich and Hall, 2009; Beicht and Walden, 2017). To better understand the reasons for these ethnic inequalities and avoid premature interpretations of the residual effects of ethnic origin, it is indispensable to gain more insight into the mechanisms that influence the school-to-work transition and produce these ethnic gaps, such as differences in the endowment with and the effectiveness of

origin- and host country-specific capital (Esser, 2004; Kalter, 2006; Koopmans, 2016).

Endowment with host country-specific social capital is highlighted as a crucial determinant for labour market success. It is often claimed that, in this context, native contacts are more helpful than migrant contacts (Alba and Nee, 2003; Esser, 2004; Alba, 2008; Lancee, 2012; Kalter and Kogan, 2014).<sup>2</sup> Networks of migrants include fewer natives on average than networks of natives due to a general tendency to homophily in social networks (McDonald, 2011; Lancee, 2012). Thus, differences in ethnic network composition are a likely driver of ethnic disadvantages in the labour market. To date, however, we know little about the role of native and migrant network contacts in the school-to-work transition and in the emergence of ethnic inequalities in this transition (Kalter, 2006; Kogan, Matković and Gebel, 2013; Verhaeghe, Li and van de Putte, 2013; Roth, 2014, 2018; Verhaeghe, van der Bracht and van de Putte, 2015; Hunkler, 2016;

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Hällsten, Edling and Rydgren, 2017). This is a serious gap, as it can be assumed that social capital is highly important in this transition because school-leavers do not usually have work experience. Consequently, they lack information about the job market, and it is difficult for employers to assess young applicants' productivity. Labour market contacts can be helpful in this context by providing information about vacancies or recommending potential candidates to employers. In this respect, parents' social contacts are expected to be particularly relevant because they usually have work experience and because parents should be strongly motivated to draw on their social networks to help their children (Moerbeek and Flap, 2008; Roth, 2018). The two key objectives of our study are therefore, first, to investigate whether parents' native and migrant labour market relevant contacts affect the school-to-work transition of adolescents and, second, how the characteristics of parents' social networks account for ethnic inequalities in this transition. We therefore provide new evidence on the so far widely neglected role played by intergenerational transmission of social capital in the school-to-work transition of native and migrant adolescents and on the reasons for associated ethnic inequalities.

Our analyses are based on the first five waves of Starting Cohort 4 (SC4; ninth-graders) of the German National Educational Panel Study (NEPS). The longitudinal nature of these data enables us to use parental social network measures which were surveyed before the adolescents' transition to the labour market, i.e. at a time when most children had usually not yet accumulated labour market-relevant capital themselves. Thus, reverse causality is less likely to hamper our analyses than for most previous studies that found cross-sectional correlations between labour market success and ethnic network composition (Mouw, 2006; Lancee, 2012). Moreover, most previous studies did not determine whether differences in the usefulness of native and migrant contacts in the job search were due to the ethnicity or socio-economic position of contacts (Lancee, 2012). With the NEPS data, we can overcome this limitation by investigating the influence of parents' native and migrant contacts on the school-to-work transition while controlling for the average socio-economic status of contacts. To the best of our knowledge, this study is the first to analyse these effects using nationwide longitudinal panel data while simultaneously considering the networks' socio-economic composition.

In our empirical analyses, we focus on entry into company-based vocational education and training ('dual VET') in Germany, which combines practical and theoretical training. While the education system and labour market are clearly separated in many countries, in Germany, the dual VET system links the two.

To enter into dual VET, school-leavers must apply to companies for an apprenticeship position. Upon completion of their apprenticeship, most trainees start a regular job in the same company (Bundesministerium für Bildung und Forschung, 2019). Consequently, for many school-leavers in Germany, the actual transition from school to employment already takes place when they enter into dual VET. Adolescents who fail to obtain a training place are subsequently likely to face disadvantages on the labour market. At the same time, only 38 per cent of young adults with a migration background (compared to 61 per cent of native Germans) aged 30–35 years possess a VET degree. Furthermore, 34 per cent of them (compared to 10 per cent of native Germans) have neither a university degree nor a VET qualification (Autorengruppe Bildungsberichterstattung, 2018). Given the importance of formal vocational qualifications for successful integration into the German labour market, the transition to VET deserves special attention when studying ethnic labour market inequalities (Kalter and Granato, 2007; Hartmann, 2016; Beicht and Walden, 2019).

In the next section, we discuss theoretical considerations regarding social capital, parents' ethnic network composition, and the school-to-work transition. We then take a closer look at the German context and derive our expectations. After describing the data and the analytical approach, we present our results, including additional analyses and robustness checks. The paper concludes with a discussion and implications for further research.

## Social Capital, Ethnic Network Composition, and Labour Market Success

There is a broad consensus that social capital, i.e. resources and information individuals can access via their social contacts, can be helpful for finding a job (Burt, 1992; Granovetter, 1995; Lin, 2001). For example, social contacts can provide information about vacancies and increase the probability of a successful application by providing internal information about companies. Social capital may also generate practical support, with social contacts providing assistance with the application process, such as writing applications or preparing for job interviews. Social contacts can also exert influence on an employer's hiring decision by putting in a good word for applicants. Employers, in turn, can use their social networks to gain information about applicants and find suitable employees. In sum, social capital can broaden the choice set of jobseekers and increase their knowledge about their alternatives, contributing to higher chances of success and helping them find a better job fit and more stable employment (Burt, 1992; Granovetter, 1995; Lin, 2001; Dustmann *et al.*,

2016; Hällsten, Edling and Rydgren, 2017). Besides these positive aspects, social capital can also have negative consequences. For example, outsiders with fewer helpful labour market contacts might be excluded from access to (advantageous) jobs. Furthermore, pressure to conform within social networks can have negative consequences if it prevents individuals from accessing promising options outside their network or if downward-levelling norms prevail in the network, undermining labour market success (Wiley, 1967; Portes, 1998).

We can assume that adolescents are particularly dependent on support from beneficial labour market contacts in the school-to-work transition as school-leavers usually have no previous work experience. They consequently often lack necessary information about the functioning of the labour market, application processes, and job vacancies. Employers, in turn, have little information about the productivity of applicants if the applicants do not have specific work experience. General education certificates provide only limited information about an individual's suitability for certain vocations (Hunkler, 2016). In such a situation, it is particularly likely that employers use referrals from their social network to select suitable candidates and that school-leavers draw on social contacts for information and support. Parents and their social networks should be of key importance, as they usually already have labour market experience (Moerbeek and Flap, 2008; Roth, 2018). Furthermore, we can assume that many parents are eager to help their children by turning to their social networks to find out about apprenticeship vacancies or to connect with potential training companies. Thus, school-leavers whose parents lack useful labour market contacts might be disadvantaged.

Generally, the larger the parents' network, the higher the chances should be that someone in the network will provide their children with useful information and support during the job search. However, as pointed out above, not all labour market contacts are equally helpful. As career-enhancing resources are largely specific to the host country, there are good reasons to assume that migrant contacts are less helpful in the labour market than native contacts (Alba and Nee, 2003; Esser, 2004; Kalter, 2006; Alba, 2008; Lancee, 2012; Kalter and Kogan, 2014). This is because natives generally hold more favourable positions in the labour market than migrants, most companies are run by natives, and some employers show discriminatory behaviour (Alba and Nee, 2003; Esser, 2004; Kalter and Granato, 2007; Alba, 2008; Kalter and Kogan, 2014; Scherr, 2015, Silva, 2018). Thus, migrant contacts tend to have less information about vacancies, hiring procedures, and working conditions, and employee referrals from migrants might be less influential. Furthermore,

migrant contacts might be less helpful than native contacts during the application process (e.g. support with writing an application) as they are often less informed about the functioning of the labour market and have poorer language skills (Kanas *et al.*, 2012; Kretschmer, 2019). Following this line of reasoning, we can hypothesize that for both native and migrant adolescents, primarily native labour market contacts of parents are helpful for a successful school-to-work transition, while parents' migrant contacts are less useful. For migrants, co-ethnic contacts could even hamper economic integration and success, as they might provide only limited information, access to mostly lower-status positions, and restrict upward mobility, entrapping group members in the lower strata of society (Wiley, 1967; Lancee, 2012; Kalter and Kogan, 2014). As a result, a general tendency to homophily in social networks could result in migrant parents having a lower number of native contacts in their networks, contributing to differences in the success of adolescents with and without a migration background in the school-to-work transition (McDonald, 2011; Lancee, 2012).

