The role of social contacts in the employment status of immigrants

A panel study of immigrants in Germany

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abstract: Several studies in the migration literature have hypothesized that social contacts, in particular contacts with natives, are important for immigrant employment. Empirical work, however, has been inconclusive whether social contacts indeed have a causal effect. This study uses the German Socio-Economic Panel (1984–2004) to estimate the effect of social contacts of male and female immigrants on their employment position. Results show that contacts with family, friends and neighbours and being active as a volunteer have no significant effect on employment for both immigrant men and women. It is also found that having contacts with Germans increases the likelihood of male and female employment. The positive effect of having German contacts remains when social contacts are lagged, when host-country human capital is taken into account and also when unmeasured time-constant characteristics of immigrants are considered.

keywords: employment ✦ Germany ✦ immigrants ✦ social capital ✦ social contacts

Introduction

The unemployment rate of immigrants has been an important issue in scientific research and policy agendas in western countries (Commission of the European Communities, 2007). Immigrants have lower labour force participation rates and higher unemployment rates than natives (OECD, 2006). For instance, figures on Germany for 2005 show that about 25 percent of immigrants were unemployed, which was more than twice the unemployment level of natives (Uhlendorff and Zimmermann, 2006).

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From the perspective of the host countries, immigrant employment is a concern, because high unemployment rates strain the welfare state finances and undermine the role of migration as a solution to the ageing of the population and declining ratio of workers to pensioners. Immigrant employment is also an important point in the discussion on immigrant integration as it determines poverty, material well-being, social integration and the integration of immigrant future generations (Kesler, 2006).

The relationship between social contacts and employment opportunities has been largely theorized and researched in the literature on general populations (Boxman et al., 1991; Burt, 1992; Granovetter, 1973; Ioannides and Loury, 2004; Lin, 1999; Mouw, 2002, 2003), but only a few applications are found in the migration literature. The exceptions are studies on immigrants (mainly Latinos) in the US (Aguilera, 2002, 2003, 2005; Aguilera and Massey, 2003; Amuedo-Dorantes and Mundra, 2008; Sanders and Nee, 1996, Sanders et al., 2002). These studies found that upon arrival in the host country, immigrants benefit from contacts with co-ethnic family and friends who provide them with knowledge, information and other essential skills which facilitate the adjustment to the labour market.

However, earlier studies have focused predominantly on contacts with co-ethnic groups. Although contacts with co-ethnics could foster economic mobility, it can be argued that contacts with natives may be especially important for immigrants' economic opportunities. Immigrants have predominantly contacts with members of their own ethnic group, who do not know the host country labour market as well as natives and who have less information on job opportunities than natives. Thus, contacts with natives of the host country may be important for immigrants as they provide access to a larger society and facilitate cultural adaptation and wider job choices (Hagan, 1998; Kazemipur, 2006; Nannestad et al., 2008; Putnam, 2000).

According to Putnam (2000), immigrants' contacts with natives are a form of bridging social capital that is crucial for providing access to external assets and for information diffusion, while contacts with co-ethnics are a form of bonding social capital that is most useful for strengthening reciprocity and solidarity. Surprisingly, few studies have looked at the importance of bridging social capital for immigrant economic integration. These studies were conducted among immigrants in Canada (Kazemipur, 2006), Greece (Iosifides et al., 2007), Great Britain (Kahanec and Mendola, 2009) and the Netherlands (Kanas and Van Tubergen, 2009; Kanas et al., 2009; Lancee, 2010) and among immigrant children in Germany (Kalter, 2006). Although these studies generally support the presumed positive effect of social contacts with natives, all studies except the study on immigrant

children (Kalter, 2006) relied on cross-sectional data. In this way, it is impossible to test the causal effect of having bridging social contacts on immigrant economic outcomes.

The main research question of this study is whether and to what extent social contacts, in particular bridging social ties, affect immigrant employment. Answering this question is methodologically challenging in three ways. First, despite the theoretical importance of social contacts for immigrant economic integration, the causality might be in the reverse direction. Getting a job creates opportunities to meet and interact with others, and empirically this could result in a correlation between social contacts and employment, even in the absence of a causal effect of social contacts on employment.

Second, a correlation between bridging social contacts and immigrant employment could be spurious due to time-varying human capital accumulation. Immigrants who learn the language of the host country, and who attend school or work in the host country are more likely to find a job, but at the same time these post-migration investments in human capital could help immigrants to acquire social contacts with natives.

Third, it can be also argued that a correlation between social contacts and immigrant employment is spurious due to time-constant unmeasured characteristics of immigrants. Given a tendency of similar people to become friends (McPherson et al., 2001), a correlation between social contacts and employment could merely reflect a tendency of economically successful immigrants to become friends with other economically successful immigrants or natives.

In this article, we address these challenges to examine the causal effect of social contacts in three ways. First, we use longitudinal data and measure social contacts at an earlier point in time than employment outcomes, thereby reducing problems of reverse causality. Second, we explicitly model the impact of post-migration human capital accumulation, and see whether after taking this into account a (positive) effect of social contacts persists. Third, by estimating a fixed effects model, we test whether a correlation between social contacts and employment can be explained by time-constant unmeasured characteristics of immigrants.

We use the German Socio-Economic Panel (GSOEP) collected in the period between 1984 and 2004 among female and male immigrants in Germany. A major advantage of the GSOEP data is that they provide longitudinal information on immigrants' social contacts and employment position over a long time period. Furthermore, the data also offer detailed information on immigrants' migration history, and their origin- and host-country human capital.

