

Effects of Social Networks on Finding an Apprenticeship in the German Vocational Training System

Roth, Tobias

Postprint / Postprint

Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:

GESIS - Leibniz-Institut für Sozialwissenschaften

Empfohlene Zitierung / Suggested Citation:

Roth, T. (2013). Effects of Social Networks on Finding an Apprenticeship in the German Vocational Training System. *European Societies*, 16(2), 233-254. <https://doi.org/10.1080/14616696.2013.821622>

Nutzungsbedingungen:

Dieser Text wird unter einer Deposit-Lizenz (Keine Weiterverbreitung - keine Bearbeitung) zur Verfügung gestellt. Gewährt wird ein nicht exklusives, nicht übertragbares, persönliches und beschränktes Recht auf Nutzung dieses Dokuments. Dieses Dokument ist ausschließlich für den persönlichen, nicht-kommerziellen Gebrauch bestimmt. Auf sämtlichen Kopien dieses Dokuments müssen alle Urheberrechtshinweise und sonstigen Hinweise auf gesetzlichen Schutz beibehalten werden. Sie dürfen dieses Dokument nicht in irgendeiner Weise abändern, noch dürfen Sie dieses Dokument für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen.

Mit der Verwendung dieses Dokuments erkennen Sie die Nutzungsbedingungen an.

gesis
Leibniz-Institut
für Sozialwissenschaften

Terms of use:

This document is made available under Deposit Licence (No Redistribution - no modifications). We grant a non-exclusive, non-transferable, individual and limited right to using this document. This document is solely intended for your personal, non-commercial use. All of the copies of this documents must retain all copyright information and other information regarding legal protection. You are not allowed to alter this document in any way, to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public.

By using this particular document, you accept the above-stated conditions of use.

Mitglied der

Leibniz-Gemeinschaft

EFFECTS OF SOCIAL NETWORKS ON FINDING AN APPRENTICESHIP IN THE GERMAN VOCATIONAL TRAINING SYSTEM

Tobias Roth

University of Mannheim, Mannheim, Germany

Abstract:

Previous research indicates that social relationships can influence the probability of successfully finding a first job. This paper contributes to this field of research by empirically analysing the rarely studied question, if social networks can help adolescents find an apprenticeship in the strongly company-based vocational training system of Germany. In contrast to most previous studies, not only the youth's networks, but also their mothers' networks are taken into account. In addition to the social, the ethnic composition of the networks is also considered. Event data analyses of German panel data on natives and migrants from the project 'Young Immigrants in the German and Israeli Educational System' show that adolescents' networks have no effect on the success of an apprenticeship search. In contrast, the mothers' networks play a crucial role.

Key words:

social and ethnic network composition; social capital; apprenticeship search; school-to-work transition

1. Introduction

Various empirical studies suggest that actors use their social networks for job search and that social ties can influence the probability of finding a job (e.g., Field 2008: 55ff.; Lin and Erickson 2008: 5ff.). In contrast, little is known about the effects of social networks on the apprenticeship search in strongly company-based vocational training systems, although in these systems an apprenticeship is for a non-negligible proportion of adolescents the first transition to the labour market. This paper aims to narrow this research gap by investigating the effects of social ties on finding an apprenticeship in the vocational training system of Germany, for low to medium qualified teenagers. In contrast to most of the existing studies, the analyses are not restricted to the social ties of the youths, but rather, the

networks of their mothers are also to be considered. This is crucial for gaining a more comprehensive overview about potentially helpful contacts as adolescents might not have yet acquired networks that are helpful for the labour market entry themselves, wherefore they might have to rely on the social contacts of their parents (Granovetter 1995: 42, 77). For testing the effects of social networks I use German panel data on native and migrant youths and their mothers from the project 'Young Immigrants in the German and Israeli Educational System'. Apart from the extensity and the social composition of the networks, for migrants the ethnic composition is also examined. The analyses do not deal with the actual mobilisation of social networks during the search process but they are restricted to the investigation of relationships between network characteristics and search success.

This paper starts with a short overview of the German vocational training system. Afterwards, theoretical mechanisms that may be responsible for the effects of networks on search success are discussed in more detail and a brief survey of previous studies is given. Subsequently, the data, the operationalisation and the methods are described before results from descriptive and multivariate analyses are presented. In the last section, the results are summarised and discussed.

2. The German vocational training system

While highly qualified persons with a tertiary degree normally enter the labour market directly after their graduation, for adolescents with a secondary school qualification a labour market entrance without additional vocational training is the exception in Germany (Beicht and Ulrich 2008: 136ff.). More than half of all young adults complete a vocational training. However, for part of the adolescents, the transition from the general education system to vocational training does not run smoothly. For example, more than one-third of the school leavers spend some time in a programme of the transitional system that provides some basic training but does not lead to a recognised vocational qualification (Authoring Group Educational Reporting 2010: 14). Analyses provided by Beicht and Granato (2010) show that even 1 year after leaving the general educational system only about 60% of those adolescents who have searched for vocational training actually found one. Vocational training takes place predominantly within the dual education system, while only a smaller proportion of the apprentices acquire their training in a full-time vocational school (Seibert et al. 2009: 598ff.; Authoring Group Educational Reporting 2010: 14, 17). The dual vocational training combines on-the-job training in a company, from which the apprentices

get a small salary, and schooling in a vocational school. To get an apprenticeship in the dual system, school leavers have to apply directly at a company which offers such a position. The companies are free in their rejection and selection of applicants. Hence, the applicants (and also the employers) are in a competitive situation. Thus, the basic search and allocation processes with respect to apprenticeships in the dual system, do not differ fundamentally from those of a job search in the labour market.