However, it has also been argued that ethnic minorities can benefit from migrant network contacts under certain conditions (Portes and Zhou, 1993; Zhou, 1997), such as in ethnic niche economies. In such economies, co-ethnic contacts tend to be well informed about job openings and are in direct contact with potential employers, helping ethnic minorities to gain access to the (niche-specific) labour market. Furthermore, increased solidarity in co-ethnic networks might increase commitment to support other network members with the job search by sharing relevant information or by recommending them to an employer.

Empirically, we find both studies showing positive associations and studies showing negative associations between ethnic network composition and labour market success (cf. Kalter and Kogan, 2014), suggesting that the direction of the effect depends on the context. In the following, we therefore take a closer look at the school-to-work transition in Germany and derive specific expectations about the influence of parents' native and migrant contacts on children's success in obtaining a dual VET position in Germany and on ethnic differences in this transition.

### **Migration Background and Social Capital in the Transition from Lower Secondary Education to VET in Germany**

In Germany, after lower secondary education (predominantly after Grade 10), students decide whether to continue general education in order to obtain a higher school leaving qualification or to start a fully qualifying apprenticeship, most of which are company-based.

Those who are neither qualified to continue general education nor have found a VET position participate in prevocational measures with the aim of applying for such a position again 1 year later (Solga *et al.*, 2014).<sup>3</sup> Overall, around half of an age cohort starts vocational training in the company-based dual system (Bundesministerium für Bildung und Forschung, 2019). Dual vocational training combines practical in-company training for 3–4 days a week with theoretical training at a vocational school for up to 2 days a week. To obtain such an apprenticeship, school-leavers must apply directly to a company that offers training. Companies bear the training costs and pay apprentices a small remuneration (Solga *et al.*, 2014). As the search and placement process for a dual apprenticeship is very similar to the matching process between applicants and employers in the labour market, we can assume that the general search and allocation processes for a (first) job also apply for a dual apprenticeship (Hunkler, 2016; Roth, 2018).<sup>4</sup>

About one-third of adolescents in Germany have a migration background. These adolescents grow up in poor households with unemployed or formally low-skilled parents disproportionately often. Moreover, they have pronounced disadvantages in the general education system (Autorengruppe Bildungsberichterstattung, 2018) and are substantially less successful than natives in obtaining an apprenticeship (Diehl, Friedrich and Hall, 2009; Beicht and Walden, 2017). The largest gap in the transition to dual VET can be found between first-generation migrants and natives, but also second-generation migrants and those with a mixed parental background have significant disadvantages, which remain even after controlling for socio-economic background and educational attainment (Beicht and Walden, 2019).

Previous studies have demonstrated that parental support and parental social contacts are important for children's success in obtaining an apprenticeship and that ethnic minorities receive less help from their social network during their search for an apprenticeship (Beicht and Granato, 2010; Roth, 2014, 2018; Hoening, 2019). However, to our knowledge, there are few insights into the role of the ethnicity of contacts at this transition. The only study to date that used longitudinal panel data to investigate the role of parents' native and migrant contacts was based on a small, regionally limited sample and found no effect of the ethnic composition of parents' networks on migrants' success in obtaining an apprenticeship (Roth, 2014). Nevertheless, there are several reasons for assuming that the usefulness of native and migrant contacts might differ with regard to the transition to dual VET. First, it should be considered that the large majority of dual apprenticeships are offered by

companies run by natives (Leicht and Werner, 2014). Thus, it is unlikely that migrant contacts can provide minority school-leavers with many VET opportunities in an ethnic niche economy. Second, migrants are more often unemployed, work more often in semi- or unskilled jobs, and have less knowledge about the structure of the education and VET system (Kalter and Granato, 2007; Roth, 2014; Kretschmer, 2019). Consequently, migrant contacts might be less helpful in the dual VET search or even discourage adolescents from taking up more advantageous apprenticeships, e.g. by providing information about available unskilled jobs. Third, discrimination against ethnic minorities in the apprenticeship market by training companies (Scherr, 2015) may indicate that employee referrals by migrants are less influential. Finally, research in the general German labour market suggests that native contacts but not migrant contacts have positive effects on job opportunity and job quality (Lancee, 2012). Overall, it seems therefore likely that non-native contacts are less helpful in the dual VET search, and that a lower number of natives among migrants' contacts might partially explain why they are less successful in the transition to dual VET.

## Expectations and Hypotheses

Based on the theoretical assumptions discussed above and previous empirical findings, we expect parents' native contacts but not their migrant contacts to be advantageous for children's transition to dual VET. This leads us to the following hypotheses:

We assume that adolescents are more likely to obtain a dual apprenticeship if their parents have more native labour market contacts (Hypothesis 1a). In contrast, we do not expect a higher number of parents' migrant labour market contacts to positively influence adolescents' transition to dual VET (Hypothesis 1b). As we expect ethnic minorities to have a lower number of natives in their social networks than natives, we further assume that the parents' network composition partially explains ethnic gaps in entering dual VET (Hypothesis 2a). Given that the parents of first- and second-generation migrant adolescents were born abroad, they are likely to have the fewest native contacts. As the social networks of spouses overlap, we expect the number of native contacts in the parental networks of adolescents with one native and one foreign-born parent to be larger, but still smaller than in the parental networks of native adolescents. Owing to the assumed differences in the number of parents' native contacts between migrant generations, we assume that the reduction of the ethnic gap is more pronounced for first- and second-generation migrants

than for migrant adolescents with one native and one foreign-born parent (Hypothesis 2b).

### Data, Variables, and Analysis Strategy

To test our assumptions, we use data from SC4 of the German NEPS for the empirical analyses (Blossfeld, Roßbach and von Maurice, 2011).<sup>5</sup> In this starting cohort, ninth-graders (mostly 15 years old) at regular schools were selected via stratified cluster sampling. In selected schools, one or two ninth grade classes were chosen, from which all students were sampled (Skopek, Pink and Bela, 2013).<sup>6</sup> We use the first five panel waves. The first and second wave took place at the beginning and end of the 2010/2011 school year (fall/winter 2010 and spring/summer 2011); Waves 3 and 4 were conducted in spring and summer 2012, and Wave 5 in winter 2012/2013. In addition, the parent mainly responsible for questions related to the target child's education (mostly mothers) was surveyed in the second half of the school year 2010/2011.

As our research focuses on differences in securing a dual apprenticeship, we consider only adolescents who were engaged in a search for an apprenticeship. As almost all students attending the most demanding secondary school type (*Gymnasium*) in Wave 1 continued general schooling after lower secondary education instead of searching for an apprenticeship, we exclude this group from our analyses.<sup>7</sup> Moreover, some students attending other secondary school types also continued general schooling and therefore did not search for an apprenticeship at this educational stage. Thus, we include only students who indicated that they had applied for an apprenticeship in Wave 3 or 5. As only a subsample was asked this question, we also include adolescents with missing values who indicated in Wave 2 or 4 that they were searching or planning to search for an apprenticeship in the same school year.

Our dependent variable measures whether adolescents obtained a dual VET position after lower secondary schooling. As only few students enter VET after Grade 9, our measure is based on the situation in December 2012, several months after students finished Grade 10 in summer 2012.<sup>8</sup> We choose this threshold because most VET programmes start between July and October, so adolescents who are not in VET at the end of a year usually have to wait until the summer of the following year. At the same time, the times for starting dual apprenticeships are usually set by the companies; thus, if adolescents start dual VET earlier in fall or summer, this does not necessarily imply a more successful transition. All respondents who were not in dual VET (i.e. were participating in pre-vocational measures, attending full-time vocational schools, continuing general education, or doing something else)

represented the reference group and are coded as '0' on our binary dependent variable.