Theory and Hypotheses

Social Contacts

Linkage between social contacts and immigrant economic integration is provided by the insights from social capital theory (Lin, 1999). Social capital refers to the importance of resources, which are available to a given individual through his or her social relations to others (Flap, 2004). Although there is no single coherent theory of social capital, it is commonly assumed that the amount of social capital depends on the number of people in an individual's network, the willingness of these people to offer help and the resources available to others (De Graaf and Flap, 1988). Based on this assumption, it can be argued that the more contacts people have, the more others are willing to help them, and the better the resources of others, the better their economic position.

The idea that, upon arrival to the host country, immigrants rely on co-ethnic contacts is not new in the migration literature (Boyd, 1989; Hagan, 1998; Massey, 1986; Portes and Jensen, 1989; Portes and Sensenbrenner, 1993). It is argued that, because of common origin ties which facilitate bounded solidarity and reciprocity, co-ethnic contacts are often ready to cooperate and provide help when called upon (Portes and Sensenbrenner, 1993). Drawing on co-ethnic family and friends, immigrants gain access to knowledge, assistance and other resources that facilitate their economic integration into the host country (Portes and Sensenbrenner, 1993). The importance of family and friends for immigrant economic incorporation relies on the provision of host-country specific knowledge and information, for example, about where to look for work, what the available jobs are, how to present themselves to employers and how to behave on the job (Aguilera and Massey, 2003; Fernandez-Kelly, 1995). Furthermore, family and friends can directly influence a job-matching process by providing an entry into desirable occupations (Coverdill, 1998; Lin, 1999). Next to immediate relatives and friends, immigrant may participate in the host-country institutions, which include religious denominations, social organizations and sport clubs. It can be argued that contacts developed through various institutions will lead to extended social networks and improved flow of innovative information (Burt, 1992), and thus increase immigrant employment opportunities.

Social contacts may be helpful not only in facilitating the entry into employment but also in reducing the job turnover and the risk of unemployment (Coverdill, 1998; Kmec, 2007; Neckerman and Fernandez, 2003). For example, Coverdill (1998) argues that getting a job via family and friends improves the match between a job and worker and as a result, increases the duration of employment. Family and friends can be

especially useful in facilitating transition to the new job by mentoring, providing social support, feedback, advice and sometimes even informal training (Bernasco et al., 1998).

There has been consistent evidence in the literature that social contacts are positively associated with the labour market outcomes of immigrants such as employment, occupational status and wages (Nee et al., 1994; Sanders and Nee, 1996; Sanders et al., 2002). For example, Aguilera and Massey (2003) showed that having co-ethnic family and friends with migratory experience improves the effectiveness and efficiency of job search to yield better quality and more highly paid jobs. Likewise, Sanders et al. (2002), in their research on Asian immigrants in the US, showed that having co-ethnic relatives and friends in the host country is crucial in providing immigrants with information about employment opportunities outside the ethnic enclave.

Social Contacts with Natives and Host-Country Human Capital

Previous research has implied that immigrants have contacts predominantly within their own ethnic group and so scholars focused almost exclusively on co-ethnic contacts. Although contacts with co-ethnics are helpful for the economic integration of immigrants, it can be argued that contacts with natives are particularly important for information diffusion and influence (e.g. Hagan, 1998; Nannestad et al., 2008; Putnam, 2000). One reason for this importance is that natives have access to more and better information about salaried employment than immigrants do, having naturally been longer exposed to the host-country labour market. They are, for example, better informed about specific job openings, they generally have a better idea on how to find jobs and on how to present themselves to employers. Another reason is that they are also less often unemployed, are higher educated and have more prestigious jobs than immigrants. Thus, contacts with natives bridge immigrants across ethnic groups, and so expose them to a more diverse set of resources than co-ethnic contacts.

However, even if we find a positive correlation between bridging social contacts and immigrant employment, the relationship might be in the opposite direction or spurious. Figure 1 presents the possible causal and spurious relations between immigrant social contacts and employment. The capital letters in the figure refer to the relations discussed. As depicted in Figure 1, arrow A is the central question of this article: whether social contacts, in particular bridging contacts with natives, affect immigrant employment. Arrow B illustrates reverse causality between social contacts and employment. Having a job provides opportunities to meet and socialize

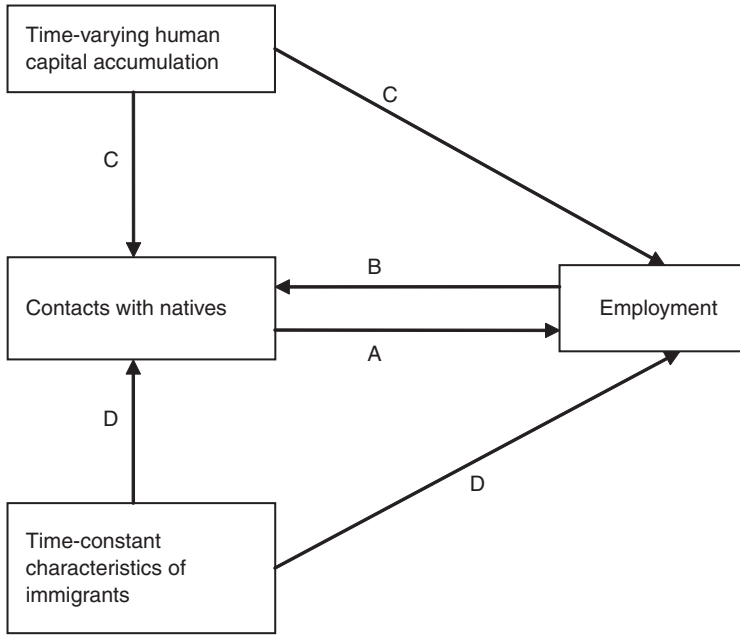

Figure 1 *The Causal and Spurious Relations between Immigrant Social Contacts and Employment*

with people and so a positive correlation between bridging social contacts and immigrant employment could merely reflect the fact that employed immigrants have more contacts with natives. For example, using panel data, Martinovic et al. (2008) showed that having a job and especially a higher status job promotes interethnic contacts of immigrants in the Netherlands.