3. Assumed effects of social networks on the success of an apprenticeship search

From a theoretical point of view there is broad agreement that social networks can affect the job search and the overall success in the labour market (e.g., Granovetter 1973; Bourdieu 1977; Burt 1992; Lin 2001). As the general allocation processes can be assumed to be similar for both the apprenticeship and the job search, in this section one can largely refer to the theoretical explanations of why social networks should influence the success of a job search. Broadly speaking, three main reasons can be distinguished as to why social ties should be helpful. Firstly, network members can provide information about currently available apprenticeships. As a result, an actor can choose from a wider set of vacancies, whereby the likelihood of finding an apprenticeship should increase. Secondly, social ties can enhance the success probability of an application by providing information about a company and its recruitment process. This can, for example, give an advantage concerning the letter of application and the job interview. Thirdly, social ties can put in a good word. This can enhance the chances of getting an apprenticeship as, from an employer's point of view, a recommendation by a friend or a loyal employee can be regarded as a signal for the productivity, motivation, and the capacity for teamwork of an applicant. Furthermore, employers might also be willing to do a friend, an employee, or a business partner a favour by giving an apprenticeship position to a promoted teenager. Thus far, it has been pointed out why social networks in general can affect the success of an apprenticeship search. From this reasoning it can be derived that a more extensive network should be beneficial. In the following section it will be argued, in more detail, how far the social and ethnic network composition can affect the search success. Following Lin (2001: 56, 60ff.), especially network members with high occupational prestige should be helpful for instrumental actions, as these persons possess a great amount of resources and information, a high reputation and power, and know a lot of diverse people. For the

apprenticeship search this can be advantageous as they may know about many vacancies and if such a person puts in a good word this could have an especially strong impact on the decision of an employer. However, it could also be argued that it is the relations to persons who are well connected in the specific segment of the labour market in which the teenagers search for jobs that are particularly helpful. As the teenagers in this study have only low or medium secondary school qualification, they predominantly apply for apprenticeships in the lower labour market segment. Thus it is possible that persons with less prestigious jobs are especially helpful as they might be better informed and better at acting as a broker in this part of the labour market. For example, a substantial proportion of apprenticeships is located in small enterprises in which nobody with high prestige is on the payroll.

With respect to the ethnic composition, Portes and Zhou argue (Portes and Zhou 1993: 86ff.; Portes 1995: 256ff.; Zhou 1997: 993ff.) that in networks of migrants, which predominantly consist of persons with the same ethnic background, a high solidarity exists. This could lead to a strong commitment of network members in the search process of an actor. They also assume that in ethnic communities niche economies can evolve in which employers prefer to hire migrants from the community. However, it has to be considered that most of the apprenticeship positions in Germany cannot be found in such niche economies but rather in companies that are run by natives and that in intraethnic networks of migrants there might be incomplete information about these companies. Additionally, it can be expected that in such networks less knowledge about the general functioning of the labour market in the host country exists and due to language problems there might be less assistance available when it comes to drafting a letter of application. Further disadvantages can occur if recommendations from migrants are less influential for the recruitment decision of employers (Alba and Nee 2003: 14, 41; Esser 2004: 1135; Kalter 2006: 148, 157f.; Kalter and Kogan 2006: 261; Alba 2008: 43; Kristen et al. 2011: 130f.). Therefore, it seems reasonable to assume that, for migrants in Germany, a high share of natives in the social network is advantageous for the apprenticeship search.

In conclusion it can be noted that an extensive network should be beneficial in the search process. Concerning the social network composition, however, it remains theoretically unclear, if network members with high occupational prestige or those connected to the lower segment of the labour market are more helpful for the apprenticeship search. For the ethnic composition of the networks it can be expected that social ties to natives are especially helpful.

4. Previous empirical research

A considerable number of empirical studies suggests that social networks affect the probability of finding a job and the attained job prestige (Lin 1999: 471ff.; Field 2008: 55ff.; Lin and Erickson 2008: 5ff.; for a critical review on the causality of network effects on labour market outcomes cf. Mouw 2003, 2006). For the labour market entry, empirical studies indicate that social networks outside of the family, as well as family members, can be helpful in finding the first job (O'Regan and Quigley 1993; Völker and Flap 1999; Haug and Kropp 2002; Kramarz and Skans 2007). However, when it comes to the investigation of the effects of social networks for the access to apprenticeships in the dual systems of German speaking countries, only little empirical research has been conducted so far.¹ The few existing studies indicate that social networks can play an important role. For example, a case study of a large company in Germany shows descriptively that about 30% of the apprentices have a father or mother working in the same company. In interviews employees who are responsible for the coordination of the apprenticeships revealed that a substantial number of apprenticeships was assigned because existing employees put in a good word (Bommes 1996: 41). Based on analyses of quantitative data on school leavers in Switzerland, Haeberlin and co-workers suggest that knowing people who work in a company in which the aspired apprenticeship can be done plays an important role in the search success (Haeberlin et al. 2005: 129). However, no conclusions can be drawn from these results concerning the social or ethnic composition of the networks. Results provided by Beicht and Granato (2010), which are based on retrospective longitudinal data, show that in Germany, about three quarters of the teenagers receive assistance from relatives, friends, or acquaintances when contacting companies. At the same time, most of the adolescents also search in the newspaper and the internet for apprentice-ship positions, register as applicants at the employment agency and send a number of applications to potential employers. Accordingly, the majority of adolescents use both formal and informal channels during their apprenticeship search. Multivariate analyses show that social integration measured via the membership in the voluntary fire brigade, the technical relief agency, or the ambulance service has positive effects on finding an apprenticeship. Due to the vague measurement, which could also be seen as a signal of additional skills or conscientiousness, it remains unclear if the positive effect of this indicator really reflects the impact of social

