

# Migration, Friendship Ties, and Cultural Assimilation\*

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## Abstract

We study immigrant assimilation by analyzing whether friendship with natives is a measure of cultural assimilation, and by investigating the formation of social ties. Using the German Socio-Economic Panel, we find that immigrants with a German friend are more similar to natives than those without German friends, along several important dimensions, including concerns about the economy, an interest in politics, and a host of policy issues. Turning to friendship acquisition, we find that becoming employed, time spent in the host country, the birth of a child, residential mobility, and additional education acquired in the host country are significant drivers of social network variation.

*Keywords:* Culture; ethnic minorities; social network formation

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## I. Introduction

Immigrant assimilation – a process of convergence of immigrant behavioral and attitudinal outcomes to the outcomes of the native-born – is a complex phenomenon. It can occur along some dimensions (language, citizenship acquisition, or employment), but not necessarily along others (religiosity). It can also be very heterogeneous across destinations, origins, or both. Assimilation is mostly a one-way, absorptive process, whereas integration

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also reflects the extent to which receiving societies are willing to engage with immigrants, accept them, and provide them with equal rights and opportunities to express their behaviors and preferences along with the native-born. As such, integration is mostly framed by specific measures and policies adopted by the destination country, which affect the inclusion of immigrants into different life dimensions. A good understanding of assimilation processes is thus crucial to the design of effective integration policies, and the objective of this paper is to contribute to this goal in two ways. First, we analyze to what extent friendship with natives can be seen as a measure of cultural assimilation. Second, we study the determinants of the formation of social network ties in the host country.

The political and academic debate surrounding assimilation and integration has a long-standing tradition in the US, while attention to immigration and other minority-related concerns is relatively novel in Europe. In particular, much of the existing body of literature focuses on the economic impact of immigration (e.g., Manacorda *et al.*, 2012) and the issue of identity has been investigated in relation to labor-market outcomes (Mason, 2004; Constant and Zimmermann, 2008; Battu and Zenou, 2010). The key question in these studies is whether immigrants who identify strongly with the host country perform better in the labor market than immigrants who do not. Still, several important issues have not yet received enough attention in the economics literature. In particular, do immigrants to Europe identify themselves with the culture, values, and beliefs of the country that they have chosen as their new home, or with the beliefs and values of their origin country? Furthermore, what are the factors shaping cultural assimilation patterns, and what is the role of inter-ethnic contact? Modood *et al.* (1997) and Manning and Roy (2010) investigate some of these aspects. Both studies (like many others focusing on the US) are based on subjective measures of cultural assimilation. Vigdor (2013) takes a broader perspective, instead, using objective indicators to measure the extent of economic, cultural, and civic assimilation in the US. In this paper, we follow this approach and measure cultural assimilation using information on the friendship patterns between natives and immigrants. Moreover, we extend the existing body of literature by analyzing the determinants of the formation of social networks between immigrants and natives.

Our investigation is made possible by the use of unique information on friendship formation contained in the recent waves of the German Socio-Economic Panel (SOEP) for the years 1996–2011. The survey oversamples the resident immigrant population and contains extensive information on various dimensions of ethnic identity and preferences. We exploit three specific features of these data: (i) the detailed information on cultural issues – including crime, environmental protection, and the political domain – that are salient to the native population; (ii) the friendship roster, which allows

us to distinguish German and non-German friends; (iii) the longitudinal dimension, which allows us both to control for individual fixed effects and to make progress in the identification of the causal link between friendship formation and important life-course events, such as educational attainment, employment, marriage, childbirth, and residential mobility.

We begin our analysis by discussing the extent to which friendship with natives can be considered a measure of cultural assimilation, and by comparing attitudes between natives and immigrants with or without German friends. Our descriptive evidence shows that friendship with natives is associated with greater similarity between immigrants and natives along several important dimensions, ranging from concerns about the respondent's own economic condition, to interest in politics and salient policy issues. This evidence also holds when we condition on a variety of individual characteristics.

Building on these results, we then turn to the main analysis carried out in the paper, which examines the factors that shape social network ties in the host country. We focus on foreign-born individuals who do not have a German friend when they answer the question on friendship for the first time. Also, we exploit the longitudinal dimension of our data to identify the predictors for acquisition of a German friend, while controlling for individual, time-invariant, unobservable characteristics. We also consider possible differences in terms of drivers for the first German friend or for multiple German friends, finding no substantial differences.

Our analysis reveals that the acquisition of a German friend is influenced by the number of years the immigrant has spent in Germany, the birth of a child, getting a job, relocation decisions, and, most importantly, by whether they have acquired further education in Germany. Different sociodemographic groups present interesting deviations from this general tendency. Among others, we find that first-generation immigrants from Turkey, which are the largest group in the German population with a direct migration background, are characterized by a flatter friendship acquisition pattern than immigrants from Southern and Eastern Europe. In other words, holding everything else constant, Turkish immigrants, on average, need to spend more years in Germany than Southern and Eastern Europeans before they acquire a German friend. Moreover, getting a job does not seem to affect the likelihood of having German friends for Turks, while it does matter for Southern European immigrants. This suggests that Turkish immigrants are often working in segments of the labor market in which they do not have intense contact with native Germans.

The paper unfolds as follows. In Section II, we review the related body of literature while highlighting the contribution of this paper. In Section III, we describe the data, and in Section VI, we discuss the extent to which friendship with natives can be considered a measure of cultural assimilation.

We present our main results on the determinants of friendship formation in Section V. In Section VI, we reproduce the analysis for different subsamples of the population. We conclude in Section VII.

## II. Related Body of Literature

This paper contributes to two strands of literature. The first strand investigates the cultural assimilation of immigrants, whereas the second focuses on the formation of social networks and their effects on socioeconomic outcomes.

According to the structural assimilation theory of Gordon (1964), “the large-scale entry into the cliques, clubs, and institutions of the host society is the keystone in the arch of assimilation”.<sup>1</sup> Several recent contributions to the economics literature on cultural assimilation have incorporated features from psychology (e.g., Berry, 1980) and have emphasized how individuals can simultaneously identify with two different cultures. Most notably, Bisin and Verdier (2000) formalize the incentives associated with cultural transmission dynamics and the circumstances leading to a tendency towards cultural homogeneity or the maintenance of cultural diversity. In their setting, cultural transmission is shaped as the result of the interaction between purposeful socialization decisions inside the family (direct vertical socialization) and indirect socialization processes, such as social imitation and learning from the peers (oblique and horizontal socialization).<sup>2</sup> However, empirical tests of such theories are rare, mainly because of limited data availability. An interesting exception is represented by the recent work by Casey and Dustmann (2010), who study the process of identification with home and host countries, and the association between both identities and labor-market outcomes. Focusing on Germany, Casey and Dustmann (2010) exploit the longitudinal dimension of the SOEP to study the intergenerational transmission of identity from a generation to the next (vertical channel), finding a strong transmission of ethnic traits between parents and children. In this paper, we instead operationalize horizontal socialization as the ethnic composition of the friendship network of an immigrant. Our descriptive analysis in Section IV contributes to this body of literature by providing novel evidence on the importance of inter-ethnic contact in cultural assimilation patterns.

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<sup>1</sup> In a similar vein, there is a body of literature that uses intermarriage as a measure of social assimilation (Meng and Gregory, 2005).

<sup>2</sup> There is also a rapidly emerging body of economics literature on oppositional cultures – that is, situations where minority individuals adopt cultural categorizations and prescriptions defined in opposition to those of the mainstream group, with corresponding social behaviors associated with significant economic costs at the individual level (e.g., Battu and Zenou, 2010; Bisin *et al.*, 2011).

A second interesting study has been carried out by De Palo *et al.* (2006). Using data from the European Community Household Panel, they investigate the assimilation of immigrants in the host country by analyzing a question on the number of interactions between the respondents and their neighbors. The results suggest that non-EU immigrants tend to socialize less with natives, even after controlling for individual characteristics. They also find that the behavior of immigrants tends to slowly assimilate to that of natives. Finally, they suggest that education has a significant effect on the type of social activities undertaken by the individuals. More-educated people tend to relate somewhat less with close neighbors, but socialize more intensively with the broader community. Our analysis is also based on eliciting preferences from individual immigrants but has a broader scope – we tackle several additional dimensions of social and cultural assimilation and focus on the role of friendships with natives in shaping preferences.

In addition to these studies, several contributions in the sociological literature investigate the cultural assimilation of immigrants. Most related to our analysis is a recent paper by Diehl and Schnell (2006), who carry out a descriptive trend analysis for selected host- and homeland indicators of immigrant assimilation in Germany. For this purpose, they use a subsample of the SOEP consisting of guest-workers from Southern Europe and Turkey (Sample B).<sup>3</sup> Diehl and Schnell (2006) find a pattern suggesting stagnation in social and cognitive assimilation over time, as well as large discrepancies between different generations of immigrants. Importantly, they find that the share of immigrants with German friends is substantially higher among second-generation immigrants, a result that is consistent with what we find in this paper using the entire sample of foreign-born in the SOEP.