Arrow C shows the possibility that a positive correlation between bridging social contacts and immigrant employment could be spurious due to unobserved time-variant human capital accumulation. It can be argued that immigrants with more host-country specific skills benefit from these skills, since they are associated with increasing contacts with natives. Immigrants who speak the host-country language, get education and participate in the host-country labour market have more contacts with natives and better economic outcomes. Thus, post-migration investments in human capital lead to both social contacts with natives and better economic opportunities, thereby challenging the presumed positive effect of social contacts with natives on immigrants' economic chances. In line with this idea, Kanas and Van Tubergen (2009) found that although social contacts with Dutch natives and organization membership are

positively associated with employment chances and occupational status of immigrants in the Netherlands, once host-country human capital is taken into account most of this positive association disappears.

Arrow D depicts another possibility, namely that a positive correlation between social contacts and immigrant employment is spurious due to social homophily, the tendency for similar people to become friends with each other (McPherson et al., 2001; Mouw, 2003). As argued by Mouw (2003: 869), 'if successful people prefer to socialize with other successful people, then this preference would result in a correlation between friends' income and occupational status, even in the absence of causal effect of social contacts on labour market outcomes'. This could mean, for example, that successful immigrants have more and better (i.e. bridging) contacts and higher employment chances but there is no causal relationship between social contacts and immigrant employment.

Data and Measurement

Our data come from the German Socio-Economic Panel (GSOEP), a nationally representative longitudinal survey administrated by the German Institute for Economic Research (DIW Berlin). The GSOEP started in 1984 in the Federal Republic of Germany (West Germany) with about 12,000 respondents, 3000 of whom were legal immigrants. The original immigrant sample (sample B) included the West German immigrant population from Italy, Greece, Spain, Yugoslavia and Turkey, the main sources of guest worker migration. In 1994, more recent immigrants, who arrived in West Germany between 1984 and 1993, were included in the survey (sample D). The majority of immigrants in sample D were ethnic Germans (Aussiedlers), mainly from Eastern Europe and the former Soviet Union, and foreigners, largely asylum seekers and war refugees from former Yugoslavia (Haisken-DeNew and Frick, 2005). The major strength of the GSOEP data is that they provide longitudinal information on immigrant pre- and post-migration human capital and social contacts for a long time period. Longitudinal data on immigrants are scarce, and the few existing longitudinal surveys of immigrants in Australia, Canada and the US are very short, up to 3–5 years.

The response rate in the first wave exceeded 70 percent in both sample B and D.[1] In 2004, the response rate was about 25 percent (in sample B) and about 45 percent (in sample D) (Kroh and Spieß, 2008). The main causes of attrition were unsuccessful interviews and unsuccessful tracking of individuals throughout the survey. Attrition was also related to mortality and migratory movements. Special measures were taken to reduce attrition in the subsequent waves. Temporary dropouts or persons who could not be successfully interviewed in a given year were followed

until there were two consecutive temporary dropouts of all household members or a final refusal (Haisken-DeNew and Frick, 2005).

The analysis is based on 1984–2004 GSOEP immigration waves, sample B (guest worker sample) and sample D (recent immigrant sample). This study focuses on the population of economically active female and male immigrants, aged 20–60 years, who were successfully interviewed in a given year. Immigrants are defined as individuals born outside Germany. The current analysis is restricted to 21,216 observations and 2792 individuals with valid information on the covariates and dependent variables.[2]

Dependent and Independent Variables

Employment Those who are employed, including part-time workers and the self-employed, are contrasted with those who are unemployed. Respondents who are economically inactive (i.e. those pursuing their education, doing military service, homemakers and the retired) are excluded from the analyses.

We included measures of social contacts, human capital and controls. To test the hypothesis that a positive correlation between social contacts and immigrant employment can be due to time-varying human capital accumulation, we distinguished between human capital acquired in the country of origin and in the host country.

We included the following measures of social contacts:

Frequency of Contacts Respondents were asked how frequently they spent time with their friends, relatives and neighbours. The possible answers were: never, occasionally, regularly. We treated frequency of contacts as a continuous variable.

Volunteering Activity Respondents were asked whether they volunteered for any clubs, associations or social services during the last year. The possible answers were: volunteered weekly, volunteered monthly, volunteered less frequently and never volunteered. Only few people had volunteered at all during the last year, therefore we recoded this variable into a dichotomous variable with score 1 for those respondents who volunteered at least once during the last year and 0 for those who never volunteered.

Contacts with Germans Respondents were asked whether since they lived in Germany they had close German friends, whether in the last 12 months they visited Germans in their home and whether in the last 12 months they received German visitors in their home. The possible answers to all these questions were yes or no. Answers to these questions are highly

correlated, and we, therefore, combined them by adding up the scores on the three items and dividing them by three (Cronbach's alpha .80).