¹ Also in Austria and Switzerland companies are strongly involved in the vocational training (Ashton et al. 2000: 17; Seibert et al. 2009: 598ff.; Hunkler 2010: 214).

relationships.² Their analyses also show that migrants have substantially worse chances of getting an apprenticeship compared to natives (cf. also Diehl et al. 2009; Hunkler 2010). As for the ethnic composition of social networks, Hunkler (2010), who uses the German Socioeconomic Panel, can show on the basis of event data analyses, that having Germans as the three best friends is positive for the apprenticeship search of adolescents. However, he cannot distinguish between vocational training and other kinds of advanced training and retraining. Furthermore, as no separate analyses for Germans and migrants are shown, it remains unclear if the effects of the ethnic network composition are important for Germans and migrants, or for only one of these ethnic groups.

All in all, existing research indicates that networks can affect the outcome of an apprenticeship search. However, due to the small amount of empirical research and the shortcomings of existing studies, further research on this issue explicitly focusing on the effects of social network characteristics is needed.

5. Hypotheses

Based on the theoretical remarks several hypotheses can be derived. With regard to the effects of social networks on the search success, it was argued that, *ceteris paribus*, the more people an actor knows, the more likely someone from his network will be able to give helpful information and support.

Hypothesis 1: An extensive network is advantageous for finding an apprenticeship.

With respect to the social composition of the networks there are good reasons to believe that persons with prestigious jobs are especially supportive to find an apprenticeship, but at the same time it can also be argued that network members from the lower part of the labour market are more advantageous. Therefore two opposing hypotheses are stated.

Hypothesis 2a: Social relationships to persons with prestigious jobs are particularly helpful for finding an apprenticeship.

Hypothesis 2b: Social relationships to persons who are connected to the lower segment of the labour market are particularly helpful for finding an apprenticeship.

² Based on the same data source, analyses of Beicht and Ulrich (2008: 266ff.) show that being a member of associations like sports, singing or cultural clubs has no effect on finding an apprenticeship.

For the ethnic composition of the networks it can be argued that, for migrants, relationships to natives are more helpful than social ties to other migrants.

Hypothesis 3: For migrants a high share of natives in their social network is advantageous for finding an apprenticeship.

6. Data and operationalisation

For the empirical analyses I use German panel data from the project ‘Young Immigrants in the German and Israeli Educational System’. The sample was drawn based on population registers in three federal states in Germany, namely Hamburg, Hesse, and North Rhine-Westphalia. It was supplemented with a second sample of students via schools in these federal states. Respondents attended grade 9 of lower secondary school (Hauptschule) or comprehensive school, respectively grade 10 of intermediate secondary school (Realschule) or comprehensive school at the time of the first interview. Due to an overrepresentation of schools with a high share of migrants, the restriction on three federal states, and the common problems with non-response and panel attrition, the data cannot be claimed to be representative for Germany. Interviews of wave one were conducted between November 2007 and November 2008. In this wave, not only the students but also their mothers were interviewed. One and 2 years after wave one the adolescents were contacted again. In the analyses I use information from wave one and wave three. Complete data is available for 799 cases. The empirical analyses only contain those adolescents who indicated in wave three that they had actually searched for an apprenticeship, which reduces the sample size to 380 cases. The vast majority of adolescents who have not yet searched for an apprenticeship have continued schooling in the general education system. Many of them will search for an apprenticeship later on.

The success of an apprenticeship search is measured via two variables from wave three that are combined in one measure: the duration of finding an apprenticeship. The first variable specifies if the adolescents found an apprenticeship, if they are still searching, or if they stopped searching. The second variable indicates how many months the search process lasted, respectively, for how long the adolescents had been searching. The information is based on the adolescents’ answers, wherefore in contrast to many other studies I am not restricted to the assumption that the search process starts after leaving the general education system. This is of relevance, as many school leavers already search several months prior to finishing school, whereby the starting time varies. Additionally, without

this information it would not be possible to include adolescents in the analyses who have been searching parallel to visiting a school and, due to being unsuccessful with their search, remained in the school system. As it is compulsory for teenagers under the age of 18 to attend school or a vocational training, this is an important issue for students at the end of secondary level I, as most of them are not of full age.

For measuring social relationships, not only indicators for the adolescents' networks are used but also for the networks of their mothers. This is an important enhancement compared to many previous studies, as at this stage it might rather be the parents than the adolescents who have helpful connections for the apprenticeship search (Granovetter 1995: 42, 77).³ Information about the mother's network was derived from the mother questionnaire, while information about the adolescent's network was derived from the adolescent questionnaires. To allow comparison, special care was taken to ensure that indicators for youths and mothers are as similar as possible. If not explicitly indicated, the measurements are derived from wave one. As only a negligible proportion of the adolescents started to search for an apprenticeship before wave one, for the vast majority the independent variables are measured prior to the search process.

The extensity and social composition of the networks are measured via a position generator.⁴ Since the first use by Lin and Dumin (1986) position generators are widely used in the context of labour market research and the reliability and validity have repeatedly been confirmed (Lin 1999; Lin and Erickson 2008). The position generator used in this study consists of

³ Unfortunately, the data does not contain information about the fathers' networks, although it can be assumed that their networks are more decisive for the search success as they are more often than mothers gainfully employed. Nevertheless, also the networks of mothers should be of importance. Furthermore, previous research has shown that the networks of couples substantially overlap (e.g., Kalmijn 2003: 236ff.), wherefore information about the mother's network can also be seen as a rough proxy variable for the network of both parents. For the interpretation of the results it can be noted that effects of parents' networks might be probably more pronounced than the estimates for the mothers' networks.