The second strand of the literature to which we contribute focuses on the formation of social networks and on their importance for socioeconomic outcomes, including the labor-market outcomes of immigrants (e.g., Frijters *et al.*, 2005; Battu *et al.*, 2011; Patacchini and Zenou, 2012).

From a theoretical point of view, several studies have proposed friendship formation models that highlight various possible trade-offs in the creation of social ties between similar and dissimilar individuals. For instance, in a recent paper, De Marti and Zenou (2011) develop a friendship formation model, where agents belong to different communities. Two individuals from the same community face a low cost of establishing a link between each other, whereas the cost of forming a relationship for two individuals

<sup>3</sup> Sample B contains information on individuals who arrived in Germany between 1950 and 1973 from five Southern European countries. For this reason, Sample B is not representative of the entire foreign population in Germany. Our analysis instead includes all immigrants surveyed in the SOEP, with the goal of having a sample that represents the entire foreign population in the country.

of different communities diminishes with the rate of exposure to members of the other community. De Marti and Zenou show that in several equilibrium configurations inter-community links prevail. In fact, even if inter-community links can be very costly for the agents involved, they offer them direct access to sections of the network that would not be accessible otherwise. Patacchini and Zenou (2006) analyze instead the importance of friendship composition in explaining the differences in school performance between students of different races.<sup>4</sup> In their model, each adolescent chooses the share of same-race friends and the level of effort to be invested in education acquisition. Individuals face a trade-off between the type of friends they interact with and their subsequent educational achievement. More specifically, the idea is that, on the one hand, a black adolescent would like to have as many black friends as possible.<sup>5</sup> On the other hand, they value education and know that because white parents are more educated than black parents, having white friends is likely to result in better educational outcomes. As a result, the choice of the share of black and white friends is carried out by taking into account its expected impact on educational achievement. A similar trade-off can be used to describe the friendship choices of immigrants in the host country. On the one hand, immigrants might prefer to interact with people belonging to their own culture of origin, but on the other hand, they are interested in accessing the native social network, because this is likely to help to improve both their own employment opportunities and the prospects of their children.

From an empirical point of view, an assessment of the importance of social networks on individual outcomes is challenging. The main difficulties faced by most of the existing studies arise from reverse causality and omitted variables bias. In fact, data on social networks are not easily available, and most of the existing body of literature carries out cross-sectional analyses. One potential concern is that the correlation between the number and/or quality of social contacts and, for example, the probability of finding a job might simply be driven by the fact that social contacts change because an individual finds a job. Furthermore, the presence of unmeasured factors could affect both social group formation and outcomes. Most of the existing studies looking at the determinants of friendship ties are restricted to specific environments, such as a classroom, a school, or a college in the US (e.g., Mayer and Puller, 2008; Fletcher *et al.*, 2013). In a recent

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<sup>4</sup> In an interesting and related paper, Austen-Smith and Fryer (2005) show that ethnic minorities face a tension between signaling their type to the outside labor market and signaling their type to their peers – signals that induce high wages can be signals that induce peer rejection.

<sup>5</sup> The idea that black people prefer to interact with other black people while white people prefer to interact with other white people is well documented in economics (e.g., Cutler *et al.*, 1999), sociology, and psychology (Hallinan and Tuma, 1979; Clark and Ayers, 1988).

paper, Carrell *et al.* (2013) conduct a policy experiment in which Air Force Academy students are assigned to work groups intended to maximize the performance of the lowest ability students. They find that in their treatment group, students sort into subgroups based on ability, eliminating the positive peer effects identified in earlier studies. This indicates the need for further information on how friendships form before policies can be suggested.<sup>6</sup>

As for the more specific issue of what are the determinants of inter-ethnic contact, there is also some evidence from the sociological literature. Martinovic *et al.* (2009) analyze the drivers of contact with natives for immigrants in the Netherlands in both a cross-sectional and longitudinal setting. Their results suggest that education in the host country, language proficiency, and regional concentration of immigrants are positively associated with inter-ethnic contact. In a recent paper, Martinovic *et al.* (2014) focus instead on the German case and use the guest-worker sample of the SOEP (Sample B) for the period 1985–1999. Their findings highlight how language skills, permanent settlement intentions, and employment positively influence contact with Germans. Importantly, inter-ethnic contact is measured by an index based on self-reported information about interactions between natives and immigrants.<sup>7</sup> In this paper, we use instead an approach that is well established in economics for estimating consumer preferences: revealed preference theory (Mas-Colell *et al.*, 1995).<sup>8</sup> According to this approach, individual preferences can be inferred from individual choices. Thus, we measure the propensity to assimilate in the host country using friendship choices. Next, instead of investigating the consequences of these choices on economic outcomes (as done in many of the existing studies), we consider the determinants of these choices.

Thus, our paper contributes to the literature by presenting an analysis of immigrants' friendship formation in the host country, where the existence of a friendship tie is directly observed, variations in friendship ties and sociodemographic characteristics are observed over time, and individual unobserved heterogeneity is taken into account. Moreover, we systemically incorporate economic, non-economic, and regional factors in explaining immigrant friendship with natives.<sup>9</sup>

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<sup>6</sup> See Alesina and Giuliano (2011) for an investigation of the importance of social capital for policy purposes.

<sup>7</sup> More specifically, the questions are as follows. Did you have close contact with Germans since your arrival? Did you visit Germans last year? Were you visited by Germans last year? For each question, the possible answer categories are “yes” or “no”.

<sup>8</sup> See also Currarini *et al.* (2010) who use a similar approach to infer homophily behaviors among adolescents in the US.

<sup>9</sup> Note that a study of the effect of friendship choices on wages, employment opportunities, or political attitudes would require us to jointly model network formation and behavior over

### III. Data

The data used in our analysis come from the SOEP and cover the years 1996–2011. The SOEP is a representative, individual-level longitudinal dataset on persons, families, and households in Germany. Initiated in 1984, the SOEP oversampled the resident immigrant population. Out of the 6,000 households contained in the first wave of the study, 4,500 households had a German head, and 1,500 were instead led by a foreign-born individual. As of 2011, over 12,000 households are surveyed, involving more than 20,000 individuals. An important feature of the dataset is the provision of detailed information on respondents' immigration history, such as country of birth and ethnicity (for a detailed description, see Wagner *et al.*, 2007).

The data are particularly suited for the purpose of our analysis because they contain repeated information on a boost sample of immigrants over a long period of time. In the first part of our study, in which we investigate the association between having a native friend and cultural assimilation, we focus on all working-age individuals (i.e., those between 18 and 64 years old) living in West Germany. In the second part of the paper, in which we analyze the determinants of friendship acquisition, we consider all first-generation immigrants who have no German friend in the first spell in which we have information on friendship.

In four recent rounds of the survey (1996, 2001, 2006, and 2011), all participants were asked to provide information on their network of relationships. In particular, the survey contains information on the respondent's three closest friends, and on their country of birth. In 2011, the question (question 126) used for this purpose is as follows. "Please think of three people outside of your household who are important for you, personally. They can be relatives or non-relatives."<sup>10</sup> Additional questions allow also the identification of the origin of each of the friends, distinguishing among the following: "from the former West Germany", "From the former East Germany", and "From another country".

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networks. This is an interesting but challenging empirical exercise, which is left for further research.

<sup>10</sup> While the question used in the 2006 round is identical to the one used in 2011, it is phrased slightly differently in 2001 and 1996. In particular, in 2001, it is the following. "Now some questions about your friends and acquaintances: Please think of three friends or relatives or other people whom you go out with or meet often. Please do not include relatives or other people who live in the same household as you." In 1996, it is instead the following. "Now some questions about your circle of acquaintances: Consider the three persons with whom you have a close friendship and with whom you meet the most. These can be relatives as well as non-relatives, but they may not belong to your household."

Table 1. *Friendship and immigration: summary statistics*

Year	Natives		Second-generation immigrants		First-generation immigrants	
	Total	Percent with GF	Total	Percent with GF	Total	Percent with GF
1996	5,594	0.996 (0.061)	525	0.806 (0.396)	2,305	0.512 (0.500)
2001	10,487	0.993 (0.081)	757	0.826 (0.380)	2,492	0.561 (0.496)
2006	10,414	0.994 (0.076)	847	0.809 (0.394)	1,882	0.575 (0.494)
2011	7,293	0.998 (0.042)	632	0.854 (0.353)	1,001	0.600 (0.490)
Overall	33,788	0.995 (0.069)	2,761	0.823 (0.382)	7,680	0.555 (0.497)
Individuals with at least 2 obs.	27,780	0.996 (0.067)	2,037	0.837 (0.369)	6,141	0.561 (0.496)

*Notes:* We report the number of observations, the mean values, and standard deviations (in parentheses). The sample includes individuals of working age (18–64 years) in West Germany. Hereafter, GF denotes German friend.