Unfortunately, the GSOEP data do not include information about the intensity of contacts with Germans. Combining people who visit German natives every week with those who visit Germans once a year into one category may lead to over- or underestimation of the effect of contacts with Germans on employment. We, therefore, will keep a cautionary note in mind when discussing the effect of contacts with Germans.

We also included several measures of human capital variables. Host-country human capital is measured directly by the following two indicators:

Education in Germany Respondents were asked about the highest degree taken in secondary school as well as completed vocational and post-secondary training. Respondents were also asked whether they had received their education in Germany. Based on this information, we constructed a variable measuring the total years of education in Germany (cf. Pischke, 1992; for details see Appendix).

Language Proficiency Respondents were asked how well they speak the German language. The possible answers were: do not speak German at all; speak German poorly; speak German fairly, speak German well; speak German very well. Because only a few respondents (fewer than 1 percent) do not speak German language at all, we combined the first two categories.

Human capital from the country of origin is measured directly by the one indicator:

Education in Country of Origin The information on schooling in the country of origin was rather limited. The possible answers in the questionnaire were: less than compulsory, more than compulsory and higher schooling. Information about training in the country of origin is more detailed: none, some instruction on-the-job, formal apprenticeship, vocational school, university and other. Based on this information, we constructed a variable measuring total years of education in the country of origin (cf. Pischke, 1992; see also Appendix).

We also provided measures for general human capital:

Work Experience The survey provided a direct measure of the total years of work experience abroad and in Germany. To control for the non-linear relationship between years of work experience and employment, we also included the quadratic form of total work experience.

Several control variables were included in our model:

Doctor Visits Respondents were asked how many times they went to the doctor in the last three months. Because several surveys (in 1985, 1986, 1987 and 1993) had asked the question for every specialist separately, we computed the total number of doctor visits during the last three months. We treated the doctor visit variable as a dummy variable with score 1 for those who visited a doctor at least once in three months. We controlled for doctor visits based on previous research, suggesting health status as a determinant of immigrant productivity and so of employment chances (e.g. Becker, 2007).[3]

Gender Because there are significant differences in the determinants of employment of immigrant men and women, with the latter much more heavily influenced by the family-related factors, i.e. marriage, number and age of children and characteristics of the country of origin and destination (e.g. Antecol, 2000; OECD, 2006), we run separate analyses for men and women. The additional advantage of having separate analyses is that we provide further insights into gender-specific effects of social contacts.

Partner Respondents were asked whether they had a partner. We combined this information with the information about the partner's country of origin to construct a variable with three categories: single, cohabiting/married with an ethnic partner, cohabiting/married with a German partner.

Children in the Household We control for the number of children in the household, because having children is an important determinant of women's employment. We constructed a variable with three categories: no children in the household, one or two children in the household, more than two children in the household.

Years since Migration We subtracted the year of respondent's arrival in Germany from the current survey year to compute the length of stay in Germany.

Immigrant Group We constructed a variable with seven categories: (1) Turkish, (2) Greek, (3) Yugoslavian, (4) Italian, (5) Spanish, (6) Eastern European and (7) Third country immigrants. We distinguished between the following immigrant groups because there are large differences in their economic integration. It is generally found that Turkish immigrants are the most disadvantaged group, economically. By contrast, Eastern European immigrants, of whom the majority are ethnic Germans, show

Table 1 *Descriptive Statistics of Independent and Dependent Variables, Male and Female Immigrants, 20–60 Years of Age; GSOEP 1986–2004*

	Male			Female		
	Range	Mean	SD	Range	Mean	SD
Dependent variable						
Employed	0–1	0.89			0.86	
Independent variables						
Social capital						
Frequency of contacts $t-1$	1–3	2.85	0.42		2.83	0.44
Volunteering activity $t-1$	0–1	0.15			0.09	
Contacts with Germans $t-1$	0–1	0.83	0.31		0.85	0.30
Human capital						
Schooling in origin country (in years)	0–17	7.03	3.55	0–16	6.68	3.69
German schooling (in years) $t-2$	0–18	3.22	5.03	0–18	2.67	4.70
German language proficiency $t-2$						
Poor language skills	0–1	0.12			0.16	
Fair language skills	0–1	0.33			0.31	
Good language skills	0–1	0.40			0.36	
Very good language skills	0–1	0.16			0.17	
Work experience (in years) $t-2$	0–48	18.02	11.01	1–46	11.37	9.58
Control variables						
Doctor visits in last 3 months	0–1	0.56			0.70	
Partner						
Single	0–1	0.18			0.21	
Ethnic	0–1	0.74			0.76	
German	0–1	0.08			0.03	
Children in the household						
No children	0–1	0.30			0.34	
1 or 2 children	0–1	0.58			0.59	
More than 2 children	0–1	0.12			0.07	
Years since migration	2–42	20.13	7.51		19.74	7.46
Ethnic group						
Turkish	0–1	0.37			0.27	
Greek	0–1	0.10			0.13	
Yugoslavian	0–1	0.12			0.14	
Italian	0–1	0.18			0.15	
Spanish	0–1	0.08			0.07	
Eastern European	0–1	0.05			0.08	
Third country	0–1	0.09			0.15	
Number of observations	13,434				7782	
Number of individuals	1644				1148	

Note: Descriptive statistics of 18 dummies for survey year and 10 dummies for region not presented.

employment and occupational outcomes that are closer to those of natives (e.g. Kalter and Granato, 2002; Kogan, 2004, 2007).