⁴ While mothers answered the position generator in wave one, for adolescents it was conducted in wave three. Therefore, for adolescents indicators derived from the position generator are not chronologically prior to the dependent variable which questions the causal direction. It cannot be ruled out that the networks of a youth changed during the search process and that it is conditional on the outcome of the search. For example, it could be assumed that those who do an apprenticeship get to know more people who are active at the labour market, wherefore possible effects of the position generator indicators could be overestimated. Nevertheless, information from the position generator is also used for adolescents as it provides the opportunity to use exactly the same indicators of the network composition as for mothers.

12 occupations, stratified by their prestige. Respondents were instructed to indicate for each of the 12 occupations if they knew someone with the respective occupation who lives in Germany, whose name they know, and with whom they could start a short conversation. Respondents were also asked from which country these persons originally came from.⁵ The extensity of the network is measured via the number of named occupations. To take the social composition into account, three additive scales are built, indicating the number of named occupations with low, medium and high prestige.⁶ While the occupations with low prestige are located in a labour market segment, which mostly persons with a lower or an intermediate secondary school certificate enter, the other occupations are predominantly occupied by persons who have a tertiary or at least a higher secondary degree. For the social composition of the mothers' networks an additional variable is used measuring if the children of most close relatives and friends predominantly have or aspire to have an apprenticeship diploma, a university diploma, or if the mother cannot indicate their predominant diploma (in most cases because the children are too young). For the adolescents a similar measure is built, indicating if the best friend does or aspires to have an apprenticeship or not.

For migrants, the ethnic composition of the mothers' and the adolescents' networks is measured via calculating the proportion of Germans among the named persons holding occupations from the position generator.⁷ As a second indicator of the ethnic network composition, the language used by the mothers with their friends outside of work and, respectively, by the adolescents with their friends outside of school is considered. Respondents could choose between five categories (only or more in German, equivalent German and language of country of origin, only or more in language of country of origin). A descriptive overview of the various social network indicators is given in Table 1.

In the multivariate analyses, I control for gender, ethnicity and occupational prestige of the parents. I differentiate between families with mothers and if existing their partners born in Germany, in Turkey, or in the former Soviet Union. The social position of the family is considered via the highest occupational prestige of the parents as measured by the Magnitude Prestige Scale. In an attempt to control for

⁵ For the exact wording of the position generator and the list of used occupations see appendix.

⁶ For the classification of the occupations the Magnitude Prestige Scale (MPS) from Wegener was used, as it is more appropriate for German particularities than international prestige scales (Wegener 1985; Christoph 2005).

⁷ Empirical results are the same if I use an indicator that measures the proportion of persons with the same ethnic background.

Table 1. Social network indicators

Variables	Categories or Min-Max	Mean (SD) or percentage	Number of observations
Social networks of mothers			
Extensity and social composition			
No. of occupations	0-12	5.81 (2.98)	380
No. of occupations high prestige	0-4	1.48 (1.24)	380
No. of occupations middle prestige	0-4	1.69 (1.29)	380
No. of occupations low prestige	0-4	2.63 (1.17)	380
Most children relatives and friends			
	Apprenticeship	50.26%	191
	University	22.63%	86
	Diploma not indicated	27.11%	103
Ethnic composition (migrants only)			
Language usage with friends outside work	1-5*	3.76 (1.17)	225
Proportion of Germans of named occupations	0-1	0.15 (0.20)	209
Social networks of adolescents			
Extensity and social composition			
No. of occupations	0-12	3.67 (2.45)	380
No. of occupations high prestige	0-4	0.87 (0.98)	380
No. of occupations middle prestige	0-4	1.00 (1.07)	380
No. of occupations low prestige	0-4	1.80 (1.12)	380
Best friend does or aspires apprenticeship			
	Yes	35.00%	133
	No/don't know	65.00%	247
Ethnic composition (migrants only)			
Language usage with friends outside school	1-5*	2.34 (1.14)	223
Proportion of Germans of named occupations	0-1	0.33 (0.32)	203

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

*1 = only German; 5 = only language of country of origin.

Table 2. Control variables

Variables	Categories or Min-Max	Mean (SD) or percentage	Number of observations
Grade and type of school wave1	9th grade lower sec.	22.63%	86
	9th grade comprehensive	25.00%	95
	10th grade interm. sec.	31.32%	119
	10th grade comprehensive	21.05%	80
Federal state	Hamburg	23.42%	89
	Hesse	8.95%	34
	North Rhine-Westphalia	67.63%	257
Unemployment rate in community	4.3-13.8	8.84 (2.11)	380
Gender	Male	60.00%	228
	Female	40.00%	152
Ethnic origin	German	39.90%	152
	Turkish	24.15%	92
	Former Soviet Union	35.96%	136
Occupational prestige parents	20-147.1	58.94 (26.61)	380
Average marks German and mathematics	1.5-5	3.23 (0.66)	380

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

the school achievement of the adolescents, the grade and type of school attended in wave one, as well as the average marks in German and mathematics of the last school report before wave one are taken into account. To take possible regional differences into account, I also control for the federal state and the unemployment rate in the municipality the respondents live in.⁸ The control variables are described in Table 2.

7. Analytical strategy

For a descriptive overview, survivor functions are estimated using the Kaplan-Meier product-limit-method. In the multivariate analysis of the transition from education to an apprenticeship, event history analysis is conducted estimating the effects of multiple covariates on the length of the transition period. The dependent variable is the hazard rate for the transition from the origin state (search) to the destination state

⁸ Parts of the description of the data and the operationalisation are borrowed from Roth and Salikutluk (2012), where one can also find some more information about the position generator.