Our main analysis uses answers to this question to construct a dummy variable indicating whether the respondent has at least one German friend.<sup>11</sup> Summary statistics by year of survey are reported in Table 1.

We identify three subgroups of the population: natives, first-generation immigrants, and second-generation immigrants. Natives are individuals who are born in Germany from parents who have no migration background; first-generation immigrants are individuals who are born outside of Germany, and second-generation immigrants are individuals who are born in Germany, but have at least one parent of immigrant origin.<sup>12</sup> Almost 80 percent of the individuals in this group have German citizenship, either by birth or through naturalization. Table 1 reveals that natives are very likely to report that they have at least one German companion. In fact, in every year of our sample, over 99 percent of natives indicate this to be the case.<sup>13</sup> As for immigrants, a clear pattern emerges. First, they tend to be less likely to have built a friendship with a native than their German counterparts. Moreover, there is a substantial gap between first- and second-generation

<sup>11</sup> In a robustness check, we also separately investigate the drivers of the acquisition of the first German friend, and of multiple German friends. See Table 5 for more details.

<sup>12</sup> A parent is of immigrant origin if they were born abroad or if they were born in Germany but had no German citizenship by birth.

<sup>13</sup> The differences in the number of observations are mainly because of changes in the sample size of the SOEP over time. For example, new individuals were added in 1998, 2000, 2002, and 2006.

immigrants. While, on average, more than 80 percent of the individuals in the latter group report to have a German friend, this figure declines to only 55 percent for first-generation immigrants. Similar differences have been found by Diehl and Schnell (2006) for the SOEP subsample of Southern European and Turkish guest-workers.

#### **IV. Acquisition of Native Friends and Assimilation**

Is friendship with natives an indicator of cultural assimilation? The rich information provided by the SOEP includes a series of questions that allow us to elicit individual opinions on a variety of issues as well as other measures of cultural integration. Combining this information with data on the relationships immigrants have built with natives allows us to highlight a series of interesting patterns that explain the role that friendships might have on cultural assimilation. Tables 2(a) and 2(b) report summary statistics on answers to 12 such questions. Table 2(a) compares natives and first-generation immigrants, whereas Table 2(b) compares natives and second-generation immigrants.

We start by considering a group of questions that focus on the respondent's engagement in politics and preferences in the political domain. The first captures the respondent's engagement in politics and the local society (question 3 of the 2011 survey), and is coded as 1 if the respondent has provided "volunteer work in clubs or social services" or/and has been active "... in a citizens' group, political party, local government", and is coded as 0 otherwise. We find that 38 percent of native Germans report to be socially active in their free time (Column 1 of Table 2(a)), but we see that only 18 percent of first-generation immigrants are the same (Column 2). In Columns 3 and 4, we further disaggregate our data and look at immigrants with (Column 3) and without (Column 4) a German friend. While 19 percent of immigrants with a German friend are actually involved in social activities, the figure for immigrants without a German friend is 4 percentage points lower; as shown in Column 5, the two figures are statistically different from each other. Even clearer patterns emerge when we consider second-generation immigrants (see Table 2(b)). While they are, in general, more likely to be socially active than first-generation immigrants (26 percent report to be so), the difference between immigrants with and without German friends increases to 6 percentage points.

Next, we investigate whether the respondent is interested in politics using answers to the following question. Generally speaking, how much are you interested in politics? We construct an indicator variable that is equal to 1 if the survey participant replied to be "very interested", and 0 otherwise. We also consider whether individuals lean towards the left (i.e.,

Table 2(a). *Friendship, immigration, and cultural assimilation: summary statistics (first-generation immigrants)*

	First-generation immigrant				$\Delta(3)$ and (4) (5)	N (6)
	Native (1)	All (2)	With GF (3)	No GF (4)		
<i>SocialActive</i>	0.381 (0.486)	0.176 (0.380)	0.193 (0.395)	0.155 (0.362)	0.038*** (3.83)	29,171
<i>StrongInPol</i>	0.394 (0.489)	0.202 (0.401)	0.238 (0.426)	0.156 (0.363)	0.0812*** (9.09)	41,397
<i>Conservative</i>	0.407 (0.491)	0.407 (0.491)	0.412 (0.492)	0.399 (0.490)	0.0129 (0.60)	19,038
<i>Left</i>	0.566 (0.496)	0.580 (0.494)	0.573 (0.495)	0.591 (0.492)	-0.018 (-0.86)	19,038
<i>WorriedOwnEcon</i>	0.176 (0.381)	0.303 (0.460)	0.268 (0.443)	0.347 (0.476)	-0.078*** (-7.39)	41,287
<i>WorriedJob</i>	0.0970 (0.296)	0.186 (0.389)	0.168 (0.374)	0.213 (0.410)	-0.045*** (-3.92)	29,481
<i>WorriedEuro</i>	0.229 (0.420)	0.202 (0.402)	0.200 (0.400)	0.204 (0.403)	-0.004 (-0.30)	21,102
<i>WorriedCrime</i>	0.409 (0.492)	0.429 (0.495)	0.423 (0.494)	0.436 (0.496)	-0.013 (-1.16)	41,207
<i>WorriedEnv</i>	0.305 (0.460)	0.251 (0.433)	0.264 (0.441)	0.234 (0.423)	0.030*** (3.03)	41,264
<i>WorriedXeno</i>	0.295 (0.456)	0.308 (0.462)	0.281 (0.449)	0.344 (0.475)	-0.063*** (-4.91)	33,340
<i>FluentGerman</i>	- (-)	0.394 (0.489)	0.552 (0.497)	0.237 (0.425)	0.315*** (23.60)	4,812
<i>GermanAtHome</i>	- (-)	0.655 (0.475)	0.790 (0.407)	0.512 (0.500)	0.278*** (16.15)	2,828

Notes: Columns (1)–(4) give mean values, with standard deviations in parentheses. Column (5) shows *t*-statistics in parentheses. Column (6) gives the number of observations. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

declaring to support the SPD, the Greens, or the PDS/Linke)<sup>14</sup> or whether they lean towards conservative parties (i.e., supporting the CDU, the CSU, or the FDP).<sup>15</sup> Interestingly, native Germans appear to be substantially more interested in politics, in general, than both first- and second-generation immigrants. Furthermore, there is a large and statistically significant differ-

<sup>14</sup> The acronym SPD stands for *Sozialdemokratische Partei Deutschlands*, or Social Democratic Party of Germany. The PDS is the *Partei des Demokratischen Sozialismus* or Party of Democratic Socialism, a left-wing party that, in 2007, changed its name to become *Die Linke* (The Left).

<sup>15</sup> These acronyms stand for *Christlich Demokratische Union Deutschlands* or Christian Democratic Union of Germany (CDU), the *Christlich-Soziale Union* or Christian Social Union (CSU), active in the federal state of Bavaria, and the *Freie demokratisch Partei* or Free Democratic Party (FDP).

Table 2(b). *Friendship, immigration, and cultural assimilation: summary statistics (second-generation immigrants)*

	Second-generation immigrant				$\Delta(3)$ and (4) (5)	N (6)
	Native (1)	All (2)	With GF (3)	No GF (4)		
<i>SocialActive</i>	0.381 (0.486)	0.259 (0.438)	0.269 (0.444)	0.212 (0.409)	0.057** (2.27)	25,287
<i>StrongInPol</i>	0.394 (0.489)	0.274 (0.446)	0.298 (0.457)	0.159 (0.366)	0.138*** (7.19)	36,482
<i>Conservative</i>	0.407 (0.491)	0.281 (0.450)	0.295 (0.456)	0.156 (0.364)	0.140*** (3.35)	17,697
<i>Left</i>	0.566 (0.496)	0.700 (0.459)	0.685 (0.465)	0.833 (0.375)	-0.148*** (-3.47)	17,697
<i>WorriedOwnEcon</i>	0.176 (0.381)	0.239 (0.427)	0.210 (0.407)	0.376 (0.485)	-0.166*** (-6.99)	36,385
<i>WorriedJob</i>	0.0970 (0.296)	0.121 (0.326)	0.109 (0.312)	0.182 (0.387)	-0.073*** (-3.02)	26,286
<i>WorriedEuro</i>	0.229 (0.420)	0.221 (0.415)	0.202 (0.402)	0.324 (0.469)	-0.122*** (-3.61)	19,018
<i>WorriedCrime</i>	0.409 (0.492)	0.398 (0.490)	0.382 (0.486)	0.476 (0.500)	-0.095*** (-3.80)	36,324
<i>WorriedEnv</i>	0.305 (0.460)	0.299 (0.458)	0.297 (0.457)	0.308 (0.462)	-0.010 (-0.44)	36,371
<i>WorriedXeno</i>	0.295 (0.456)	0.323 (0.468)	0.304 (0.460)	0.418 (0.494)	-0.115*** (-4.17)	30,223
<i>FluentGerman</i>	- (-)	0.635 (0.482)	0.738 (0.440)	0.368 (0.483)	0.370*** (11.31)	1,029
<i>GermanAtHome</i>	- (-)	0.964 (0.186)	0.981 (0.137)	0.920 (0.271)	0.060*** (3.02)	724