We also controlled for the survey year, eight regions, as well as the two German city-states of Berlin and Hamburg. These variables refer to contextual factors, and capture the job opportunities, the regional unemployment, the place of residence population density, and finally the amenities and disadvantages of the region (Constant and Massey, 2005).

Table 1 presents the descriptive statistics for the independent and dependent variables. We checked for multicollinearity among the independent variables, but multicollinearity is not a problem.[4]

Method

For a longitudinal latent binary outcome variable, a common model is

$$y_{it}^{*} = x_{it}^{'}\beta + \alpha_i + \varepsilon_{it}, \quad (1)$$

where we observe $y_{it} = 1$ if $y_{it}^{*} > 0$ and $y_{it} = 0$ otherwise. In our model, y_{it} indicates whether respondent i is working in period t or not, x_{it} is a vector of explanatory variables, β is a vector of regression coefficients, α_i is an individual specific component, and ε_{it} is a remaining error component. We use a random effects logit model for the analysis of immigrant employment. This model is well suited for the analysis of longitudinal data as it takes into account that repeated observations of the same individual are nested within individuals and panel waves. The random effects logit model is a maximum likelihood solution in which model parameters are solved through a weighted combination of within- and between-individual covariances. This method allows the explanatory variables that are constant over time to be included in the analysis (e.g. ethnic group, pre-migration schooling) and is normally more efficient than a fixed effects model (Johnson, 1995; Verbeek, 2000).

A major drawback of the random effects model is that it assumes that time-constant individual effects α_i are random, and ε_{it} an error component is uncorrelated over time. That is, it is assumed that α_i and ε_{it} terms are mutually independent, and independent of all x_{it} (Halaby, 2004; Verbeek, 2000). This assumption may be problematic if social contacts are correlated with unmeasured productivity characteristics. If economically successful immigrants prefer to socialize with other economically successful immigrants, then this preference would result in a correlation between immigrant social contacts and employment, even in the absence of causal effect of social contacts.

To test whether a positive correlation between social contacts and employment is causal or instead represents a spurious effect attributable to time-constant unmeasured characteristics of immigrants, we estimated the fixed effects logit model. Because the fixed effects model is based entirely on within-individual variation over time, it eliminates time-constant individual effects α_i from the estimation, and so the possible bias caused by a correlation between unobserved individual characteristics α_i and explanatory variables x_{it} is reduced (Halaby, 2004; Verbeek, 2000). This means, however that the variables that do not vary over time are excluded from the model. Another disadvantage of the fixed effects model is that it is problematic to estimate the effect of time-varying variables that change little over time (e.g. post-migration human capital).

We further provide some insights into the causal relationship between human capital, social contacts and employment by including lagged host-country human capital and social contacts variables in the models. First, as we already argued before, a positive correlation between social contacts with natives and immigrant employment could be spurious due to unobserved host-country human capital accumulation. By lagging host-country human capital variables by two years and social contact variables by one year, we test whether a correlation between social contacts and employment is causal or, instead, it is spurious due to host-country human capital accumulation. Second, a positive correlation between social contacts and employment could also be due to employment increasing social contacts. To avoid a reverse causality between social contacts and employment, we lagged social contacts variables by one year prior to employment.[5]

Results

Tables 2 and 3 present the results from the random effects logit model predicting the impact of social contacts on immigrant employment. Table 4 presents the results from the fixed effects logit model. Because there is little within-individual variation in the employment status and explanatory variables in the women sample, it is not possible to run the fixed effect model for women only. Therefore, we run the fixed effect model for the pooled sample of male and female immigrants. In all three tables, Model 1 includes only measures of social contacts and controls, Model 2 includes only human capital and control variables and Model 3 is a full model and it includes the measures of social contacts, origin- and host-country human capital and control variables. We compare the coefficients of Model 1 to that of Model 3, in order to see whether the causal effect of social contacts persists when host-country human capital variables are taken into account.

Table 2 *Random Effects Logit Model of Employment among Male Immigrants, 20–60 Years of Age, GSOEP 1986–2004*

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Social capital						
Frequency of contacts $t-1$	–.120	.102			–.117	.105
Volunteering activity $t-1$	–.100	.127			–.155	.131
Contacts with Germans $t-1$	.725**	.146			.569**	.151
Human capital						
Schooling in origin country (in years)			.049	.032	.047	.032
German schooling (in years) $t-2$			.066*	.022	.064*	.022
German language proficiency $t-2$						
Poor language skills (ref.)			0		0	
Fair language skills			.187	.146	.138	.147
Good language skills			.455*	.169	.389*	.170
Very good language skills			.683*	.222	.603*	.223
Work experience (in years) $t-2$			.212**	.025	.214**	.025
Work experience square (in years) $t-2$			–.007**	.001	–.007**	.001
Control variables						
Doctor visits in last 3 months	–.276*	.087	–.192*	.090	–.199*	.090
Partner						
Single (ref.)	0		0		0	
Ethnic	.839**	.163	.652**	.179	.655**	.179
German	1.221**	.315	.746*	.330	.735*	.332
Children in the household						
No children (ref.)	0		0		0	
1 or 2 children	.377*	.127	.191	.132	.188	.133
More than 2 children	.281	.183	–.064	.190	–.064	.190
Years since migration	–.055**	.013	–.017	.017	–.021	.017
Ethnic group						
Turkish (ref.)	0		0		0	
Greek	1.066*	.341	1.233*	.373	1.243*	.374

Table 2 *(Continued)*

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Yugoslavian	.690*	.299	.707*	.322	.669*	.323
Italian	.632*	.283	.774*	.306	.751*	.307
Spanish	1.728**	.411	1.808**	.443	1.781**	.445
Eastern European	1.283*	.438	1.596*	.495	1.486*	.497
Third country	.706*	.344	.914*	.371	.849*	.372
Constant	2.771**	.616	.919	.612	0.935	.687
Number of observations	13,434		13,434		13,434	
Number of individuals	1644		1644		1644	
McFadden's pseudo-R^2 change	.004		.031		.033	

** $p < .001$; * $p <= .05$; two-sided test.
Unstandardized coefficients; the model includes also 18 dummies for survey year and 10 dummies for region and two German city-states of Berlin and Hamburg.