To test whether parents' native contacts or parents' migrant contacts are more important for finding an apprenticeship, we use information from a position generator (Lin and Dumin, 1986). This generator is often used and considered reliable and valid for measuring access to labour market relevant social capital (Hällsten, Edling and Rydgren, 2017; Schulz, Horr and Hoenig, 2017; Roth, 2018). The position generator in NEPS includes 13 occupations, which differ regarding educational demands, earnings, and associated socio-economic status, covering the full range from lower to higher social positions. For each of these occupations, parents had to indicate whether someone in their social network was working in this profession in Germany and specify this person's country of origin. With the data at hand, we can measure the number of positions named for persons with a native background and those named for persons with a migration background, thereby approximating the native and migrant labour market-relevant contacts. The position generator further enables us to control for the social composition of parents' networks by including the average socio-economic status (ISEI) of the named occupations. This allows us to analyse the effects of parents' migrant and native contacts net of socio-economic network composition.

We define adolescents as having a migration background if they or at least one of their parents was born outside of Germany and distinguish between four groups: natives, adolescents born outside of Germany (first generation), German-born adolescents with two parents born outside of Germany (second generation), and German-born adolescents with one German-born parent and one parent born outside of Germany (2.5 generation). In our multivariate analyses, we control for relevant variables that might influence the apprenticeship search outcomes and distort the estimated effects of parents' social capital. As we are interested in the effects of parents' social contacts on adolescents' success in obtaining a dual apprenticeship net of their potential effects on educational achievement, we control for the type of school attended in Grade 9, the mathematics and German marks taken from the school report, and an ability score derived from a factor analysis of the standardized scores of six different performance tests (mathematics, sciences, information and communication technologies, spelling, reading rate, and reading comprehension). To control for social background, which differs between ethnic groups and might influence both the success in securing a dual apprenticeship and the composition of parents' social contacts, we include parents' highest educational attainment and highest occupational status (ISEI-08),<sup>9</sup>

whether the child was living in a single-parent household and the number of books in the household. Finally, we control for respondents' gender. In addition to individual characteristics, we also control for possible regional variations by including federal state fixed effects. All independent variables were collected in Grade 9 to ensure that they chronologically precede the dependent variable. Overall, the NEPS data provide us with a high number of cases, longitudinal information on the school-to-work transition, and exceptionally refined information from parents on their labour market contacts. Furthermore, they allow a comprehensive control of potentially confounding variables.

## Analytical Approach

To assess the effect of parents' social networks on children's success in finding a dual apprenticeship, we run linear probability models for students participating in dual VET in December 2012 on their parents' social network characteristics measured in 2011 with cluster-robust standard errors at the school-class level.

Investigations on how social capital influences the structural success of an actor are subject to the well-known risk that correlations result not only from the causal effects of social capital but also from unobserved heterogeneity and reverse causality due to endogenous friendship formation (Mouw, 2006). In fact, most studies in this field are cross-sectional and have the problem that labour market positions can also affect network characteristics. This problem should be less severe in our case, as our independent network variables were clearly collected before our dependent variable. Moreover, it is unlikely that parents' network composition is affected by their child's chances of finding a VET place before the child has even left general education. Accounting for unobserved heterogeneity in survey data is generally

difficult, as it is not possible to control for all potentially confounding factors. However, since the data enable us to consider many relevant individual-level variables and address possible regional variations by including federal state fixed effects in our analyses, we can rule out many potential sources of error.<sup>10</sup> Overall, combined with our research strategy, the NEPS data offer significantly better opportunities to approximate causal effects than data from most previous studies.

Like in other studies, missing information in the NEPS data is an issue. This particularly applies to information on parents' networks. While it is an exceptional feature of the data that they contain detailed network information from parent interviews, the disadvantage is that only about 60 per cent of parents participated in the survey. Consequently, we restrict our analysis sample to the cases for which we have a parent interview in Wave 1. To address the problem of item nonresponse, we multiply impute missing information on the single variables and create 20 data sets using the official Stata mi system (StataCorp, 2019). We consider all dependent and independent variables as well as additional predictors for the imputation and later exclude cases with missing information on the dependent variables from our analyses (MID method; Von Hippel, 2007). We impute data for migrants and natives separately and thus also exclude the few cases with missing information on ethnic background. All analyses are based on these multiply imputed data sets.<sup>11</sup>

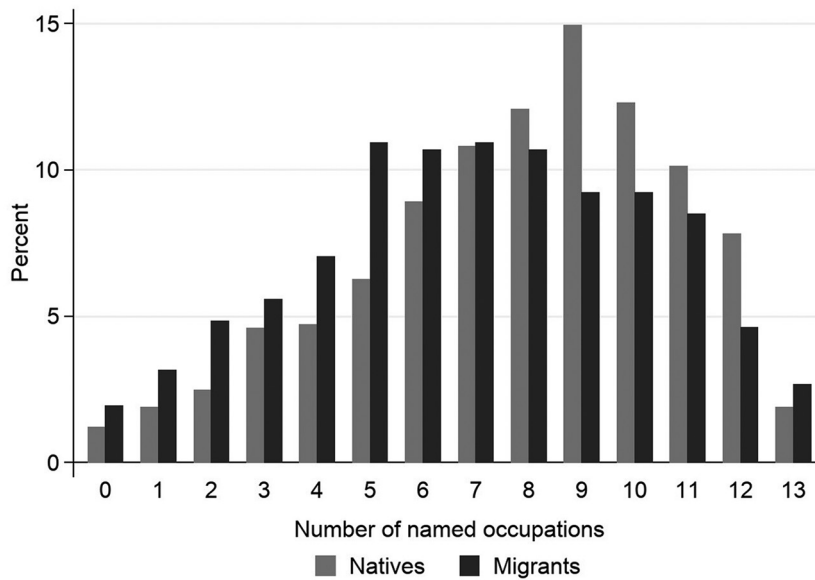
## Empirical Results

Table 1 provides descriptive information about the dependent and key independent variables for natives and migrants (Supplementary Table A1 in the Appendix contains descriptive information before multiple imputation): 51 per cent of the native adolescents

**Table 1.** Share of adolescents in dual VET (in per cent) and parents' social network indicators

	All	Natives	Migrants			
			All	1st gen.	2nd gen.	2.5 gen.
Share of adolescents in dual VET (in per cent)	48.3	51.3	35.9	33.0	32.3	40.4
Number of named occupations						
Natives	6.9	7.6	4.3	3.4	3.1	5.8
Migrants	0.7	0.3	2.7	3.3	3.9	1.3
Total number of named occupations	7.7	7.8	7.0	6.7	6.9	7.2
Average ISEI of all named occupations	55.5	55.5	55.2	54.3	55.8	55.0
Number of cases	2,641	2,126	515	106	186	223

Source: National Educational Panel Study (NEPS); Starting Cohort 4, authors' own calculations. Missing data are handled using multiple imputation (MID method).



**Figure 1.** Distribution of number of named contacts by adolescents' migrant background. *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Distributions before imputation.

who applied for a VET position after lower secondary education were in dual VET in December 2012 compared to only 36 per cent of the migrant adolescents. While 2.5 generation migrants come closest to natives, they are still disadvantaged.

Regarding the standard indicators of social capital which are often derived from the position generator, such as the total number of contacts or the average status of named occupations, we find only minor differences between the network characteristics of migrant and native parents and no substantial differences between the migrant generations. Taking migrant and native contacts together, we see that migrants have an only slightly smaller network (7.0 named occupations) than natives (7.8 named occupations; [Figure 1](#) shows the distributions of the numbers of named contacts). Moreover, the average socio-economic status of all named occupations is similar for natives (55.5) and migrants (55.2), as is the case for the distribution of average status (cf. [Figure 2](#)). While this similarity may be surprising at first sight, one should bear in mind that our analysis sample includes only parents of adolescents who did not attend the most prestigious secondary school type. Moreover, our results are in line with the findings of [Van Tubergen and Volker \(2015\)](#) for the Netherlands.