Notes: Columns (1)–(4) give mean values, with standard deviations in parentheses. Column (5) shows *t*-statistics in parentheses. Column (6) gives the number of observations. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

ence between first-generation immigrants with and without German friends. In fact, the former are 8 percentage points more likely than the latter to be interested in the running of domestic affairs, and even larger differences exist among second-generation immigrants with and without German friends (see Table 2(b)). Regarding the ideological orientation of the respondent, while we find no significant differences between native Germans and first-generation immigrants, our results indicate that second-generation immigrants are significantly less likely to be conservative (and correspondingly more likely to lean towards the left) than natives. Furthermore, on average, having or lacking a German friend only affects the political orientation of second-generation immigrants, whereas for first-generation immigrants we do not observe any significant difference in support for conservative or left-wing parties.

We now consider a number of questions that elicit preferences on a variety of policy dimensions. The typical query is the following. What is your attitude towards the following areas? Are you concerned about them? The answers can take three possible values: “very concerned”, “somewhat concerned”, or “not concerned at all”. For each topic addressed, we construct an indicator variable *WorriedX*, which equals 1 if the respondent indicates that they are “very concerned” about a particular issue, and 0 otherwise.

Three of the questions asked deal directly with economic concerns. The first question focuses on the individual’s own economic situation (*WorriedOwnEcon*). The second question continues to look at the respondent’s own position, but considers instead whether they are worried about their own job security if they are in employment (*WorriedJob*). Finally, the third question focuses on a broader topic, that is, whether the respondent is worried about the introduction of the euro in place of the deutsche mark (*WorriedEuro*). Several interesting patterns emerge. First, when we consider the queries focusing on the individual’s position, we can see that natives are less likely to be worried about their circumstances than immigrants. This is true when the comparison is carried out for second-generation immigrants, but the effect is even stronger when the comparison involves first-generation immigrants. Furthermore, both when looking at first- and second-generation immigrants, we can see that individuals without a German friend are significantly more likely to signal concerns about their status than individuals with a German friend. In particular, for first-generation immigrants the difference amounts to 7.8 percentage points, whereas for second-generation immigrants it is even larger, reaching 16.6 percentage points. Very similar patterns emerge when we look at individual concerns about job security. At the same time, when turning to broader questions, such as in the case of the introduction of the euro, the preference patterns among the various groups appear much more similar. In particular, there is no statistically significant difference depending on whether first-generation immigrants have a German friend or not, whereas second-generation immigrants without German friends appear to be significantly more worried about the euro than their counterparts with a native companion.

Three other questions deal with policy issues that are salient among the native population: crime (*WorriedCrime*), environmental protection (*WorriedEnv*), and hostility towards foreigners or minorities (*WorriedXeno*). While first-generation immigrants are, in general, more concerned about crime than their native counterparts, there are no significant differences between those who have a relationship with a native and those who do not. On average, second-generation immigrants appear to be very similar to natives in this regard, even if there are significant differences between those with and without a German friend. At the same time, native Germans are more concerned than immigrants about the environment, and this is

especially true when we consider first-generation arrivals. Interestingly, also in this case, first-generation immigrants with German friends have preferences closer to those of the natives. As a result, they are significantly more worried about the environment than those without German friends, whereas there seem to be no differences among second-generation immigrants. As for concerns towards xenophobia, we find that first-generation immigrants without German friends are 6 percentage points more likely to be concerned about hostility towards foreigners and minorities than those who have German friends, and this gap is even larger when we focus on second-generation immigrants, reaching 11.5 percentage points.

The last two questions we use consider another measure of cultural assimilation, namely proficiency in and usage of the majority's language. In particular, the first question focuses on self-reported language skills, and we have constructed a dummy variable (*FluentGerman*) coded as 1 if the individual claims to speak good or very good German. The second looks instead at the main language spoken at home, and we have constructed an indicator (*GermanAtHome*) coded as 1 if the respondent reports that they speak mostly German at home. Not surprisingly, language proficiency and usage of German as the main language in the household are higher for second-generation immigrants than for first-generation immigrants. Importantly, both first- and second-generation immigrants with German friends report significantly better local language skills than their counterparts without a German companion. Similarly, immigrants with German friends are also more likely to use German as the main language at home.

Thus, the simple comparisons of means carried out in Tables 2(a) and 2(b) suggest that having a friendship with natives tends to result in greater similarity with them with respect to several important dimensions, including engagement in social activities, interest in politics, concerns about the respondent's own economic condition, salient policy questions, and language proficiency. At the same time, these patterns could be driven by characteristics of individual respondents that vary systematically with their immigration status. For this reason, we investigate this question further, presenting the results of a series of linear probability models where answers to the questions discussed in Tables 2(a) and 2(b) are related to having a German friend, controlling for a series of individual determinants. In particular, we run the following type of model,

$$Answer_{it} = \alpha + \sum_{j=1}^4 \beta_j Migrant(j)_i + \gamma \mathbf{X}_{it} + I_t + \epsilon_{it}, \quad (1)$$

Table 3(a). *Friendship, immigration, and cultural assimilation: politics (regression analysis)*

Dependent variable	<i>SocialActive</i> (1)	<i>StrongIntPolitics</i> (2)	<i>Conservative</i> (3)	<i>Left</i> (4)
(A) <i>1stGenWGF</i>	-0.111*** (0.014)	-0.052*** (0.014)	-0.173*** (0.027)	0.194*** (0.028)
(B) <i>1stGenNGF</i>	-0.120*** (0.016)	-0.094*** (0.015)	-0.231*** (0.031)	0.260*** (0.031)
(C) <i>2ndGenWGF</i>	-0.085*** (0.013)	-0.033*** (0.012)	-0.089*** (0.022)	0.108*** (0.022)
(D) <i>2ndGenNGF</i>	-0.117*** (0.023)	-0.105*** (0.018)	-0.219*** (0.046)	0.255*** (0.048)
$\Delta$ (A) and (B)	0.009	0.042***	0.058**	-0.066***
$\Delta$ (C) and (D)	0.032	0.072***	0.130***	-0.147***
<i>N</i>	30,844	43,811	19,844	19,844
<i>R</i> <sup>2</sup>	0.064	0.159	0.042	0.039

Notes: OLS estimates from linear probability models, with robust standard errors in parentheses. The reference group is natives without an immigration background. The columns show the following: (1) regression on being socially active; (2) regression on having a strong interest in politics; (3) regression on having a preference for a party from the conservative spectrum; (4) regression on having a preference for a left-wing party. We include controls for gender, marital status, age, age squared, years since migration, years since migration squared, children, education, work, regional foreigner concentration, and change in location as well as year fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

Table 3(b). *Friendship, immigration, and cultural assimilation: economic worries (regression analysis)*

Dependent variable	<i>WorriedOwnEcon</i> (1)	<i>WorriedJob</i> (2)	<i>WorriedEuro</i> (3)
(A) <i>1stGenWGF</i>	0.060*** (0.013)	0.045*** (0.014)	-0.001 (0.017)
(B) <i>1stGenNGF</i>	0.105*** (0.016)	0.072*** (0.017)	-0.015 (0.020)
(C) <i>2ndGenWGF</i>	0.017* (0.010)	-0.002 (0.009)	-0.008 (0.013)
(D) <i>2ndGenNGF</i>	0.157*** (0.023)	0.062** (0.025)	0.104*** (0.032)
$\Delta$ (A) and (B)	-0.045***	-0.027**	0.014
$\Delta$ (C) and (D)	-0.140***	-0.064**	-0.112***
<i>N</i>	43,693	31,030	22,340
<i>R</i> <sup>2</sup>	0.078	0.041	0.033

Notes: OLS estimates from linear probability models, with robust standard errors in parentheses. The reference group is natives without an immigration background. The columns show the following: (1) regression on having worries about own economic situation; (2) regression on having worries about job security; (3) regression on having worries about the introduction of the euro. We include controls for gender, marital status, age, age squared, years since migration, years since migration squared, children, education, work, regional foreigner concentration, and change in residential status as well as year fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