(find apprenticeship) indicating the risk that such an event occurs within a time period. Individuals who did not enter an apprenticeship by the time of wave three are treated as right censored. The same is true for those who stopped searching (most of them continued some kind of additional schooling). As there are no strong theoretical arguments supporting a particular parametric model, using the semiparametric proportional hazards model (also called Cox model) seems appropriate. This model has the advantage that it does not assume a specific shape of the baseline hazard rate (Blossfeld et al. 2007: 224). The proportional-hazards assumption of the Cox model demands that the hazard rates are proportional for different values of covariates. Tests based on Schoenfeld residuals show that this assumption is violated for the federal state covariate. Therefore, additional stratified Cox models are calculated allowing different baseline transition rates for the three federal states (cf. Blossfeld et al. 2007; Cleves et al. 2008). As a robustness check I also run piece-wise constant exponential models with different specifications of the time intervals. Furthermore, I conduct discrete-time proportional hazards models, since the event time is measured in months and can actually take on only a finite set of values. Results of interest remain unchanged across the different ways of modelling (results available from the author).

8. Empirical results

From the adolescents who have searched, only 46% actually achieved that aim up to wave three, while 25% were still looking for an apprenticeship, and 29% stopped searching (see Table 3). Those who found an apprenticeship, searched on average more than 5 months, while the unsuccessful searched even longer. This clearly shows that the transition to vocational training does not run smoothly for many of the low and middle qualified students.

Table 3. Outcome of the search process and search duration

	Outcome of the search process	Average search duration
Found an apprenticeship	45.8 (%)	5.4 months
Still searching	25.0 (%)	8.4 months
Stopped searching	29.2 (%)	7.3 months

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

Concerning the network effects, one can distinguish between the mothers' and the adolescents' networks, as well as between the extensity and the social and ethnic composition of the networks. Empirical analyses could neither for mothers' networks nor for adolescents' networks confirm any effects of the ethnic composition on the success of the apprenticeship search. This speaks against hypothesis 3. In contrast, the extensity and the social composition of mothers' networks have a significant impact on the search outcome. Results for adolescents tend in the same direction as for mothers, but none of the indicators achieve statistical significance. Therefore, for the networks of adolescents, hypotheses 1 to 2b can also not be confirmed. Thus it can be noted that the adolescents' networks seem to have no impact on the search success, indicating that at the end of secondary school they themselves do not have social relationships that can make the difference. Due to shortage of space I will only present effects of the extensity and the social composition of mothers' networks in the next section (results for the ethnic composition and for the adolescents' networks are available from the author).

For a nonparametric descriptive overview survivor functions for different network compositions are compared.⁹ In Figure 1 it can be seen that while the survivor functions do not differ in the first 6 months,

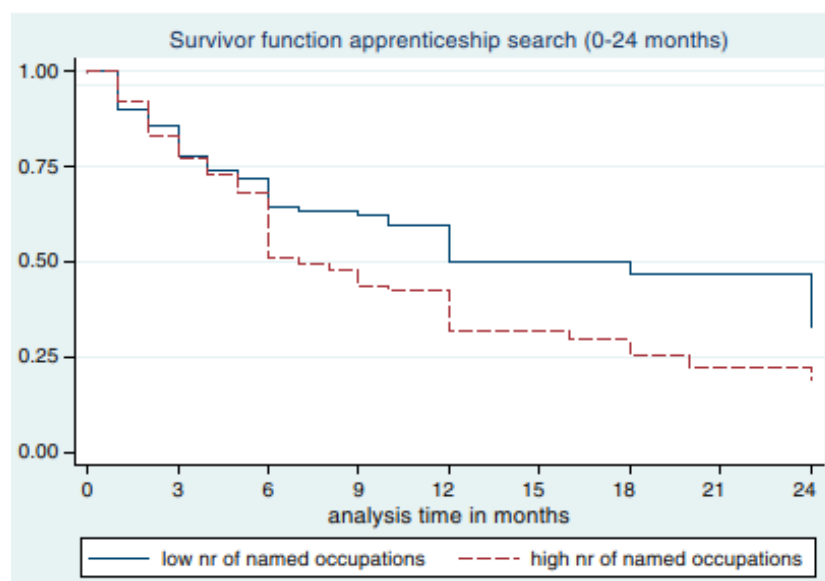


Figure 1. Survivor functions for the transition into an apprenticeship by extensity of mother's network.

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

⁹ Survivor functions are estimated using the Kaplan-Meier product-limit-method.

afterwards those adolescents whose mothers named many occupations in the position generator, have a clear advantage of finding an apprenticeship, suggesting that a more extensive network supports the search success. For example, after 1 year about 32% of these adolescents are still searching, while this is true for about 50% of the adolescents whose mothers named a small number of occupations.

In Figure 2 we see that adolescents whose mothers have a network in which most close relatives and friends have children who predominantly have or aspire to have an apprenticeship diploma, do better than those whose mother's network consists of people whose children have or aspire to have a university diploma. Therefore, it seems that it is those network members who are more strongly connected to the apprenticeship market that can give more helpful information and are better at acting as a broker.

To detect whether network characteristics also have significant effects on search success after controlling for other relevant covariates, results from Cox models are presented in Table 4. Coefficients greater (smaller) than one indicate positive (negative) effects on the apprenticeship transition rate. Concerning the ethnic background, results are in line with previous research, showing that migrants have more problems with getting an apprenticeship than Germans (e.g., Beicht and Granato 2010). These disadvantages are especially pronounced for Turkish youths.