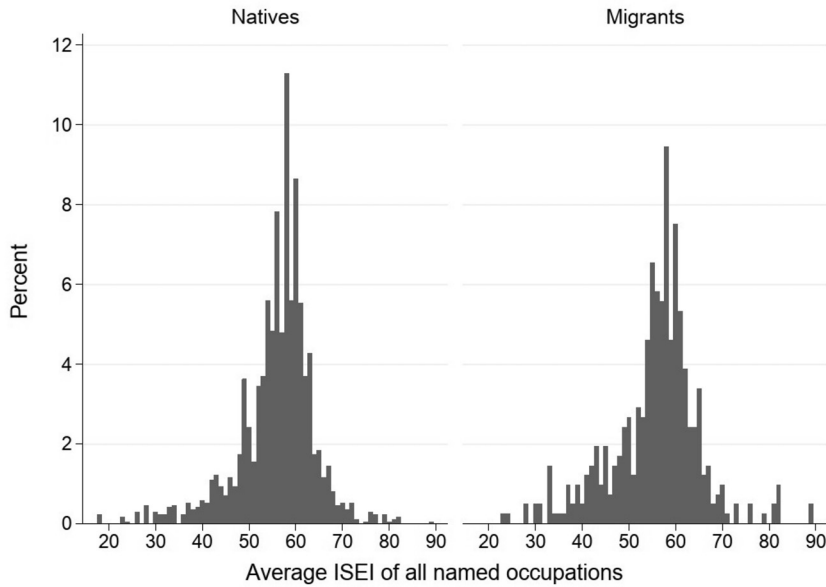
In contrast, the ethnic network composition differs substantially. The occupational networks of native parents are made up almost entirely of natives. On average, they mention 7.6 native contacts and only 0.3 migrant contacts. Migrant parents report a more

balanced network in terms of migration background, with 4.3 native and 2.7 migrant contacts ([Figures 3 and 4](#) show the distributions of the numbers of native and migrant contacts). While parents of first- and second-generation migrants have a similar number of native and migrant contacts, the parents of migrant adolescents of the 2.5 generation have considerably more native contacts, as expected.

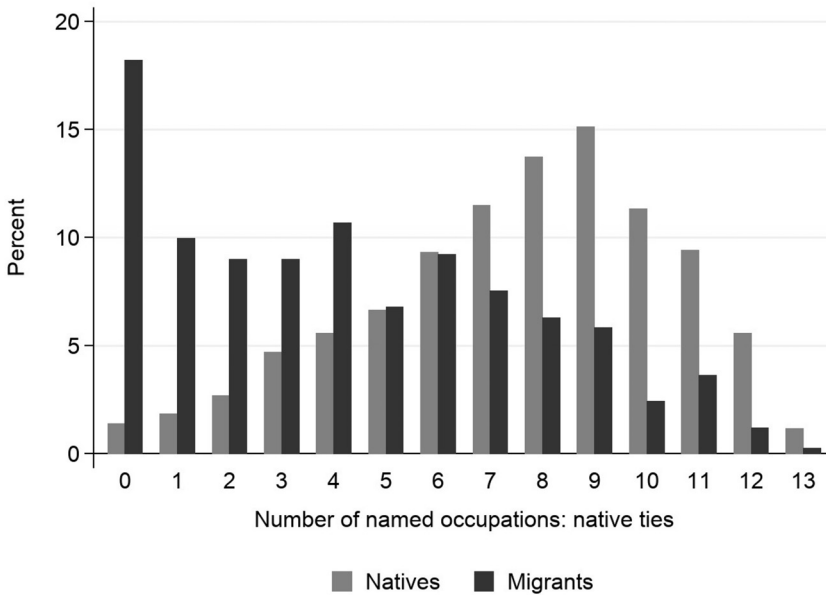
The first question we address in our multivariate analyses is whether the number of parents' native or migrant labour market contacts affects the adolescents' success in securing a dual apprenticeship. [Table 2](#) reports coefficients from linear probability regressions of the adolescents being in dual VET in December 2012 on their migrant background and their parents' social network characteristics measured in 2011. The models contain all relevant control variables (coefficients can be found in [Supplementary Table A2](#) in the Appendix).<sup>12</sup>

Model 2 shows that the number of migrant contacts has no statistically significant effect on an adolescent's likelihood of being in dual VET, while having a high number of native contacts has a statistically significant positive effect. This is in line with Hypotheses 1a and 1b. Furthermore, the size of the coefficient is substantial, considering that the likelihood of entering dual VET is around 14 percentage points higher for adolescents whose parents have a native contact in each of the 13 occupations in the position generator than for adolescents whose parents do not have a native contact in any of these occupations. Concerning social





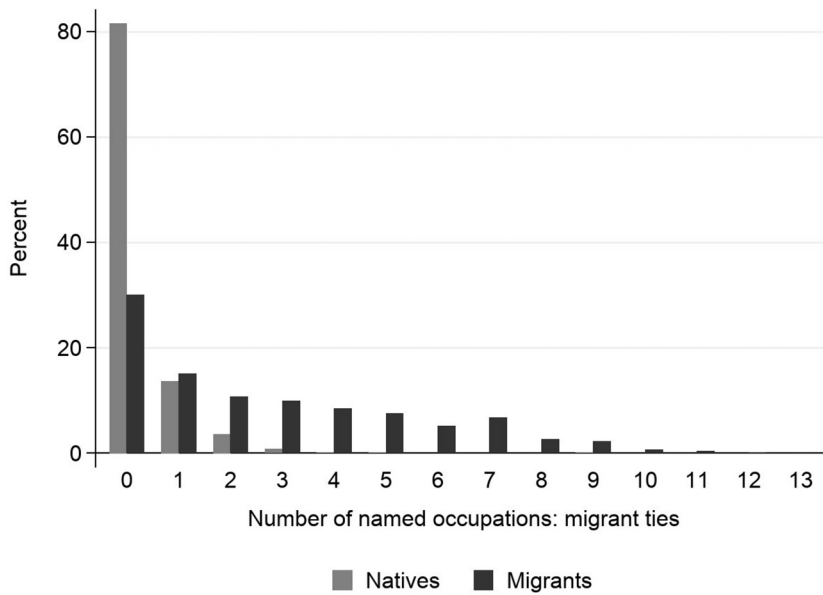
**Figure 2.** Distribution of average ISEI of contacts by adolescents' migrant background. *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Distributions before imputation. ISEI values are rounded to integers.



**Figure 3.** Distribution of number of native contacts by adolescents' migrant background. *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Distributions before imputation.

composition, we find a significant negative effect of the average socio-economic status of all named occupations. This is consistent with the findings of Roth (2018), who reported that primarily parents' social contacts with persons working in lower-status occupations

that require a vocational training certificate help adolescents obtain a dual apprenticeship after lower secondary education. The direction and strength of the coefficients are similar in Models 3a and 3b, in which natives and migrants are analysed separately, with the



**Figure 4.** Distribution of number of migrant contacts by adolescents' migrant background. *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Distributions before imputation.