Table 3(c). *Friendship, immigration, and cultural assimilation: social worries (regression analysis)*

Dependent variable	WorriedCrime (1)	WorriedEnv (2)	WorriedXeno (3)
(A) <i>1stGenWGF</i>	0.006 (0.015)	-0.007 (0.014)	0.020 (0.016)
(B) <i>1stGenNGF</i>	-0.012 (0.018)	-0.033** (0.016)	0.088*** (0.019)
(C) <i>2ndGenWGF</i>	0.011 (0.013)	-0.012 (0.012)	0.023* (0.012)
(D) <i>2ndGenNGF</i>	0.084*** (0.025)	-0.005 (0.024)	0.133*** (0.028)
$\Delta$ (A) and (B)	0.018	0.026**	-0.068***
$\Delta$ (C) and (D)	-0.073***	-0.007	-0.110***
<i>N</i>	43,613	43,667	35,319
<i>R</i> <sup>2</sup>	0.058	0.019	0.031

Notes: OLS estimates from linear probability models, with robust standard errors in parentheses. The reference group is natives without an immigration background. The columns show the following: (1) regression on having worries about crime; (2) regression on having worries about the environment; (3) regression on having worries about xenophobia. We include controls for gender, marital status, age, age squared, years since migration, years since migration squared, children, education, work, regional foreigner concentration, and change in residential status as well as year fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

where  $Answer_{it}$  is the answer to one of the questions we have discussed above.<sup>16</sup>  $Migrant(j)_i$  is a dummy variable indicating whether individual  $i$  is an immigrant belonging to one of our four immigrant types  $j$ : first-generation immigrants with German friends (*1stGenWGF*); first-generation immigrants without German friends (*1stGenNGF*); second-generation immigrants with German friends (*2ndGenWGF*); second-generation immigrants without German friends (*2ndGenNGF*).  $\mathbf{X}_{it}$  is a vector of controls that include gender, marital status, age, age squared, years since migration, years since migration squared, the presence of children in the household, educational attainment, work status, and changes in residential status since the last observation. All specifications also include year fixed effects  $I_t$ , which account for common unobserved shocks affecting all respondents, and  $\epsilon_{it}$  is a zero mean error term.

Tables 3(a)–(c) report our results. In all of our specifications, the reference group is natives without an immigration background. The broad patterns we have identified in Tables 2(a) and 2(b) continue to hold. In fact, both first- and second-generation immigrants with German friends appear to be more similar to natives than immigrants without German friends, even after controlling for individual characteristics. The tests reported at

<sup>16</sup> Germans in the SOEP are not asked about their language proficiency.

the end of each panel suggest that the effect is, on average, larger for second-generation immigrants than for first-generation immigrants. This result highlights how in the case of second-generation immigrants, having no German friends is a powerful proxy for lack of assimilation. More specifically, immigrants with a local companion are more interested in politics, more likely to support conservative parties, and less likely to support left-wing parties than their counterparts with no local connections. They are also less concerned about their own economic situation, job security, and xenophobic feelings. At the same time, once we control for the individual characteristics of the respondent, we find that having a German friend does not have an effect on social engagement in Germany for either generation of immigrants. The presence of such a link instead reduces concerns about the euro and about crime for second-generation immigrants, whereas it increases environmental concerns only for first-generation immigrants.

## **V. What Drives the Friendship Choices of Immigrants?**

The results of Tables 2(a), 2(b), and 3(a)–3(c) suggest that both first- and second-generation immigrants with German friends are more similar to natives than those without a local companion along several important dimensions, ranging from concerns about the economy and politics, to broad issues such as the environment, crime, and xenophobia. These dimensions are useful proxies for a foreigner's assimilation in the host country's society, extending beyond the labor-market outcomes that have been extensively studied in the economics literature; see the pioneering contributions of Chiswick (1978) and Borjas (1987). Given that friendships can thus be considered an indicator of cultural assimilation, in this section we exploit the rich longitudinal nature of the SOEP to investigate the determinants of the acquisition of a German friend.

For our analysis, we focus on first-generation immigrants, a choice that is motivated by three reasons. First, first-generation immigrants are very likely to have no German friends when they enter the country. This allows us to investigate the development of native friendship over time. Second, as shown in Table 1, the share of second-generation immigrants without German friends is relatively low in all observations periods. As a consequence, there is much less variation in friendship within persons over time. This is likely to yield unreliable point estimates using a fixed effects estimator. Finally, second-generation immigrants without German friends are a very special, self-selected group. Having no German friends, even if born and raised in Germany, is an outcome that is likely to be explained by factors others than those relevant for the acquisition of friends by first-generation immigrants. Therefore, we conduct our analysis by focusing on foreign-born individuals who have no German friends when they answer the

question on friendship for the first time. We run a series of specifications with individual fixed effects that take the following form:

$$\begin{aligned} GerFr_{it} = & \alpha + \beta_1 YSM_{it} + \beta_2 YSM_{it}^2 + \gamma_1 \mathbf{CMS}_{it} + \gamma_2 \mathbf{CC}_{it} \\ & + \gamma_3 \mathbf{Ced}_{it} + \gamma_4 \mathbf{CLo}_{it} + \gamma_5 \mathbf{ForCon}_{it} + \gamma_6 \mathbf{CEm}_{it} + \mu_i + \eta_{it}. \end{aligned} \quad (2)$$

Here,  $GerFr_{it}$  is an indicator variable taking a value equal to 1 if individual  $i$  has a German friend at time  $t$ . As we have mentioned already, this information is available in four waves of the SOEP (1996, 2001, 2006, and 2011). At the same time, individual level characteristics are available at a yearly frequency and, as a result, we can exploit these data while studying the determinants of friendship acquisition.

Thus,  $YSM_{it}$  captures the number of years a foreign-born individual has spent in Germany whereas  $\mathbf{CMS}_{it}$ ,  $\mathbf{CC}_{it}$ ,  $\mathbf{Ced}_{it}$ ,  $\mathbf{CLo}_{it}$ , and  $\mathbf{CEm}_{it}$  are vectors of variables (in bold) or variables reflecting changes in the marital status, the presence of children, education, location, and labor-market status of individual  $i$  that have occurred between the years in which we observe friendship. All time constant individual characteristics are captured by the individual fixed effects. With respect to the variables that capture changes in characteristics, we construct a dummy for each variable of interest  $X$  that is coded as 1 at time  $t$  if the variable  $X$  has changed between the last time we have observed friendship ( $t - 5$ ) and one year before we observe actual friendship ( $t - 1$ ), and coded 0 otherwise.<sup>17</sup>

More specifically, the vector  $\mathbf{CMS}_{it}$  includes three variables:  $Getmarried_{it}$ , which indicates that individual  $i$  becomes married in any of the four years between time  $t - 1$  and time  $t - 5$ ;  $GetmarriedG_{it}$ , which indicates that individual  $i$  becomes married to a German between time  $t - 1$  and time  $t - 5$ ;  $GetDivorced_{it}$ , which indicates that individual became single – either because of the death of the partner or through divorce – between time  $t - 1$  and time  $t - 5$ . In a similar way, the vector  $\mathbf{CC}_{it}$  captures changes in the presence of children in the household. Two possible events appear particularly interesting: the arrival of a child

<sup>17</sup> An exception is the first period in which we observe friendship for each individual. In this period, all dummy variables that capture changes are set equal to 0. For the purpose of illustration, let us focus on marital status and think about an individual A who enters the sample in 2001. The first change in marital status can occur between 2001 and 2005. Therefore, all dummy variables capturing changes in marital status are 0 in 2001 by definition. This implies that if A were to be married throughout the whole observation period, then A would have no change in the respective dummy variable. The same would hold true if A were never married. However, if A were to be single in 2001 and were to marry in 2003, the dummy for married would change to 1 in 2006. If A is still married in 2011, then the respective dummy changes again to 0.

between time  $t - 1$  and time  $t - 5$  (*NewChild*) and the departure from the household of a child aged 16 or above between time  $t - 1$  and time  $t - 5$  (*LeavingChild*).  $CEd_{it}$  captures whether individual  $i$  has acquired a higher education level in Germany since we last observed their friendship status.  $CLo_{it}$  describes whether the individual has relocated between time  $t - 1$  and time  $t - 5$ . This can happen if they have changed federal states, or if they have moved from an urban to a less urbanized area or from a less urbanized area to an urban area. An immigrant's choice to live in a particular neighborhood is likely to affect their exposure to the foreign-born population. For this reason, we additionally control for the one period lagged share of foreigners in the planning region  $ForCon_{it}$  where the individual is resident.<sup>18</sup>  $CEm_{it}$  is a vector of changes in employment status that captures whether the individual has become employed between time  $t - 1$  and time  $t - 5$  ( $Employed_{it}$ ) or has lost their job ( $Unemployed_{it}$ ) within the same time interval. Finally,  $\mu_i$  describes the individual specific time-invariant component of the error term, while  $\eta_{it}$  is the idiosyncratic disturbance.