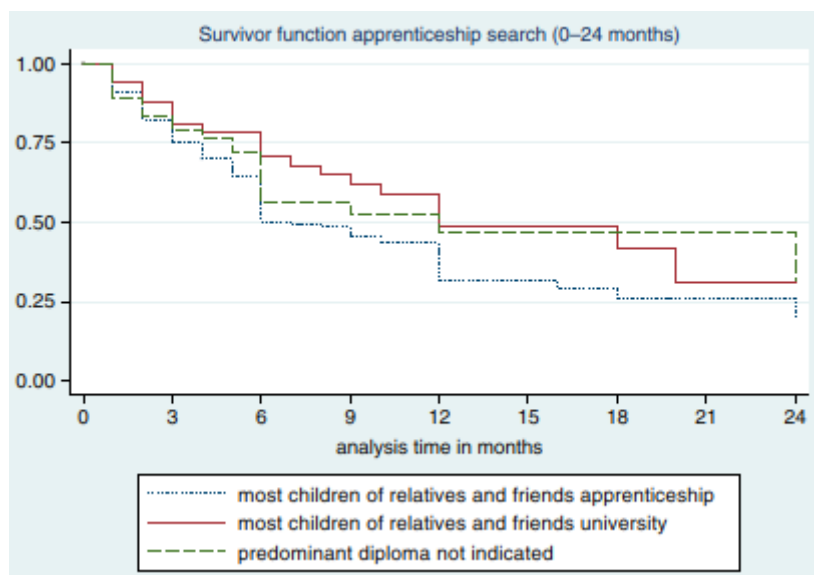


Figure 2. Survivor functions for the transition into an apprenticeship by social composition of mother's network.

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

Table 4. Results of Cox regression models for the transition into an apprenticeship

	Model 1	Model 2	Model 3
Reference category: 10th grade interm. secondary			
9th grade lower sec.	0.744 (-1.45)	0.753 (-1.40)	0.707+ (-1.68)
9th grade comprehensive	0.546** (-2.73)	0.535** (-2.80)	0.514** (-2.97)
10th grade comprehensive	0.653+ (-1.86)	0.650+ (-1.87)	0.605* (-2.16)
Average marks German and math	0.872 (-1.16)	0.859 (-1.27)	0.885 (-1.03)
Reference category: German			
Turkish	0.510** (-2.88)	0.504** (-2.93)	0.519** (-2.81)
Former Soviet Union	0.777 (-1.30)	0.783 (-1.24)	0.750 (-1.48)
Male	0.980 (-0.13)	0.955 (-0.29)	0.974 (-0.17)
Occ. Prestige parents	0.995 (-1.45)	0.997 (-0.89)	0.998 (-0.55)
No. of occupations	1.060* (2.08)		
No. occ. high prestige		1.124 (1.35)	
No. occ. middle prestige		0.877 (-1.58)	
No. occ. low prestige		1.244** (2.68)	
Reference category: Most children relatives and friends: apprenticeship			
University			0.623* (-2.21)
Predominant diploma not indicated			0.741 (-1.62)
Chi ² (degrees of freedom)	26.96(12)	34.59(14)	28.87(13)
Log likelihood	-896.44	-892.63	-895.49
Number of observations	380	380	380
Time at risk	2548	2548	2548

Source: 'Young Immigrants in the German and Israeli Educational System' study, author's own calculations.

*Notes: + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$; Coefficients display hazard ratios (Z-values in parentheses); in all models it is additionally controlled for federal state and unemployment rate in the municipality; all network indicators refer to the mothers' networks.*

Furthermore, the models show that graduates from intermediate secondary schools have the highest transition rates. For investigating the effect of network extensity, in model 1 the number of named occupations in the position generator is included. Results confirm that having a mother with an extensive network is advantageous

for finding an apprenticeship, which is in line with hypothesis 1.¹⁰ Also concerning the social composition of the networks, the impression from the inspection of the survivor functions can be confirmed in the multivariate models. In model 2 it is shown that having more social ties to persons in the lower labour market segment increases the chance of finding an apprenticeship, while this is not the case for the number of network members with a middle or high occupational prestige. In model 3 we see that it is the networks of mothers in which most of the children of their social ties have or aspire to have an apprenticeship diploma, which are the most helpful for finding an apprenticeship. These results question the assumption that it is in general advantageous to have social ties to persons at the upper end of the social structure, wherefore hypothesis 2a must be rejected. On the contrary, it seems that effects of social networks are strongly area specific and that it is conditional on the position a person is searching for in the labour market, whether high or low prestigious ties are more helpful. For finding an apprenticeship in the lower labour market segment it seems that it is not the contacts to persons with prestigious jobs that are crucial, but social ties to persons connected with the lower labour market segment, thus substantiating hypothesis 2b.

9. Conclusion

Even though it is an important transition point for many adolescents, so far, little empirical research has been conducted which investigates the role of social networks for the successful transition from the general education system to vocational training in strongly company-based vocational education systems. To narrow this research gap I investigated in how far, for low to medium qualified teenagers in Germany, finding an apprenticeship is influenced by the composition of their networks and the networks of their mothers.