Social Contacts

Table 2, Model 1 shows a positive effect of contacts with Germans on men's employment. Specifically, having contacts with Germans in the previous year increases the odds of male employment 106 percent {100*[exp$^{(.725)}$ – 1].[6] Because we only measure the presence of contacts with Germans and not the intensity of these contacts, one could expect the effect of German contacts to be larger for immigrants with more frequent than average contacts with Germans and smaller for those who have less than average frequent contacts. Regarding other indicators of social contacts, we do not find the expected positive effect of weekly time spent with family, friends and neighbours and volunteering activity on men's employment. The addition of all three indicators of social contacts to the model with control variables only improves the explained variance by 0.4 percent (McFadden's pseudo-R^2 change: .071 – .067 = .004).

Do we find similar results of social contacts for immigrant women? Table 3, Model 1 shows that contacts with Germans are also beneficial for women: having contacts with Germans increases the odds of women's employment by 105 percent. Again, we do not find an expected positive effect of other indicators of social contacts on the employment of women. Adding social contacts variables to the model with control variables only improves the explained variance by (0.4 percent).

Social Contacts with Natives and Host-Country Human Capital

Does the positive effect of contacts with Germans remain after taking into account host-country human capital accumulation? The comparison

Table 3 *Random Effects Logit Model of Employment among Female Immigrants, 20–60 Years of Age, GSOEP 1986–2004*

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Social capital						
Frequency of contacts $t-1$	.166	.109			.157	.110
Volunteering activity $t-1$	.031	.183			–.084	.186
Contacts with Germans $t-1$	.717**	.174			.631**	.178
Human capital						
Schooling in origin country (in years)			.104*	.033	.104*	.033
German schooling (in years) $t-2$			.070*	.022	.070*	.022
German language proficiency $t-2$						
Poor language skills (ref.)			0		0	
Fair language skills			–.255	.167	–.302	.167
Good language skills			–.107	.193	–.162	.193
Very good language skills			.338	.244	.255	.244
Work experience (in years) $t-2$			.030	.027	.025	.027
Work experience square (in years) $t-2$			–.003*	.001	–.002*	.001
Control variables						
Doctor visits in last 3 months	–.378*	.111	–.363*	.113	–.356*	.113
Partner						
Single (ref.)	0		0		0	
Ethnic	–.049	.178	–.050	.188	–.026	.186
German	–.828	.431	–.860	.450	–.866	.447
Children in the household						
No children (ref.)	0		0		0	
1 or 2 children	–.009	.145	–.112	.149	–.125	.148
More than 2 children	–.360	.229	–.475*	.234	–.471*	.234
Years since migration	–.018	.015	.020	.018	.017	.018
Ethnic group						
Turkish (ref.)	0		0		0	

(Continued)

Table 3 *(Continued)*

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Greek	1.173*	.356	1.007*	.398	1.008*	.391
Yugoslavian	.831*	.324	.800*	.357	.783*	.352
Italian	1.053*	.335	.843*	.359	.858*	.354
Spanish	1.349*	.448	1.369*	.484	1.333*	.477
Eastern European	.557	.403	.732	.478	.630	.471
Third country	1.072*	.337	1.365**	.379	1.282*	.373
Constant	1.286*	.657	1.227	.648	.385	.708
Number of observations	7782		7782		7782	
Number of individuals	1148		1148		1148	
McFadden's pseudo-R^2 change	.004		.014		.016	

** $p < .001$; * $p < = .05$; two-sided test.
Unstandardized coefficients; the model includes also 18 dummies for survey year and 10 dummies for region and two German city-states of Berlin and Hamburg.

between Model 1 and Model 3 (Tables 2 and 3) shows that only a small part of the effect of social contacts with Germans can be explained by host-country human capital accumulation.[7] Specifically, the effect of contacts with Germans on male employment is a bit stronger in the model with social contacts variables only (b = .725, Table 2, Model 1) than when we control for human capital variables (b = .569, Table 2, Model 3). Likewise, the positive coefficient of German contacts on women's employment decreases by little between Models 1 and 3 (b = .717, Table 3, Model 1 and b = .631, Table 3, Model 3). These results suggest that most of the positive effect of contacts with Germans on employment is direct and only a small part of this effect can be explained by destination human capital variables. Thus, immigrant men and women benefit from social contacts with Germans because of the direct effect of such bridging ties on the employment (through information and influence), and not because of earlier investments in host-country human capital leading to such contacts.