Our benchmark results are reported in Table 4. We start with a parsimonious specification in which we only control for years since migration and years since migration squared. Time spent in Germany has a positive but slightly decreasing marginal effect. After approximately 59 years in the country, the chance of having a German friend starts to decrease with every additional year spent in Germany. However, it is important to note that none of the immigrants in our sample of working age individuals has spent more than 50 years in Germany. In Column 2, we add a series of controls capturing changes in marital status. Acquiring a partner does not have a significant effect, and this result also holds when the partner is German. We also find no effect if the individual loses a partner because of divorce or death. One possible explanation for this result is that these events are relatively rare in our sample, and thus their effect is imprecisely measured.

In Column 3, we additionally account for changes in the presence of children in the household. We find that the birth of a child increases the likelihood of acquiring a native friend, whereas the departure of a child from the household does not play a significant role. This result is intuitive and can be explained by noting that a new child in the household is likely

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<sup>18</sup> West Germany, including Berlin, is divided into 75 spatial planning regions (*Raumordnungsregionen*). These are functional units situated between the state and municipal levels. We use the lagged foreigner share to capture changes in the regional concentration of immigrants between two observations on friendship. Therefore, in line with the other explanatory variables, we measure changes between the last observation on friendship and the year before we observe friendship again.

Table 4. *Friendship formation in the host country: benchmark results*

	(1)	(2)	(3)	(4)	(5)	(6)
<i>YSM</i>	0.0558*** (0.00431)	0.0550*** (0.00433)	0.0539*** (0.00434)	0.0515*** (0.00433)	0.0506*** (0.00436)	0.0490*** (0.00450)
<i>YSM</i> <sup>2</sup>	-0.0005*** (9.12e-05)	-0.0005*** (9.10e-05)	-0.0005*** (9.04e-05)	-0.0004*** (9.04e-05)	-0.0004*** (9.06e-05)	-0.0004*** (9.19e-05)
<i>Getmarried</i>		0.0632 (0.0760)	0.0132 (0.0778)	0.00401 (0.0767)	-0.0189 (0.0820)	-0.0184 (0.0818)
<i>GetmarriedG</i>		0.0607 (0.137)	0.0782 (0.149)	0.0361 (0.160)	0.0356 (0.157)	0.0154 (0.166)
<i>GetDivorced</i>		0.0966 (0.0825)	0.0879 (0.0810)	0.0869 (0.0784)	0.0695 (0.0773)	0.0651 (0.0782)
<i>NewChild</i>			0.169*** (0.0482)	0.126*** (0.0480)	0.125*** (0.0481)	0.127*** (0.0485)
<i>LeavingChild</i>			0.00633 (0.0375)	-0.00997 (0.0371)	-0.0130 (0.0370)	-0.00911 (0.0367)
<i>CEd</i>				0.242*** (0.0376)	0.229*** (0.0380)	0.221*** (0.0379)
<i>CLoc</i>					0.151* (0.0871)	0.145* (0.0873)
<i>ForCon</i>					-0.164 (0.118)	-0.165 (0.119)
<i>Unemployed</i>						-0.0290 (0.0744)
<i>Employed</i>						0.0714* (0.0368)
Observations	3,280	3,280	3,280	3,280	3,280	3,280
<i>R</i> <sup>2</sup>	0.198	0.200	0.205	0.229	0.232	0.234
Number of persons	1,694	1,694	1,694	1,694	1,694	1,694

*Notes:* The table reports coefficients from a linear probability model. Robust standard errors, clustered at the individual level, are presented in parentheses. All specifications account for individual fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

to increase the probability of an immigrant interacting with the host society. This could be driven, for example, by the need to take the child to day nurseries, kindergartens, etc. In Column 4, we additionally account for the effect of acquiring a higher level of education in Germany. We find that an immigrant's exposure to the local educational system significantly increases the likelihood of acquiring a German companion. The magnitude of the effect is remarkable: investing in the acquisition of human capital in Germany increases the probability of having a German friend by approximately 22 percentage points, and this effect is remarkably robust (see Columns 5 and 6). This is in contrast with the results of Martinovic *et al.* (2014), who do not find any significant effect of changes in education on the acquisition of inter-ethnic ties for guest-workers in Germany.

In Column 5, we also account for changes in location, while at the same time controlling for immigrants' lagged exposure to foreigners in the region where they live. While we find no effect of exposure to foreigners in the region, our results suggest that relocations play a positive role in the acquisition of German friendship, which is significant at the 10 percent level. A possible explanation is that relocation is often driven by new and better employment opportunities. As a result, *ceteris paribus*, moving to a new area might increase the likelihood of interacting with natives in the workplace.

In Column 6, we consider, in addition, changes in employment status by looking at whether the individual has found or lost a job between  $t - 1$  and  $t - 5$ . Our results suggest that becoming employed has a positive and significant effect on the likelihood of acquiring a German friend, which increases by 7 percentage points.<sup>19</sup> At the same time, becoming unemployed does not have a significant effect. These results suggest that the workplace shapes the formation of the social network, and also that, once established, this network is robust to employment loss.

The dependent variable we have used so far captures whether an individual has at least one German friend. In Table 5, we further investigate the determinants of friendship formation, by separately studying the acquisition of the first German friend (Column 1) and of having multiple German friends (Column 2). We use the same controls as in the benchmark specification of Column 6 in Table 4. In particular, in Column 1, we hold  $GerFr_{it}$  artificially constant at 1 after an immigrant has acquired their first German friend, whereas in Column 2, our dependent variable is a dummy equal to 1 if a person has more than one German friend. Comparing the results in Column 1 with those in the benchmark, we generally uncover broadly similar patterns. The only exception is that now lagged exposure to foreigners in the region tends to decrease the likelihood of acquiring the first German friend, while changing location no longer appears to play a significant role. A similar pattern also emerges when, in Column 2, we look at the determinants of acquiring multiple German friends. However, it is worth noting that, in terms of magnitude, an increase in the exposure to foreigners in the region has a more pronounced negative effect when it comes to explaining the acquisition of multiple German friends. This finding highlights the importance of the cultural environment in explaining the composition of social networks between individuals of different ethnic backgrounds.

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<sup>19</sup> Similar effects have been discovered by Martinovic *et al.* (2014). They find that immigrants who switch from unemployment into a manual job experience have more contacts with natives.

Table 5. *Friendship formation in the host country: alternative measures of friendship*

	First German friend (1)	More than one German friend (2)
<i>YSM</i>	0.0631*** (0.00444)	0.0347*** (0.00381)
<i>YSM</i> <sup>2</sup>	-0.000412*** (9.38e-05)	-0.000406*** (7.74e-05)
<i>Getmarried</i>	-0.0186 (0.0626)	-0.0256 (0.0604)
<i>GetmarriedG</i>	0.0124 (0.154)	0.140 (0.190)
<i>GetDivorced</i>	0.0619 (0.0539)	0.0408 (0.0668)
<i>NewChild</i>	0.0966** (0.0418)	0.136*** (0.0473)
<i>LeavingChild</i>	-0.000971 (0.0277)	-0.0156 (0.0298)
<i>CEd</i>	0.127*** (0.0303)	0.145*** (0.0323)
<i>CLoc</i>	0.111 (0.0722)	0.0739 (0.0651)
<i>ForCon</i>	-0.175* (0.0957)	-0.304*** (0.0990)
<i>Unemployed</i>	0.0341 (0.0546)	-0.0350 (0.0521)
<i>Employed</i>	0.0446 (0.0274)	0.0250 (0.0297)
Observations	3,280	3,280
<i>R</i> <sup>2</sup>	0.393	0.149
Number of persons	1,694	1,694

*Notes:* The table reports coefficients from a linear probability model. Robust standard errors, clustered at the individual level, are presented in parentheses. All specifications account for individual fixed effects. In Column 1, we use an alternative measure of friendship and focus on the acquisition of the first German friend by keeping *GermanFriend* constant at 1 after it has once changed from 0 to 1. In Column 2, the dependent variable is a dummy coded as 1 if a person has more than one German friend. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

Summing up, our analysis so far suggests that gaining a local friend is influenced by the number of years the immigrant has spent in the host country, whether they have become employed, by the birth of a new child, relocation decisions, and, importantly, whether they have earned an additional degree in the host country.