Although previous research has shown that adolescents strongly use social relationships for the apprenticeship search, multivariate analyses indicate that neither the extent nor the social and ethnic composition of the adolescents' networks have any substantial effect on their search success. This suggests that adolescents themselves do not possess networks which are helpful for finding an apprenticeship when they leave

¹⁰ Additional piecewise constant exponential models with period-specific effects indicate - in accordance with the descriptive presentation of survivor functions in Figure 1 - that the extensity of the network is rather irrelevant at the beginning of the search process but afterwards it has substantial significant effects (results available from the author).

secondary school. As I also do not find effects of the proportion of natives and the language usage in mothers' networks, it seems that, for migrants in Germany, the ethnic network composition does not influence the result of the apprenticeship search. However, due to a rather small number of cases for migrant specific analyses and different results in a previous study (Hunkler 2010) it is up to future research to draw up a clearer picture for this aspect. Concerning the extensity and the social composition of the mothers' networks, analyses suggest that a large network and especially social ties to persons connected with the lower labour market segment help adolescents find an apprenticeship.

All in all, results show the importance of using differentiated information about social networks, whereby information about the networks of parents seems to play a crucial role. Up to now, however, only few studies have investigated effects of these networks for the labour market entry of adolescents. Subsequent research should pay more attention to this aspect. Concerning the social network composition, the empirical findings indicate that the support an actor can get from his social ties is area specific. In contrast to previous studies that primarily focused on the advantages that arise from social ties to persons with high prestige, the differentiated indicators used in this study suggest that if searching for an apprenticeship in the lower segment of the German labour market, it might be more helpful to maintain relations to persons connected to that particular segment.

However, these findings have to be seen in light of some limitations. Although I use panel data with refined information about network characteristics and the search process, which makes the results more convincing than those of many previous studies that use predominantly cross-sectional data, it has to be mentioned that the representativeness of the sample is limited and that, despite the longitudinal design, the causality of the found relationship between network characteristics and search success cannot entirely be ensured. Since it remains unclear from the analyses if social ties actually provided help for finding an apprenticeship, the relationships might also result from selection effects caused by homophily (Mouw 2003). Future research should address this issue. It would also be worthwhile to use more in depth analyses that take labour market sector specific aspects into account and differentiate between adolescents who searched for vocational training in a full-time school and those who searched in the dual system. Finally, it would be desirable to extend the analyses with respect to the dependent variables. Social networks might not only affect the search duration but also the chances of finding an attractive apprenticeship, e.g., in terms of earnings or future career opportunities.

Despite these limitations and open tasks for the future, this study makes two important scientific contributions. First, it provides profound insights in the linkage between network characteristics and finding an apprenticeship in the largely company-based vocational training system of Germany, which is an aspect only very little empirical research has been conducted on so far. Second, for the broader field of study, results are relevant as they highlight that it is the parents' networks that play a crucial role for the labour market entry of adolescents. Moreover, they show that due to the area specificity of social networks, an exclusive focus on the possible advantages gained from prestigious network members might fall short in cases where actors are restricted to a job search in the lower labour market segment due to an insufficient level of education.

Acknowledgements

The article is based on research supported by the Framework Programme for the Promotion of Empirical Educational Research from the German Federal Ministry of Education and Research (Grant: 01JG1053).

References

- Alba, R. (2008) 'Why we still need a theory of mainstream assimilation', in F. Kalter (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/London: Harvard University Press.
- Ashton, D., Sung, J. and Turbin, J. (2000) 'Towards a framework for the comparative analysis of national systems of skill formation', *International Journal of Training and Development* 4: 8-25.
- Authoring Group Educational Reporting (2010) *Education in Germany 2010: An indicator-based Report Including an Analysis of Demographic Challenges for the Education System Summary of Important Results*, Bielefeld: W. Bertelsmann Verlag.
- Beicht, U. and Granato, M. (2010) *Ausbildungsplatzsuche: Geringere Chancen für junge Frauen und Männer mit Migrationshintergrund BIBB-Analyse zum Einfluss der sozialen Herkunft beim Übergang in die Ausbildung unter Berücksichtigung von Geschlecht und Migrationsstatus*, Bonn: Bundesinstitut für Berufsbildung.

- Beicht, U. and Ulrich, J. G. (2008) 'Ergebnisse der BIBB-Übergangsstudie', in U. Beicht, M. Friedrich and J. G. Ulrich (eds), *Ausbildungschancen und Verbleib von Schulabsolventen*, Bielefeld: Bertelsmann Verlag, pp. 101-292.
- Blossfeld, H.-P., Golsch, K. and Rohwer, G. (2007) *Event History Analysis with Stata*, Mahwah, NJ: Erlbaum.
- Bommes, M. (1996) 'Ausbildung in Großbetrieben – Einige Gründe, warum ausländische Jugendliche weniger Berücksichtigung finden', in R. Kersten, D. Kiesel and S. Sargut (eds), *Ausbilden statt Ausgrenzen - Jugendliche ausländischer Herkunft in Schule, Ausbildung und Beruf*, Frankfurt am Main: Haag + Herchen, pp. 31-44.
- Bourdieu, P. (1977) 'Cultural reproduction and social reproduction', in J. Karabel and A. H. Halsey (eds), *Power and Ideology in Education*, New York: Oxford University Press, pp. 487-511.
- Burt, R. S. (1992) *Structural Holes - The Social Structure of Competition*, Cambridge, MA/London, England: Harvard University Press.
- Christoph, B. (2005) 'Zur Messung des Berufsprestiges: Aktualisierung der Magnitude-Prestigeskala auf die Berufsklassifikation ISCO88', *ZUMA-Nachrichten* 57: 79-127.
- Cleves, M., Gutierrez, R., Gould, W. and Marchenko, Y. (2008) *An Introduction to Survival Analysis Using Stata*, College Station, TX: Stata Press.
- 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.
- Esser, H. (2004) 'Does the "new" immigration require a "new" theory of intergenerational integration?', *International Migration Review* 38: 1126-59.
- Field, J. (2008) *Social Capital*, London and New York: Routledge. Granovetter, M. (1973) 'The strength of weak ties', *American Journal of Sociology* 78: 1360-80.
- Granovetter, M. (1995) *Getting a Job: A Study of Contacts and Careers - 2nd edition*, Chicago, IL/London: University of Chicago Press.
- Haerberlin, U., Imdorf, C. and Kronig, W. (2005) 'Verzerrte Chancen auf dem Lehrstellenmarkt. Untersuchungen zu Benachteiligungen von ausländischen und von weiblichen Jugendlichen bei der Suche nach beruflichen Ausbildungsplätzen in der Schweiz', *Zeitschrift für Pädagogik* 51: 116-34.
- Haug, S. and Kropp, P. (2002) 'Soziale Netzwerke und der Berufseinstieg von Akademikern - Eine Untersuchung ehemaliger Studierender an der Fakultät für Sozialwissenschaften und Philosophie in Leipzig', *Arbeitsbericht des Instituts für Soziologie* Nr. 32.