Interestingly, the comparison between Model 2 and Model 3 (Tables 2 and 3) shows that the effects of host-country human capital on employment remain almost the same when social contacts variables are included in the model. These findings imply that host-country human capital has a direct positive effect on the employment of immigrant men and women (interpreted in terms of higher quality and transferability and reduced

Table 4 *Fixed Effects Logit Model of Employment among Male and Female Immigrants, 20–60 Years of Age, GSOEP 1986–2004*

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Social capital						
Frequency of contacts $t-1$	–.073	.082			–.062	.082
Volunteering activity $t-1$	–.168	.117			–.173	.117
Contacts with Germans $t-1$	.364*	.130			.371*	.131
Human capital						
German schooling (in years) $t-2$			.120**	.025	.120**	.025
German language proficiency $t-2$						
Poor language skills (ref.)			0		0	
Fair language skills			–.118	.124	–.138	.125
Good language skills			–.059	.148	–.079	.149
Very good language skills			.276	.190	.248	.191
Number of observations	7932		7932		7932	
Number of individuals	823		823		823	
McFadden's pseudo-R^2 change	.002		.005		.007	

** $p < .001$; * $p <= .05$; two-sided test.

Hausman test: H0: the difference between the random and fixed effects model coefficients (cf. Model 3) is not systematic: $\chi^2(38)$: 190.93, p =.000.

Unstandardized coefficients; the model controls for work experience; work experience squared; doctor's visits; Dutch partner, co-ethnic partner, single (ref.); no children in the household (ref.), 1–2 children in the household, more than two children in the household; years since migration; 18 dummies for survey year and 10 dummies for region and two German city-states of Berlin and Hamburg.

employer's uncertainty towards host-country skills), and that associated relations with social contacts with natives explain very little of this effect.

Does the positive effect of contacts with Germans on employment simply reflect a positive correlation between unobserved characteristics of immigrants and having German contacts? Table 4 presents the results

from the fixed effects logit model. Because the coefficients are estimated using information on variation only within individuals, this model controls for all measured and unmeasured time-constant differences between immigrants, including selection and cohort effects. Because measures that do not vary within individuals must be excluded, we drop origin-country education, dummy variables for immigrant groups and for gender from the model.

The fixed effects model confirms the findings from the random effects model: the coefficient of German contacts is positive and of similar magnitude, and our conclusions for other indicators of social contacts remain the same.[8] Likewise, in the random effects model, the comparison between Model 1 and Model 3 in the fixed effects model shows that most of the positive effect of German social contacts on employment is direct and cannot be explained by destination human capital variables.

Although the effects of human capital and the control variables are not the main focus of this study, they are important to mention briefly. Consistent with previous studies, Table 2, Model 3 shows that German language proficiency and post-migration credentials and experiences increase the employment opportunities of male immigrants (e.g. Constant and Massey, 2005). Regarding immigrant women (Table 3, Model 3), we find that both education acquired in the country of origin and in Germany have a positive effect on women's employment. Surprisingly, there is no clear relationship between German language proficiency and employment chances of women.[9]

Regarding the control variables, we find that having a partner either co-ethnic or German is associated with the increased odds of employment for men (Table 2, Model 3) but not for women (Table 3, Model 3). On the other hand, having more than two children in the household as compared to not having children is negatively associated with the employment of women but has no significant relationship with male employment. The fact that we do not find a significant relationship between length of time in Germany and employment suggests that the economic returns to length of stay are fully explained by acquiring host-country specific skills and contacts with Germans. Finally, even after taking into account human capital and social contacts variables, Turkish men and women have significantly lower odds of employment as compared to all but Eastern European women.

Conclusions and Discussion

There has been much discussion about the presumed positive effects of social contacts on people's employment, and more recently this relationship

has been addressed in the literature on the economic assimilation of immigrants. Besides the well-documented role of bonding social contacts, little empirical evidence exists for bridging social ties. Furthermore, earlier studies used cross-sectional data, which made it impossible to make inferences about the causal effects of social contacts.

This article contributes to previous research by studying the impact of social contacts, in particular bridging contacts, and by addressing the problems in estimating the causal effects of such contacts. The strength of this research lies in the use of the longitudinal data on immigrants in Germany, which enabled us to test whether a positive correlation between social contacts and immigrant employment can be explained by reverse causality, spuriousness due to time-variant human capital accumulation or spuriousness caused by time-constant unmeasured characteristics of immigrants.

The random effects models show that frequency of contacts with family, friends and neighbours and volunteering in clubs, associations or social services do not have the expected positive effect on immigrant employment. However, our results do show that having contacts with Germans increases the odds of employment for both immigrant men and women. This finding remains, even when we take into account the possibilities of reverse causality and spuriousness. Thus, the positive effect of German contacts remains even after social contacts are lagged by one year. In addition, the positive effect cannot be explained by time-variant human capital accumulation or time-constant unobserved characteristics of immigrants. This means that the positive effect of social contacts with Germans on immigrant employment cannot be attributed to German language proficiency or post-migration credentials and experiences, or to a tendency of similar people to become friends. Instead, our results suggest that immigrants indeed benefit from contacts with natives mainly because of resources provided through these contacts.

The importance of social contacts with natives suggests that these contacts provide immigrants with crucial resources, namely information and influence that facilitate their employment chances. Thus, although co-ethnic family and friends may be generally more than natives willing to help and assist immigrants in the host-country labour market, contacts with natives may be more capable of improving the economic outcomes of immigrants (Hagan, 1998; Sanders and Nee, 1987). The importance of contacts with natives may be also related to their ability to substitute for host-country human capital. Most of the migration to Germany started in the 1960s as a result of the rising labour demand for low-skilled workers, followed in the late 1980s and mid-1990s by flows

of asylum seekers, refugees and ethnic Germans (Kogan, 2007). Most of these immigrants who came to Germany lacked host-country specific human capital and because all but ethnic Germans were supposed to stay temporarily, no comprehensive policy was initiated to facilitate the social and cultural integration of immigrants. In this context, the economic benefit from contacts with natives could be related to their ability to substitute for the lack of German language or credentials (e.g. by translating job advertisements, providing recommendations in the case of missing credentials).'