## VI. Additional Evidence

In Table 6, we build on these findings to investigate the possible presence of heterogeneous effects. In particular, using our benchmark specification

Table 6. *Friendship formation in the host country: different subsamples*

	Women (1)	Men (2)	Unskilled (3)	Skilled (4)	<40 years (5)	40+ years (6)
<i>YSM</i>	0.0505*** (0.00626)	0.0475*** (0.00644)	0.0458*** (0.00790)	0.0465*** (0.00619)	0.0425*** (0.00755)	0.0764*** (0.00788)
<i>YSM</i> <sup>2</sup>	-0.000504*** (0.000125)	-0.000319** (0.000134)	-0.000457*** (0.000145)	-0.000223 (0.000142)	-0.000165 (0.000212)	-0.000814*** (0.000139)
<i>Getmarried</i>	-0.0163 (0.115)	-0.0289 (0.120)	-0.0721 (0.156)	0.00525 (0.102)	-0.0968 (0.0904)	0.0831 (0.172)
<i>GetmarriedG</i>	0.0157 (0.223)	-0.0412 (0.221)		-0.0143 (0.181)	0.0530 (0.310)	-0.0389 (0.172)
<i>GetDivorced</i>	0.0146 (0.110)	0.114 (0.114)	0.0288 (0.144)	0.0693 (0.0995)	-0.0642 (0.130)	0.0844 (0.111)
<i>NewChild</i>	0.0455 (0.0624)	0.205*** (0.0717)	0.143* (0.0793)	0.147** (0.0650)	0.148*** (0.0563)	0.00474 (0.103)
<i>LeavingChild</i>	-0.0211 (0.0505)	-0.00755 (0.0535)	0.0699 (0.0487)	-0.0478 (0.0587)	0.0870 (0.151)	-0.0385 (0.0426)
<i>CEd</i>	0.188*** (0.0548)	0.250*** (0.0526)	0.139** (0.0623)	0.291*** (0.0598)	0.198*** (0.0558)	0.239*** (0.0536)
<i>CLoc</i>	0.0866 (0.128)	0.202* (0.117)	0.140 (0.190)	0.133 (0.102)	0.0980 (0.110)	0.233* (0.130)
<i>ForCon</i>	-0.163 (0.152)	-0.183 (0.199)	-0.118 (0.193)	-0.256* (0.146)	-0.238** (0.115)	0.145 (0.240)
<i>Unemployed</i>	0.00451 (0.101)	-0.0688 (0.111)	0.0735 (0.114)	-0.147 (0.112)	0.0948 (0.102)	0.0121 (0.100)
<i>Employed</i>	0.103** (0.0463)	0.0193 (0.0633)	0.00466 (0.0532)	0.109** (0.0517)	0.0615 (0.0508)	0.140** (0.0709)
Observations	1,679	1,601	1,578	1,702	1,473	1,807
<i>R</i> <sup>2</sup>	0.224	0.253	0.162	0.261	0.277	0.245
Number of persons	856	838	919	904	893	1,033

*Notes:* The table reports coefficients from a linear probability model. Robust standard errors, clustered at the individual level, are presented in parentheses. All specifications account for individual fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

of Column 6 in Table 4, we repeat our analysis on different subsamples. In Columns 1 and 2, we focus on female and male respondents, respectively. In Columns 3 and 4, we split the sample between low-skilled (Column 3) and high-skilled (Column 4) individuals. Finally, in Columns 5 and 6, we distinguish between young (<40 years) and older (40+ years) immigrants.

The comparison between females and males reveals the following results. First, years since migration and the acquisition of an education in Germany have comparable effects for the two groups. Second, having a new child appears to have an effect on the likelihood of acquiring a German friend for males, but not for females. A possible explanation for this finding is that fathers are more likely to spend more time with children

outside the household (in institutions such as kindergartens or sports clubs). Third, a relocation increases the likelihood of having a German friend for male immigrants, while we do not find a significant effect for females. This might be because immigrant households are disproportionately characterized by a male-breadwinner pattern. Changing locations might therefore be driven by new career opportunities for men, which are likely to be associated with increased inter-ethnic contact at work. Finally, our results suggest that becoming employed has a positive effect on the acquisition of a German friend for females but not for male respondents. We can think of at least two possible explanations for this finding. One argument is that ethnic segmentation in the German labor market is less pronounced for women than for men (Steinhardt, 2011). This implies that female immigrants are more likely to take up employment in jobs in which they interact with natives than male immigrants and, for this reason, they are more likely to find German friends by entering employment. A second possible argument is that the share of women entering employment is twice as large as that of men in our sample. The fact that we do not find a significant effect for men might thus simply be driven by the relatively low number of men entering employment during the observation period.<sup>20</sup>

Regarding the comparison between skilled and unskilled individuals, we find that time spent in the country and earning a new degree in Germany has a positive effect on the acquisition of a German friend for both groups of individuals. As expected, the education effect is more pronounced for high-skilled immigrants, because the contact with natives is likely to increase with educational attainment. In other words, inter-ethnic contact is likely to be higher in universities than in evening schools or adult education centers. Furthermore, our results suggest that a greater share of foreigners in the region of residence decreases the probability of acquiring a German friend for high-skilled workers only. This might be driven by differences in the spatial segregation of unskilled and skilled immigrants. In fact, for the US, Borjas (1998) finds a strong negative correlation between ethnic residential segregation and the educational attainment of immigrants. In other words, while high-skilled immigrants are likely to reside in mixed neighborhoods, unskilled immigrants live in highly segregated areas. Therefore, moving to a region with fewer foreigners increases the chances of skilled immigrants finding German friends, while changes in the regional concentration of foreigners are minimal for low-skilled immigrants. Finally, we find a positive relationship between changes in the employment status and

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<sup>20</sup> For females, we observe a change from unemployed to employed in 10 percent of the observations, whereas the corresponding share for men is only 5 percent.

acquisition of German friends for skilled immigrants, but no significant relation for low-skilled immigrants. A possible explanation is that, as in the case of gender, there are differences in the extent of ethnic occupational segmentation by skill levels. In fact, evidence for Germany reveals that occupational segmentation is less an issue among the skilled workforce (Steinhardt, 2011).<sup>21</sup> High-skilled immigrants are therefore more likely to take up jobs in which they have German co-workers than low-skilled immigrants.

When we split our sample by age, we uncover significant differences regarding the influence of time spent in Germany. An additional year spent in Germany has a much higher effect on the likelihood of finding a German friend for young immigrants than for older ones. This supports previous work on social assimilation showing that young people are more likely to interact with people outside the household, which is a necessary precondition to establish friendship with natives (e.g., De Palo *et al.*, 2006). In line with this reasoning, we also find a negative association between increasing regional co-ethnic concentration and inter-ethnic friendship for young immigrants. The fact that we do not find any significant effect of a new child for older immigrants is simply because of the very low share of childbirth in this age group (less than 1 percent). Finally, we find differences regarding the influence of entering employment, which are likely to mirror differences in the extent of occupational segmentation between both groups.

In Table 7, we carry out a comparison of groups of immigrants based on their country of origin: in Column 1, we focus on individuals with a Turkish background; in Column 2, we consider Eastern Europeans;<sup>22</sup> in Column 3, we study individuals from Southern European countries;<sup>23</sup> in Column 4, we restrict our analysis to immigrants originating in countries that used to be part of the former Yugoslavia.

By splitting the sample along nationality lines, the number of observations included in each specification drops substantially. As a result, the statistical significance of our findings tends to decline. Therefore, these results have to be interpreted with caution. Our evidence suggests that the average effects we have identified in Table 4 vary significantly among different ethnic groups in a number of instances. First, the influence of an additional year spent in Germany plays a similar role for immigrants from

<sup>21</sup> Steinhardt (2011) shows that ethnic occupational segmentation is higher among employees without any apprenticeship than among employees with secondary education and apprenticeship.

<sup>22</sup> These include individuals originating in Poland, Russia, Kazakhstan, Romania, Ukraine, Czech Republic, Hungary, Bulgaria, and Slovakia (in descending order).

<sup>23</sup> That is, individuals originating in Greece, Italy, Portugal, and Spain.