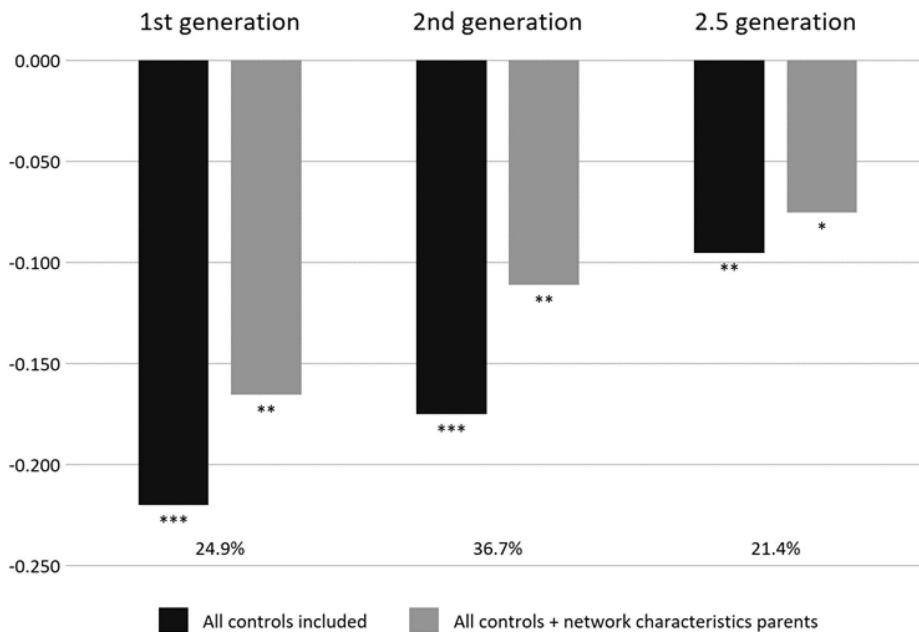
**Table 2.** Selected coefficients from linear probability regressions of being in dual VET in December 2012

	Model 1	Model 2	Model 3a (natives)	Model 3b (migrants)
Migrant generation (ref.: natives)				
First generation	-0.220*** (0.045)	-0.165** (0.050)		
Second generation	-0.175*** (0.033)	-0.111** (0.042)		0.061 (0.054)
2.5 generation	-0.095** (0.033)	-0.075* (0.034)		0.124* (0.059)
Number of named occupations				
Natives		0.011** (0.004)	0.010* (0.004)	0.014+ (0.008)
Migrants		-0.005 (0.007)	-0.018 (0.015)	0.003 (0.010)
Average ISEI of all named occupations		-0.003* (0.001)	-0.003* (0.001)	-0.003 (0.002)
Number of cases	2,641	2,641	2,126	515

*Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Missing data are multiply imputed (MID method). Federal state fixed effects, cluster robust standard errors (in parentheses). All models contain the control variables described above. Reference category for migrant generation in Model 3b: first generation. Significance levels: \* $P < 0.1$ ,  $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

exception of the negative coefficient of migrant contacts for natives. As the native parents in our sample have hardly any migrant contacts, we should not over-interpret this exception. For migrants, there are virtually no effects of migrant contacts. The coefficients for

the number of native contacts are similarly strong for migrants and natives, but not statistically significant at the 5 per cent level for migrants, which can most likely be attributed to their substantially smaller number in our sample.



**Figure 5.** Native-migrant gaps in probability of entering dual VET. *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations, cluster-robust standard errors. Missing data are multiply imputed (MID method). Significance levels: \* $P < 0.1$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$ , \*\*\*\* $P < 0.001$ .

Turning to the ethnic inequalities in the school-to-work transition, we can see from Model 1 that migrants are considerably less likely to obtain a dual training position than natives. The difference to natives is most pronounced for first-generation migrants and least pronounced for youths with only one foreign-born parent. This is in line with previous research (e.g. [Beicht and Walden, 2019](#)). In Model 2 and [Figure 5](#), we see that differences in parents' social networks account for one-quarter of the gap between natives and first-generation migrants, one-third of the gap between natives and second-generation migrants and around one-fifth of the gap between natives and migrant youths with only one foreign-born parent. Additional analyses (cf. [Figure A1](#) in the Appendix and [Supplementary Table A4](#) in the Appendix) show that the reduction in inequalities between natives and the three migrant generations is mainly due to differences in the number of native contacts.<sup>13</sup> These substantial reductions in ethnic inequalities confirm Hypotheses 2a and 2b. Overall, we conclude that parents' native contacts in the labour market increase the likelihood of children obtaining a dual training place, while migrant contacts have no significant influence on their success. This seems to apply to both native and migrant adolescents. Given that we control for differences in the socio-economic composition of networks, our results reveal the importance of parents' endowment with host country-specific social capital for securing a dual

training place for children, and for the explanation of ethnic inequalities in the school-to-work transition.

### Additional Analyses and Robustness Checks

Although our analyses are based on strong data that allow us to overcome several shortcomings of previous studies, some important aspects are not considered in our main analyses due to the limited number of occupations in the position generator and of migrant respondents in our sample. While we are aware of these limitations, we nevertheless consider it important to examine these aspects in additional analyses in order to obtain an indication whether the conclusions drawn from the main analyses may need to be adjusted.

As argued in the theory section, on the one hand, especially co-ethnic (rather than other non-native) labour market contacts may help migrants to find a dual VET position due to a high degree of solidarity in co-ethnic networks and the role of ethnic niche economies. On the other hand, such contacts could result in migrant adolescents pursuing occupations in the lower strata or even divert them from qualifying training into unskilled work. Therefore, not considering co-ethnic contacts could mask a more differentiated picture. To tackle this issue, we further divide the number of migrant labour market contacts into co-ethnic contacts (i.e. with the same country of origin as the interviewed

**Table 3.** Different categorizations of parents' social network characteristics and migration background

	All	Natives	Migrants			
			All	First generation	Second generation	2.5 generation
<i>Robustness check 1</i>						
Number of named occupations: natives	6.9	7.6	4.3	3.4	3.1	5.8
Number of named occupations: migrants						
Own background	0.4	–	1.8	1.9	3.0	0.8
Other background	0.4	0.3	0.8	1.4	0.9	0.6
ISEI of apprenticeship	34.5	34.6	33.9	31.1	35.3	33.9
<i>Robustness check 2</i>						
Number of named occupations: natives						
Lower-status occupation	4.1	4.5	2.5	1.9	1.7	3.5
Higher-status occupation	2.8	3.0	1.8	1.5	1.4	2.4
Number of named occupations: migrants						
Lower-status occupation	0.4	0.1	1.6	2.0	2.2	0.8
Higher-status occupation	0.3	0.1	1.1	1.3	1.6	0.6
<i>Robustness check 3</i>						
Natives	2,126	2,126	–	–	–	–
Turkey/MENA	125	–	125		82	43
Former Soviet Union	107	–	107		107	
Other Europe	191	–	191		81	110
Other Origin	92	–	92		37	55

Source: National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Missing data are handled using multiple imputation (MID method). Data for all three robustness checks have been imputed separately. Robustness check 2: Higher-status occupations: engineer, doctor, social worker, legal practitioner, translator, teacher; lower-status occupations: nurse, warehouse/transport worker, sales clerk, police officer, bank clerk, car mechanic, optician.

parent or his/her partner) and other migrant contacts (i.e. with another country of origin). In addition, we test whether the ethnicity of parents' contacts affects the occupational status (ISEI) of adolescents' dual apprenticeship. Descriptive results from Table 3 show that migrants' non-native labour market contacts are predominantly co-ethnic. On average, migrants mention less than one other non-native labour market contact (descriptive distributions regarding all robustness checks can be found in Table 3). The multivariate results in Table 4 (Models 1 and 2) show that neither the number of co-ethnic contacts nor the number of other non-native contacts significantly influences the likelihood of finding a dual training place. In addition, considering co-ethnicity does not help to further explain the gap between native and migrant youths. Moreover, the number of the different types of contacts has no significant effect on the ISEI of the obtained apprenticeships (Models 3, 4, and 5).