The relatively low educational level, lack of German credentials and language skills and persistent economic disadvantage could also reduce potential benefits from co-ethnic contacts of immigrants. That could maybe explain why having family and friends in the host-country lead to increased immigrant employment and wages in the United States (Aguilera and Massey, 2003; Hagan, 1998), whereas there is no direct effect of frequency of contacts with relatives, friends and neighbours and volunteering activity on employment of immigrants in Germany.

One of our additional findings is that social contacts operate in the same way for immigrant men and women. Previous research showed that immigrant men benefit more from social contacts than immigrant women, mainly due to differences between male and female social contacts, where women access smaller, homogeneous and resource-poor contacts (Gilbertson, 1995; Hagan, 1998). For example, Hagan (1998), in her research on the Maya immigrant community in Houston, Texas, suggested that one of the important limitations of women's social contacts was the lack of ties with natives. According to the author, such bridging ties were crucial for the long-term incorporation of Maya men in the US. In this study, we show that when immigrant women get access to bridging contacts with natives, they benefit from these contacts equally to immigrant men.

This study finds important immigrant group differences in employment, in line with prior research (Kogan, 2004, 2007). We find that the Turks are more often unemployed, and that this disadvantage even remains after taking into account pre- and post-migration human capital, social contacts with natives and other demographic variables.

The policy implication following from this study would be to facilitate social integration of immigrants. Following on the idea that there is 'no mating without meeting' (Verbrugge, 1977), policy-makers should concentrate on creating opportunities for interethnic social contacts such as ethnically mixed neighbourhoods, schools, voluntary organizations and

sport organizations that will facilitate immigrant contacts with natives and so improve the labour market integration of immigrants.

Appendix: Description of the Education Variables

Table A1 *Education in Country of Origin (in years) (cf. Pischke, 1992)*

Type of education	Turkey	Yugoslavia	Greece	Italy	Spain	Eastern Europe	Third country
Less than compulsory	4	7	8	7	7	7	8
Compulsory school	5	8	9	8	8	8	9
More than compulsory	8	11	12	12	11	12	12
On-the-job instruction	8.5	8.5	9.5	8.5	8.5	8.5	9.5
Apprenticeship	9	9	10	9	9	9	10
Vocational school	10	10	11	10	10	10	11
University	15	15	16	17	15	17	16
Other training	10	10	11	10	10	10	11

Table A2 *Education in Germany (cf. Pischke, 1992)*

Type of education	Years
No degree (primary education)	7
Lower school degree	9
Intermediary school	10
Professional college degree	12
High school degree	13
Other degree	10
Apprenticeship	11
Vocational school	12
Health care school	11.5
Technical school	12.5
Civil servant apprenticeship	11.5
Other training	12
Higher technical college	17
University degree	18

Notes

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1. Thirty percent of the total sample were not interviewed in the first wave of the survey because the respondents were below the age of 16.
2. The questions about social contacts were asked on average in 60 percent of the analysed waves (in ten, seven and nine waves for frequency of contacts, volunteering and German contacts variables, respectively). Missing values on social contacts and other variables were replaced by information from previous years, and in a few cases (fewer than 10 percent of all observations) by later panel years. Only a few percent of all observations were left with missing values. We removed these observations from the analysis.
3. In the literature, health is commonly measured by a subjective health status, satisfaction with health or number of doctors' visits. All of these measures rely on a subjective perception of own health, which may be problematic if there are individual or group differences in the perception of health status (e.g. higher educated individuals might be more accurate in describing their health status than lower educated individuals). We included 'the number of doctor visits' as an indicator of individual health because it was asked in all surveys.
4. One of the variables that is important for immigrant economic integration but which we do not include in our model is age at migration. We decided to not include it in the model because of high (above .5) correlations with German education years and work experience.
5. The social capital theory provides no arguments about the time span between acquiring social contacts and their effects on employment. Thus, although we assume that the effects of social contacts should take place after one year, it could be that some observed changes in immigrant employment appear after two or more years. To see whether this is the case we run several random and fixed effects models with lagged social contacts variables by two, three, four and five years. The results (upon request) clearly show that although the effect of German contacts on male employment decreases a little by each lagged year, it remains positive and significant across all models and the other indicators of social contacts remain not significant.
6. Because we do not have information about the ethnic composition of frequency of contacts with family, friends and neighbours and volunteering activity, we also checked whether the positive effect of social contacts with Germans changes after excluding these indicators of social contacts from the model. The coefficient of German contacts remains almost the same, however (b = .713 as compared to b = .725 in Table 2, Model 1 and b = .731 as compared to b = .717 in Table 3, Model 1).
7. Although our theoretical arguments are mostly concerned with social contacts with natives, we included all indicators of social contacts in the model. The

reason for including all indicators of social contacts in the model is the lack of information about the ethnic composition of frequency of contacts and volunteering.

8. We also run the fixed effects model for men only. The results (available upon request) are similar to those presented in Table 4 for the pooled sample of men and women: the coefficient of German contacts is positive and highly significant ($b = .500$; $p < .05$; cf. Table 4, Model 3) and the other indicators of social contacts are not significant.
9. When the reference category is changed into very good language skills, the effect of fair language skills and good language skills become significant ($b = -.557$, $p = .006$ and $b = -.417$; $p = .022$, respectively; cf. Table 3, Model 3).

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