Table 7. Friendship formation in the host country: selected ethnic groups

	Turks (1)	Eastern Europeans (2)	Southern Europeans (3)	Ex-Yugoslavians (4)
<i>YSM</i>	0.0175** (0.00697)	0.0669*** (0.0118)	0.0565*** (0.0143)	0.0207 (0.0148)
<i>YSM</i> <sup>2</sup>	4.03e-05 (0.000141)	-0.000456 (0.000421)	-0.000402* (0.000225)	7.77e-05 (0.000282)
<i>Getmarried</i>	-0.136 (0.203)	-0.0452 (0.118)	-0.227** (0.104)	0.0857 (0.183)
<i>GetmarriedG</i>	0.0391 (0.193)	0.0737 (0.252)		
<i>GetDivorced</i>	0.0504 (0.128)	0.122 (0.145)	0.201 (0.150)	-0.0191 (0.213)
<i>NewChild</i>	0.0338 (0.0749)	0.234** (0.103)	0.0948 (0.124)	0.244 (0.160)
<i>LeavingChild</i>	-0.0511 (0.0503)	-0.0805 (0.0789)	-0.0197 (0.0778)	0.0909 (0.110)
<i>CEd</i>	0.194*** (0.0677)	0.304*** (0.0660)	0.203*** (0.0782)	0.00544 (0.0882)
<i>CLoc</i>	0.464*** (0.173)	0.00885 (0.131)	0.183 (0.194)	0.219 (0.367)
<i>ForCon</i>	-0.179 (0.226)	-0.511*** (0.174)	0.267 (0.269)	-0.384 (0.402)
<i>Unemployed</i>	-0.184 (0.128)	0.0289 (0.137)	0.267* (0.145)	-0.292** (0.132)
<i>Employed</i>	-0.00461 (0.0489)	0.0903 (0.0765)	0.295*** (0.112)	0.181 (0.140)
Observations	1,143	899	574	417
<i>R</i> <sup>2</sup>	0.134	0.420	0.282	0.195
Persons	538	472	309	229

Notes: The table reports coefficients from a linear probability model. Robust standard errors, clustered at the individual level, are presented in parentheses. All specifications account for individual fixed effects. \*\*\*, \*\*, and \* denote significant at the 1, 5, and 10 percent levels, respectively. The sample includes individuals of working age (18–64 years), pooled, in West Germany. A detailed description of the variables can be found in the Appendix.

Eastern and Southern Europe, while immigrants from Turkey, who are by far the largest group in Germany, and the former Yugoslavia exhibit a flatter pattern over time. In other words, *ceteris paribus*, immigrants from Turkey and the former Yugoslavia have to spend more time in Germany than Eastern and Southern European immigrants before they establish a friendship with Germans. One potential reason for this finding is the strong selective out-migration observed in the group of Southern European immigrants, which means that the less-integrated people return to their home country (e.g., Constant and Massey, 2003). The individuals we observe in our sample are thus those who are more likely to socialize with natives. Eastern European immigrants do not share the same history, but they are also more likely to be integrated in the host country because they are young and

highly educated. Indeed, most of them (two-thirds in our sample) arrived after the fall of the iron curtain as new labor migrants.<sup>24</sup>

Another interesting fact to note is that while we find a negative association between marrying a non-native and friendship with natives for Southern European immigrants, the effect of marriage is not significant in the full sample. This indicates that marriages among immigrants might reduce interactions with the majority population. However, the marriage effect for Southern Europeans is driven by few people and should therefore be taken with caution. Furthermore, the positive effect of childbirth in Table 4 appears to be mainly driven by the Eastern European immigrant group. For all other groups, the corresponding coefficient is positive but not statistically significant. This is in line with findings from the literature on immigrant children in Germany (Becker and Tremel, 2006), which emphasize the positive influence of parental education on child enrollment in preschool institutions. Because of their higher level of education, Eastern Europeans are more likely to send their children to preschools, and thus increase their interactions with natives.

Turning to the effect of becoming employed, the evidence we have uncovered in our benchmark specification appears to be mainly driven by Southern European immigrant groups. In fact, a positive employment shock has a particularly large and significant effect on the likelihood of acquiring a German friend for Southern Europeans, whereas this effect does not appear to be present for other immigrant groups. Moreover, ex-Yugoslavian immigrants seem to be much less likely to find German friends if they have lost their job recently. Finally, our estimates suggest heterogeneous effects of changes in location and regional concentration of foreigners. However, because of the small sample size, the coarse nature of our measure of immigrant concentration, and the limited number of location changes, these results are far from being conclusive. To make further progress in this direction, more detailed information about the characteristics of the residential neighborhoods of immigrants is needed.<sup>25</sup>

## **VII. Conclusions**

It is widely believed that immigration is a growing and permanent part of Europe's future. For this reason, cultural assimilation of immigrants is at the forefront of the political debate, and the study of inter-ethnic and

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<sup>24</sup>In our sample, 56 percent of Eastern Europeans are younger than 40 years in their first spell, and 70 percent have at least upper secondary education. For comparison, the corresponding share of skilled immigrants among Turks is 36 percent, 32 percent among Southern Europeans, and 44 percent among ex-Yugoslavians.

<sup>25</sup>Unfortunately, this type of information is not available in the geocoded SOEP sample.

inter-racial relationships has become an important field of research in recent years. Our analysis suggests that first-generation immigrants who have a German friend tend to be more similar to German natives than immigrants who do not. This is an important finding, because it suggests that having a well-developed, native-including social network in the destination country might be an important driver of cultural assimilation. We also find that the educational achievement, the years spent in the host country, entering employment, and the presence of children are positively related to the probability of forming friendships with majority group members. The effects vary across different sociodemographic groups. Overall, our results suggest that labor-market integration matters not only for economic reasons, but also for inter-ethnic contact and friendship. The same holds true for education in the host country. In other words, both labor market and educational institutions seem to be places where inter-ethnic friendships can form, which will likely foster cultural assimilation.

Clearly, friendships are complex social relationships and it is difficult to draw straightforward conclusions about the determinants of social ties. In this paper, by making progress in addressing reverse causality issues and by using individual fixed effects, we have been able to tackle some of the important challenges in the empirical analysis of friendship formation.

## **Appendix: Description of Variables**

*Tables 2(a), 2(b), and 3(a)–(c)*

*SocialActive* is a dummy coded as 1 if the respondent is socially active (active in any kind of unions, clubs, etc.).

*StrongInPol* is a dummy coded as 1 if the respondent has strong interests in politics, conservative is a dummy coded as 1 if the respondent has preferences for conservative parties (CDU, CSU, FDP).

*Left* is a dummy coded as 1 if the respondent has preferences for left parties (SPD, Greens, PDS).

*WorriedOwnEcon* is a dummy coded as 1 if the respondent is very worried about their own economic situation.

*WorriedJob* is a dummy coded as 1 if the respondent is very worried about job security.

*WorriedEuro* is a dummy coded as 1 if the respondent is very worried about the introduction of the euro.

*WorriedCrime* is a dummy coded as 1 if the respondent is very worried about crime.

*WorriedEnv* is a dummy coded as 1 if the respondent is very worried about the environment.

*WorriedXeno* is a dummy coded as 1 if the respondent is very worried about xenophobia.

*FluentGerman* is a dummy coded as 1 if the respondent reports that they speak good or very good German.

*GermanAtHome* is a dummy coded as 1 if the respondent reports that they speak mostly German at home.

#### *Tables 4–7 (Panel Estimates)*

*GerFr* is a dummy coded as 1 if the respondent has at least one German friend.

*YSM* measures the years since the immigrant has migrated to Germany.

*YSM*<sup>2</sup> is years since migration squared.

*Getmarried* is a dummy coded as 1 if an individual married a non-German between  $t - 1$  and  $t - 5$  and was not married (single or widowed) in  $t - 5$ .

*GetmarriedG* is a dummy coded as 1 if an individual married a German between  $t - 1$  and  $t - 5$  and was not married (single or widowed) in  $t - 5$ .

*GetDivorced* is a dummy coded as 1 if an individual became single (because of divorce or being widowed) between  $t - 5$  and  $t - 1$  and was not single (married or widowed) in  $t - 5$ .

*NewChild* is a dummy coded as 1 if a household between  $t - 1$  and  $t - 5$  has a child (younger than 16) and had no child (younger than 16) in  $t - 5$ .

*LeavingChild* is a dummy coded as 1 if a household has no child (younger than 16) between  $t - 1$  and  $t - 5$  in at least one year and had a child (younger than 16) in  $t - 5$ .

*CEd* is a dummy coded as 1 if an individual has acquired a higher educational degree between  $t - 1$  and  $t - 5$ .

*CLoc* is a dummy coded as 1 if an individual changed location between  $t - 1$  and  $t - 5$ . A change in location is defined as moving from an urban to a rural area (or vice versa) or changing the planning region (*Raumordungsregion*).

*ForCon* measures the regional share (at the level of planning regions) of foreigners at time  $t - 1$ . In the first year of friendship observation, the variable measures the actual regional share of foreigners.

*Unemployed* is a dummy coded as 1 if an individual changed work status from working to not working between  $t - 5$  and  $t - 1$ .

*Employed* is a dummy coded as 1 if an individual changed work status from not working to working between  $t - 5$  and  $t - 1$ .

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