These additional results further emphasize that labour market relevant social capital is host country-specific, even more so as these effects persist when the socio-economic composition of the network is

controlled for. However, when we control for the average ISEI of a network in addition to the number of contacts in our main analyses, we assume that the effect of a contact's socio-economic status would be the same for native and migrant contacts. Furthermore, as the position generator only includes a finite number of contacts from different occupations, the variation in the average ISEI of the contacts decreases as the number of contacts increases. We address these issues by differentiating between the number of native and migrant contacts with a lower and higher status. Models 1 and 2 in Table 5 show that only native contacts with a lower occupational status help adolescents to find an apprenticeship. These findings are consistent with those of Roth (2018) on the role of the socio-economic network composition and those of Lancee (2012) on the role of the ethnicity of contacts. Moreover, they go even further by showing that migrant contacts are less influential than native contacts, even if the contacts work in the labour market segment in which adolescents are searching for an apprenticeship. This supports our conclusion that the positive effect of parents' native contacts in our main

**Table 4.** Selected coefficients from linear probability regressions of being in dual VET in December 2012 and from OLS regressions predicting ISEI of dual VET in December 2012

	Dual VET in December 2012		ISEI of apprenticeship position		
	Model 1	Model 2 (migrants)	Model 3	Model 4	Model 5 (migrants)
Migrant generation (ref.: natives)					
First generation	-0.166** (0.051)		0.552 (2.167)	0.793 (2.201)	
Second generation	-0.110* (0.046)	0.071 (0.056)	2.807* (1.315)	3.231* (1.354)	2.395 (1.960)
2.5 generation	-0.075* (0.034)	0.131* (0.058)	0.635 (0.976)	0.728 (0.990)	-0.432 (2.344)
Number of named occupations					
Natives	0.011** (0.004)	0.013* (0.008)	-0.053 (0.099)	-0.054 (0.099)	0.154 (0.272)
Migrants			0.059 (0.246)		
Migrants: own background	-0.006 (0.010)	-0.001 (0.011)		-0.154 (0.316)	-0.128 (0.388)
Migrants: other background	-0.004 (0.009)	0.012 (0.014)		0.224 (0.308)	0.464 (0.446)
Average ISEI of all named occupations	-0.003* (0.001)	-0.003 (0.002)	0.068* (0.037)	0.069* (0.037)	0.101 (0.087)
Number of cases	2,643	515	1,269	1,269	184

*Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Missing data are multiply imputed (MID method). Federal state fixed effects, cluster robust standard errors (in parentheses). All models contain the control variables described above. Reference category for migrant generation in Models 2 and 5: first generation. Significance levels: \* $P < 0.1$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$ , \*\*\*\* $P < 0.001$ .

analyses is due to the host-country specificity of social capital.

A further restriction of our data is that we cannot simultaneously differentiate between single migrant generations and different groups of origin, which is why we concentrated on the migrant generations in our main analyses. However, to check the robustness of our results, we divide the group of immigrant youths into those with two foreign-born parents (i.e. the first and second generations) and those with one foreign-born and one German-born parent (i.e. the 2.5 generation). We combine this broader categorization of migrant generations with the following origin groups: (i) Turkey and Middle East and Northern Africa, (ii) the Former Soviet Union,<sup>14</sup> (iii) other Europe, and (iv) those with another migrant background. The results from Models 3 and 4 in Table 5 show that using this more refined measurement of migration background does not substantially alter the findings in Table 2.

In sum, our additional analyses corroborate the findings from our main analyses and are in line with the theoretical expectations. However, due to the limited number of occupations in the position generator and

of migrant respondents in our sample, the further subdivisions in our additional analyses lead to categories with only few cases (cf. Table 3) and to estimates with a considerable degree of uncertainty. Thus, the results of our additional analyses must be interpreted with caution.

## Conclusion and Discussion

In this study, we investigated the role of parents' native and migrant contacts in adolescents' transition from lower secondary education to company-based VET in Germany and in the emergence of ethnic gaps in this transition. To this end, we analysed a nationwide longitudinal data set, which allowed us to measure parents' native and migrant labour market contacts before their children's transition from school to working life and to control for the social network composition and a large number of additional important covariates. Our analyses indicate that children are more likely to obtain a dual apprenticeship when their parents have more native labour market contacts. Furthermore, differences in parents' host country-specific social capital

**Table 5.** Coefficients from linear probability regressions of being in dual VET in December 2012

	Model 1	Model 2 (migrants)	Model 3	Model 4 (migrants)
<i>Operationalization of social network indicators</i>				
Number of named occupations: natives			0.010** (0.004)	0.011 (0.008)
Lower-status occupations	0.029*** (0.006)	0.029+ (0.015)		
Higher-status occupations	-0.019** (0.007)	-0.010 (0.017)		
Number of named occupations: migrants			-0.000 (0.008)	0.007 (0.010)
Lower-status occupations	0.014 (0.014)	0.004 (0.020)		
Higher-status occupations	-0.029+ (0.015)	-0.000 (0.020)		
Average ISEI of all named occupations			-0.003* (0.001)	-0.002 (0.002)
<i>Operationalization of migrant background</i>				
Migrant generation (ref.: native)				
First generation	-0.160** (0.051)			
Second generation	-0.104* (0.042)	0.062 (0.055)		
2.5 generation	-0.072* (0.034)	0.119* (0.058)		
Migrant generation (ref.: native)				
Turkey/MENA—first/second gen.			-0.188** (0.064)	
Turkey/MENA—2.5 gen.			-0.141 (0.087)	0.041 (0.086)
Former Soviet Union			-0.163** (0.054)	0.034 (0.080)
Other Europe—First/second gen.			-0.137** (0.051)	0.025 (0.074)
Other Europe—2.5 gen.			0.017 (0.044)	0.225** (0.084)
Other origin—first/second gen.			-0.162* (0.076)	0.043 (0.093)
Other origin—2.5 gen.			-0.152* (0.060)	0.047 (0.085)
Number of cases	2,642	516	2,641	515

*Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Missing data are multiply imputed (MID method). Federal state fixed effects, cluster robust standard errors (in parentheses). All models contain the control variables described above. Reference category for migrant generation in Model 2: first generation; reference category for migrant generation in Model 4: Turkey/MENA—first/second gen. Significance levels: \* $P < 0.1$ , \*\* $P < 0.05$ , \*\*\* $P < 0.01$ , \*\*\*\* $P < 0.001$ . Higher-status occupations: engineer, doctor, social worker, legal practitioner, translator, teacher; lower-status occupations: nurse, warehouse/transport worker, sales clerk, police officer, bank clerk, car mechanic, optician.

account for a substantial part of the gap between native and migrant adolescents in the transition to dual VET. In contrast, parents' migrant contacts do not have a significant influence on their children's success in obtaining a dual apprenticeship.

These are important new findings because the influence of parents' native and migrant contacts on youth labour market integration has been largely neglected in previous research. Our results underline the importance of parents' host country-specific social capital for their children's successful labour market entry and for the explanation of ethnic inequalities in this transition. Our findings thus indicate that dependence on the intergenerational transmission of host country-specific capital constitutes an obstacle for minority adolescents during the school-to-work transition, which they cannot overcome alone. Adding to a better understanding of the reasons for ethnic inequalities in this transition is an important contribution, as it can help design targeted support measures and reduce the risk of a premature interpretation of the residual effects of ethnic origin.

The findings are highly relevant in the German context because acquiring a vocational degree is indispensable for adolescents who do not enter tertiary education to be successful in the German labour market, in which occupation-specific credentials are highly valued (Solga *et al.*, 2014). Improving conditions for transitioning to the VET system thus plays a central role in the structural integration of immigrant adolescents in Germany. Our findings suggest that it is important to offer migrant adolescents additional assistance in the school-to-work transition, for example by organizing internships or information campaigns, thereby compensating for their parents' potential lack of beneficial network contacts.

The transition from lower secondary education to employment in Germany, with its highly diversified education and vocational training system in which company-based training plays a major role, is clearly a special case. Consequently, our results cannot be easily transferred to other contexts. However, dual VET systems exist in some other countries, and in countries without a strong vocational orientation, the search and allocation process for (first) jobs is very similar to that for dual apprenticeships in Germany. Consequently, findings on the role that parents' host country-specific social capital plays in the school-to-work transition might be similar in other European countries, where the successful integration of migrant adolescents into the labour market after general schooling often also represents a major challenge.

Despite our comprehensive database, our results—which are in line with our expectations and are confirmed by our additional analyses—must be interpreted in light of some limitations. First, the problem

of endogeneity can never be completely ruled out in non-experimental research. However, since the parents' network variables were measured before the outcome variable occurred and because it is unlikely that parents' network composition was affected by adolescents' chances of obtaining a dual training position in the first place, the problem of reverse causality should be less severe in our analyses. Furthermore, we comprehensively controlled for potentially confounding variables, which should reduce biases due to unobserved heterogeneity. Consequently, while we refrain from claiming causality, we believe that our study's findings have improved the current state of research in this direction. Second, our findings do not allow us to determine the exact reasons why parents' native labour market contacts increase children's chances of obtaining an apprenticeship. Possible reasons include a better knowledge of the domestic apprenticeship market and better language skills. Furthermore, employers possibly follow exclusionary and discriminatory practices, such as devaluing employee referrals from migrants. Testing these theoretical assumptions would require an even more detailed data source with a larger number of cases and a combination of different (quantitative and qualitative) research methods.