- Hunkler, C. (2010) 'Ethnische Unterschiede beim Zugang zu Ausbildung und Erwerb von Ausbildungsabschlüssen', in B. Becker and D. Reimer (eds), *Vom Kindergarten bis zur Hochschule Die Generierung von ethnischen und sozialen Disparitäten in der Bildungsbiographie*, Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 213-50.
- Kalmijn, M. (2003) 'Shared friendship networks and the life course: An analysis of survey data on married and cohabiting couples', *Social Networks* 25: 231-49.
- Kalter, F. (2006) 'Auf der Suche nach einer Erklärung für die spezifischen Arbeitsmarktnachteile von Jugendlichen türkischer Herkunft', *Zeitschrift für Soziologie* 35: 144-60.
- 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: 259-74.
- Kramarz, F. and Skans, O. N. (2007) 'With a little help from my. parents? Family networks and youth labor market entry', *Crest Working Paper* 2007.
- Kristen, C., Edele, A., Kalter, F., Kogan, I., Schulz, B., Stanat, P. and Will, G. (2011) 'The education of migrants and their children across the life course', in H.-P. Blossfeld, H.-G. Roßbach and J. v. Maurice (eds), *Education as a Lifelong Process - The German National Educational Panel Study (NEPS)* *Zeitschrift für Erziehungswissenschaften Sonderheft* 14, Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 121-37.
- Lin, N. (2001) *Social Capital - A Theory of Social Structure and Action*, New York: Cambridge University Press.
- Lin, N. (1999) 'Social networks and status attainment', *Annual Review of Sociology* 25: 467-87.
- Lin, N. and Dumin, M. (1986) 'Access to occupations through social ties', *Social Networks* 8: 365-85.
- Lin, N. and Erickson, B. H. (eds) (2008) 'Theory, measurement, and the research enterprise on social capital', in *Social Capital. An International Research Program*, Oxford: Oxford University Press, pp. 1-24.
- Mouw, T. (2003) 'Social capital and finding a job: Do contacts matter?', *American Sociological Review* 68: 868-98.
- Mouw, T. (2006) 'Estimating the causal effect of social capital: A review of recent research', *Annual Review of Sociology* 32: 79-102.
- O'Regan, K. M. and Quigley, J. M. (1993) 'Family networks and youth access to jobs', *Journal of Urban Economics* 34: 230-48.
- Portes, A. (ed.) (1995) 'Children of immigrants: Segmented assimilation and its determinants', in *The economic Sociology of Immigration - Essays on Networks, Ethnicity, and Entrepreneurship*, New York: Russell Sage Foundation, pp. 248-80.

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. and Salikutluk, Z. (2012) 'Attitudes and expectations: Do attitudes towards education mediate the relationship between social networks and parental expectations?', *British Journal of Sociology of Education* 33: 701-22.

Seibert, H., Hupka-Brunner, S. and Imdorf, C. (2009) 'Wie Ausbildungs-systeme Chancen verteilen', *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie* 61: 595-620.

Völker, B. and Flap, H. (1999) 'Getting ahead in the GDR: Social capital and status attainment under communism', *Acta Sociologia* 42: 17-34. Wegener, B. (1985) 'Gibt es Sozialprestige?', *Zeitschrift für Soziologie* 14: 209-35.

Zhou, M. (1997) 'Segmented assimilation: Issues, controversies, and recent research on the new second generation', *International Migration Review* 32: 975-1008.

Tobias Roth is research assistant at the Mannheim Centre for European Social Research (MZES) and assistant lecturer at the chair of Sociology, societal comparisons at the University of Mannheim. His main research interests concern social networks as well as social, ethnic and gender inequalities in the education system.

Address for correspondence: Tobias Roth, University of Mannheim, Chair of Sociology, Societal Comparison, A5, 6, 68131 Mannheim, Germany.

E-mail: toroth@mail.uni-mannheim.de

Appendix. Exact wording for the position generator

Do you know someone in Germany who is a [occupations 1-12]*? Please mention only those persons whom you know by name and with whom you could start a short conversation when meeting them on the street. In case you know more than one person with the following occupation, please mention the person whom you thought of first.

Answer categories: Yes

No

From which country of origin is this person? (*This question was asked only for those occupations for which the respondent knows someone in Germany*)

Answer categories: Germany

Former Soviet Union

Turkey

Other country

*Occupations (Magnitude Prestige Scale scores in brackets): Low MPS: nurse (52), motor mechanic (46), unskilled worker (31), salesperson (51); middle MPS: engineer (88), interpreter (81), computer scientist (80), banking professional (74); high MPS: vocational school teacher (105), tax consultant (106), lawyer (146), secondary school teacher (132).