Despite these limitations, our findings clearly contribute to understanding the role of ethnic networks in the transition from school to the labour market and in the emergence of ethnic disadvantages in the school-to-work transition, which exist regardless of socio-economic background and educational attainment. It is reasonable to assume that, in this context, parents' native labour market contacts play an important role, not only in Germany but also in other countries. Future research should examine the extent to which our findings are transferable to other contexts and try to uncover the mechanisms responsible for the differential influence of parents' native and migrant contacts. This should provide additional fruitful insights into the reasons for ethnic inequalities in the school-to-work transition and enhance our understanding of the role of parental social capital in the structural integration of young adults.

## Notes

- 1 In the following, we use the terms migration background or migrant to refer both to people born abroad and to people born in the host country who have at least one foreign-born parent.
- 2 For different findings, see, for instance, Aguilera (2005) or Aguilera and Massey (2003).
- 3 Due to regulations on compulsory education, only few lower secondary school-leavers enter the labour market without any vocational qualification, are inactive, or do something else (Solga *et al.*, 2014).

- 4 In contrast, school-based training programmes take place in full-time vocational schools. Formal entry requirements (e.g. an adequate school-leaving qualification) normally apply for attendance of such schools. Consequently, the search and allocation processes for school-based VET rather resemble those for other general education transitions.
- 5 This paper uses data from the National Educational Panel Study (NEPS), Starting Cohort Grade 9, doi: 10.5157/NEPS:SC4:6.0.0. From 2008 to 2013, NEPS data were collected as part of the Framework Programme for the Promotion of Empirical Educational Research, funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, NEPS is carried out by the Leibniz Institute for Educational Trajectories (LifBi) at the University of Bamberg in cooperation with a nationwide network.
- 6 As the questionnaires and achievement tests differed for students from special needs schools, we excluded this subsample from our analyses.
- 7 The same applied to the few students attending a Rudolf-Steiner school.
- 8 We derive this information from the biography data set, spell data sets, and the student data set from Wave 5. As it is possible that some students started a dual apprenticeship after Grade 9 but terminated their contract before the end of 2012, we also count the few cases that were in dual VET in December 2011 as having found an apprenticeship.
- 9 This information was taken from the parent questionnaire. We substituted missing information with adolescents' answers. If information was available only for one parent, we used this information.
- 10 The variance inflation factors for all individual-level variables are below 3 (calculated with Stata ado 'mivif'), which indicates that multicollinearity is not a problem.
- 11 To consider only adolescents who actually searched for an apprenticeship and to keep the number of cases in all 20 multiply imputed data sets constant, we exclude respondents who are imputed in at least one of the 20 data sets as not having applied for an apprenticeship.
- 12 We find that living in a two-parent household and being male increases the probability of obtaining a dual apprenticeship. Concerning educational achievement, better maths grades increase the probability while the ability factor has no effect on transition probabilities, which is probably because school achievement is easier for employers to observe than ability. Parents' highest ISEI decreases the transition probability. In [Supplementary Table A3](#) in the Appendix, we also include an interaction term between parents' highest ISEI and the ability score to additionally control for different combinations of social origin and academic ability. This does not change our main results.
- 13 We are very grateful to Oliver Klein for providing us with a Stata code which applies the KHB decomposition method to multiply imputed data sets.
- 14 Due to the low number of FSU migrants of the 2.5 generation ( $N = 15$ ), we cannot differentiate generational status in this group.

## Supplementary Data

Supplementary data are available at *ESR* online.

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## References

- Aguilera, M. B. (2005). The impact of social capital on the earnings of Puerto Rican migrants. *The Sociological Quarterly*, *46*, 569–592.
- Aguilera, M. B., and Massey, D. S. (2003). Social capital and the wages of Mexican migrants: new hypotheses and tests. *Social Forces*, *82*, 671–701.
- Alba, R. (2008). Why we still need a theory of mainstream assimilation. In Kalter, F. (Ed.), *Migration und Integration. Kölner Zeitschrift für Soziologie Und Sozialpsychologie—Sonderheft 48*. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 37–56.
- Alba, R., and Nee, V. (2003). *Remaking the American Mainstream—Assimilation and Contemporary Immigration*. Cambridge, MA: Harvard University Press.
- Autorengruppe Bildungsberichterstattung (2018). *Bildung in Deutschland. Ein indikatorengestützter Bericht mit einer Analyse zu Wirkungen und Erträgen von Bildung*. Bielefeld: wbv Publikation.
- Beicht, U., and Granato, M. (2010). *Ausbildungsplatzsuche: Geringere Chancen für junge Frauen und Männer mit Migrationshintergrund (BIBB REPORT 15/10)*. Bonn: Bundesinstitut für Berufsbildung.
- Beicht, U., and Walden, G. (2017). Transitions of young migrants to initial vocational education and training in Germany: the significance of social origin and gender. *Journal of Vocational Education & Training*, *69*, 424–449.
- Beicht, U., and Walden, G. (2019). Transition to company-based vocational training in Germany by young people from a migrant background—the influence of region of origin and generation status. *International Journal for Research in Vocational Education and Training*, *6*, 20–45.
- Blossfeld, H.-P., Roßbach, H.-G., and von Maurice, J. (2011). Education as a lifelong process: the German National Educational Panel Study (NEPS). *Zeitschrift für Erziehungswissenschaft: Sonderheft*, *14*, 19–34.
- Bundesministerium für Bildung und Forschung (2019). *Berufsbildungsbericht 2019, BMBF Report*. Bundesministerium für Bildung und Forschung, Bonn.
- Burt, R. S. (1992). *Structural Holes—The Social Structure of Competition*. Cambridge and London: Harvard University Press.
- De Vries, R., and Wolbers, M. (2004). Ethnic variation in labour market outcomes among school-leavers in the Netherlands: the role of educational qualifications and social background. *Journal of Youth Studies*, *7*, 3–18.
- Diehl, C., Friedrich, M., and Hall, A. (2009). Jugendliche ausländischer Herkunft beim Übergang in die Berufsausbildung: vom Wollen, Können und Dürfen. *Zeitschrift Für Soziologie*, *38*, 48–67.
- Dustmann, C. et al (2016). Referral-based job search networks. *Review of Economic Studies*, *83*, 514–546.



- Esser, H. (2004). Does the “new” immigration require a “new” theory of intergenerational integration? *International Migration Review*, 38, 1126–1159.
- Granovetter, M. (1995). *Getting a Job: A Study of Contacts and Careers*, 2nd edn. Chicago and London: University of Chicago Press.
- Hällsten, M., Edling, C., and Rydgren, J. (2017). Social capital, friendship networks, and youth unemployment. *Social Science Research*, 61, 234–250.
- Hartmann, J. (2016). Assimilation over the life course? The career mobility of second-generation Turkish men in Germany. *Zeitschrift Für Soziologie*, 45, 281–297.
- Helland, H., and Støren, L. (2006). Vocational education and the allocation of apprenticeships: equal chances for applicants regardless of immigrant background? *European Sociological Review*, 22, 339–351.
- Hoenig, K. (2019). *Soziales Kapital Und Bildungserfolg: Differentielle Renditen im Bildungsverlauf*. Wiesbaden: Springer VS.
- Hunkler, C. (2016). Ethnische Unterschiede beim Zugang zu beruflicher Ausbildung. In Diehl, C., Hunkler, C., and Kristen, C. (Eds.), *Ethnische Ungleichheiten im Bildungsverlauf: Mechanismen, Befunde, Debatten*. Wiesbaden: Springer VS, pp. 597–641.
- Kalter, F. (2006). Auf der Suche nach einer Erklärung für die spezifischen Arbeitsmarktnachteile von Jugendlichen türkischer Herkunft. *Zeitschrift Für Soziologie*, 35, 144–160.
- Kalter, F., and Granato, N. (2007). Educational hurdles on the way to structural assimilation in Germany. In Heath, A. F., and Cheung, S. Y. (Eds.), *Unequal Chances: Ethnic Minorities in Wester Labour Markets*. Oxford: Oxford University Press, pp. 271–319.
- Kalter, F., and Kogan, I. (2006). Ethnic inequalities at the transition from school to work in Belgium and Spain: discrimination or self-exclusion. *Research in Social Stratification and Mobility*, 24, 259–274.
- Kalter, F., and Kogan, I. (2014). Migrant networks and labor market integration of immigrants from the Former Soviet Union in Germany. *Social Forces*, 92, 1435–1456.
- Kanas, A. et al (2012). Social contacts and the economic performance of immigrants: a panel study of immigrants in Germany. *International Migration Review*, 46, 680–709.
- Kogan, I., Matković, T., and Gebel, M. (2013). Helpful friends? Personal contacts and job entry among youths in transformation societies. *International Journal of Comparative Sociology*, 54, 277–297.
- Kohler, U., Karlson, K. B., and Holm, A. (2011). Comparing Coefficients of Nested Nonlinear Probability Models. *The Stata Journal: Promoting Communications on Statistics and Stata*, 11, 420–438.
- Koopmans, R. (2016). Does assimilation work? Sociocultural determinants of labour market participation of European Muslims. *Journal of Ethnic and Migration Studies*, 42, 197–216.
- Kretschmer, D. (2019). Explaining native-migrant differences in parental knowledge about the German educational system. *International Migration*, 57, 281–297.
- Lancee, B. (2012). The economic returns of bonding and bridging social capital for immigrant men in Germany. *Ethnic and Racial Studies*, 35, 664–683.
- Leicht, R., and Werner, L. (2014). Heterogenität und Ausbildung in Migrantenunternehmen. In Severing, E., and Weiß, R. (Eds.), *Individuelle Förderung in Heterogenen Gruppen in Der Berufsausbildung. Befunde—Konzepte—Forschungsbedarf*. Bielefeld: wbv Publikation, pp. 81–103.
- Lin, N. (2001). *Social Capital—A Theory of Social Structure and Action*. New York: Cambridge University Press.
- Lin, N., and Dumin, M. (1986). Access to occupations through social ties. *Social Networks*, 8, 365–385.
- McDonald, S. (2011). What’s in the “old boys” network? Accessing social capital in gendered and racialized networks. *Social Networks*, 33, 317–330.
- Moerbeek, H., and Flap, H. (2008). Social resources and their effect on occupational attainment through the life course. In Lin, N., and Erickson, B.H. (Eds.), *Social Capital—An International Research Program*. New York: Oxford University Press, pp. 133–156.
- Mouw, T. (2006). Estimating the causal effect of social capital: a review of recent research. *Annual Review of Sociology*, 32, 79–102.
- Portes, A. (1998). Social capital: its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1–24.
- Portes, A., and Zhou, M. (1993). The new second generation: segmented assimilation and its variants. *Annals of the American Academy of Political and Social Science*, 530, 74–96.
- Roth, T. (2014). *Die Rolle Sozialer Netzwerke Für Den Erfolg Von Einheimischen Und Migranten im Deutschen (Aus-) Bildungssystem*. Aachen: Shaker.
- Roth, T. (2018). The influence of parents’ social capital on their children’s transition to vocational training in Germany. *Social Networks*, 55, 74–85.
- Scherr, A. (2015). *Diskriminierung Migrantischer Jugendlicher in Der Beruflichen Bildung - Stand Der Forschung, Kontroversen, Forschungsbedarf*. Weinheim: Beltz.
- Schulz, B., Horr, A., and Hoenig, K. (2017). *The position generator in the NEPS*. NEPS Survey Papers, Bamberg.
- Silberman, R., Alba, R., and Fournier, I. (2007). Segmented assimilation in France? Discrimination in the labour market against the second generation. *Ethnic and Racial Studies*, 30, 1–27.
- Silva, F. (2018). The strength of whites’ ties: how employers reward the referrals of black and white jobseekers. *Social Forces*, 97, 741–768.
- Skopek, J., Pink, S., and Bela, D. (2013). *Starting Cohort 4: 9th Grade (SC4) SUF Version 1.1.0 Data Manual - National Educational Panel Study (NEPS)*. Bamberg: University of Bamberg.
- Solga, H. et al (2014). *The German Vocational Education and Training System: Its Institutional Configuration, Strengths, and Challenges*. WZB Discussion Paper No. 2014-502, Berlin.
- StataCorp (2019). *Stata Multiple-Imputation Reference manual—Release 16*. Texas: Stata Press.
- Van Tubergen, F., and Volker, B. (2015). Inequality in access to social capital in the Netherlands. *Sociology*, 49, 521–538.
- Verhaeghe, P.-P., Li, Y., and van de Putte, B. (2013). Socio-economic and ethnic inequalities in social capital from the family among labour market entrants. *European Sociological Review*, 29, 683–694.

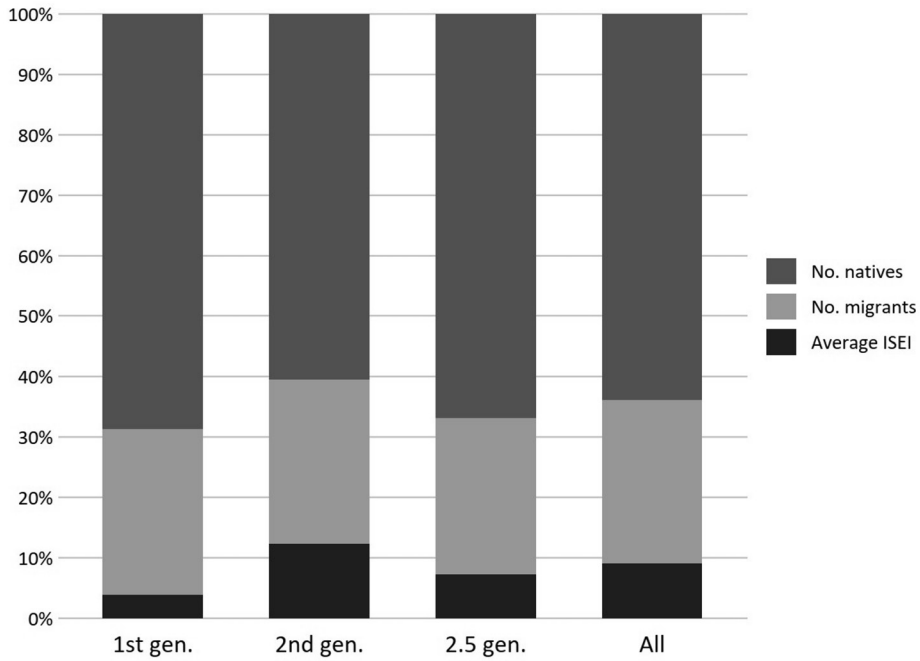
- Verhaeghe, P.-P., van der Bracht, K., and van de Putte, B. (2015). Inequalities in social capital and their longitudinal effects on the labour market entry. *Social Networks*, 40, 174–184.
- Von Hippel, P. T. (2007). Regression with missing Ys: an improved strategy for analyzing multiply imputed data. *Sociological Methodology*, 37, 83–117.
- Wiley, N. F. (1967). The ethnic mobility trap and stratification theory. *Social Problems*, 15, 147–159.
- Zhou, M. (1997). Segmented assimilation: issues, controversies, and recent research on the new second generation. *International Migration Review*, 31, 975–1008.

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## Appendix



**Figure A1.** Contribution of single social network indicators to the reduction of native-migrant gaps in per cent (KHB) *Source:* National Educational Panel Study (NEPS): Starting Cohort 4, authors' own calculations. Contribution is calculated using the KHB method (Kohler et al., 2011). Missing data are multiply imputed (MID method).