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Parental background matters: Intergenerational mobility and assimilation of Italian immigrants in Germany

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Abstract. We investigate the hypothesis of failed integration and low social mobility of immigrants. For this purpose, an intergenerational assimilation model is tested empirically on household survey data and validated against administrative data provided by the Italian Embassy in Germany. In line with previous studies, we confirm substantial inequality of educational achievements between immigrants and natives. However, we find that the children of Italian immigrants exhibit fairly high intergenerational mobility. Furthermore, holding parental education constant, Italian second generation immigrants show no less opportunities than natives to achieve high schooling degrees. These findings suggest a rejection of the failed integration hypothesis.

Keywords: Intergenerational Mobility; Education; Integration and Assimilation of Immigrants.
JEL Classification: I24, J61, J62.

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1 Introduction

The assimilation of immigrants has been a topic of interest for researchers and the public for a long time and, over the last decades in particular the intergenerational dimension has come more and more into the focus (among others Card, 2005). Especially the case of low skilled immigrants and their offspring is an intensely discussed topic of high political relevance. Indeed, various countries experienced for different reasons an influx of ethnically rather homogeneous groups of low skilled immigrants which are often perceived to integrate less well into native society than other groups. In Germany, for example, this issue applies for immigrants from former guest worker recruitment states (*inter alia* Turkey, Italy, Spain, Portugal, Greece, former Yugoslavia). Not only that people with migration background – approximately 20 % of the German population – have on average lower levels of education than the native population; among immigrants, former guest workers and their offspring show the lowest levels of educational achievements (Bildungsbericht, 2012). This is often interpreted in the sense, that children and grandchildren of low skilled immigrants lack the opportunities to catch up with their native peers or face even discrimination.

In the debate on integration of immigrants often cross sectional data is referred to. However, looking at "snapshots" in time gives only limited insights and when dealing with integration and assimilation of immigrants the picture obtained is very incomplete. In order to identify the level of long term economic assimilation it is more expedient to evaluate the improvement of second generation immigrants in relation to their parents' socio-economic situation and to compare their opportunities to achieve certain outcomes with respect to natives. In addition, to look at rather homogeneous groups of immigrants separately provides the possibility to single out potential differences in the influence of the ethnic, national or regional background. However, usually studies concerned with intergenerational aspects of migration regard the whole group of immigrants as a single sub-population. Information on national or ethnic background is merely included as a control or to perform the analysis with reduced numbers of observations – this procedure is mainly due to data limitations.[1] In this study, we therefore refine the analysis focusing on one group, the Italian immigrants in Germany, and measure their intergenerational mobility in terms of education and their assimilation into native society.

Italian immigrants are particularly suitable for our purposes: Italy was the first state signing a bilateral recruitment agreement with Germany in 1955 and people with Italian migration background are still one of the groups with the on average lowest educational achievements. This is documented by official statistics and confirmed by several economic and sociological studies (Algan et al., 2010; Gang and Zimmermann, 2000; Kristen and Granato, 2007; Luthra, 2010). Another important issue is data availability. Although the number of Italian immigrants covered in surveys is sufficiently high and presumably representative to conduct an intergenerational analysis,

[1] Data availability is especially an issue for Germany, while for the United States some studies focus on Mexican or Hispanic immigrants (e.g. Smith, 2003; Caponi, 2011). For a summary of the literature on the intergenerational mobility of immigrants see Dustmann and Glitz (2011).

another powerful data source is at our disposal: the Italian ministerial registry data on Italians living abroad in Germany. This enables us to cross-check results obtained from survey data and, for the first time, also to investigate patterns within the group of Italian immigrants.

Our analysis basically consists in three steps: First, we calculate the degree of intergenerational educational mobility of immigrants and natives, controlling for "the quality of the ethnic environment in which parents make their investments", the *ethnic capital* as introduced by Borjas (1993). Thereby, we subdivide the sample of immigrants between first and second generation, and evaluate the impact of some migration specific features, like time of arrival, geographic region of origin, language spoken at home and parental country of birth. Alternative measures of intergenerational mobility are also obtained from transition matrices. Second, adopting a different set up, we estimate the probability of immigrants to achieve high schooling degrees, given their parents' educational background. Last, applying the results of the first two steps to a more-generation model by Dustmann and Glitz (2011), we estimate the educational assimilation process of Italian guest workers and their descendants in Germany. Of course this only sheds light on one part of economic integration, nevertheless a very important one since education is an important prerequisite for economic success.

The main contribution and findings are the following: We get to the bottom of the concerns about a supposed lack of integration of Italian immigrants in Germany. These concerns have since long been in the public debate, reinforced by the snapshots regularly provided by for instance official statistics. Hereby, making use of registry data on all Italian families in Germany (about 800,000 individuals in 370,000 families) provided by the Italian Embassy, we can validate the findings obtained from household survey data. Our results give ample evidence for rejecting the failed integration hypothesis, showing that Italian immigrants experience high intergenerational mobility and have no less possibilities to achieve high schooling degrees than their native German peers. Although this findings pertain to Italian immigrants in Germany, they should also comprise elements of external validity.

The remainder of the paper is organized as follows. Section 2 gives a brief overview on the historical background of immigration in Germany and the literature. Section 3 presents our conceptual framework. Our database is described in Section 4. Section 5 provides first some descriptive insights on educational outcomes and intergenerational mobility, and than discusses the results of the econometric analysis. Finally, Chapter 6 offers some concluding remarks.

2 Historical Background and Literature Review

Albeit the general perception, Germany and its predecessor states have a long history of immigration and successful integration of immigrants. For instance, Prussia realized that it would profit from immigration and was very successful with the attraction and economic integration of immigrants from all parts of Europe. In this time, immigrants were lured with economic incentives as

well as religious freedom and politicians looked upon them as valuable new citizens who were to be integrated. After the second world war, immigrants were needed once more to support the German economy and its *Wirtschaftswunder*. Starting in 1955, Germany signed several agreements to recruit low skilled labourers mainly from Turkey, Italy, Spain, Portugal, Greece and former Yugoslavia. The period of recruitment lasted for about 20 years. With the rise of mass unemployment in the wake of the oil crisis, recruitment was finally terminated by 1973 and migration was more or less reduced to family reunions. With the continuous rise of unemployment, German politics made clear that guest workers were not welcomed as prospective citizens, that their temporary role as labourers in Germany had come to an end and that they were expected to return to their country of origin. In 1983 Germany even passed a law granting financial incentives to willing returnees (*Rückkehrhilfegesetz*) in order to expedite return migration. At that time, public debate concerning immigrants manly focused on distributional and labour market issues. German politics considered Germany not to be an immigrant society, and especially low skilled immigrants were seen as a unwanted competition on the German labour market with its mass unemployment. This had immediate consequences: an integration in German society was never required or wanted, nor was it a priority of politics.

Despite the intended temporary nature of the period of residence and incentives to return to their countries of origin, time proved this concept wrong. Guest worker stayed, founded families, acquired property, started small enterprises and became a permanent part of German society. Before long, they were citizens in all but name and slowly German society realized that it was in dare need of concepts. Immigrants and their supposed lack of integration gained public attention. Official statistics which identified immigrants and in particular guest workers and their offspring as a low educated and disadvantaged group left behind (Bildungsbericht, 2012) served as key evidence for a failed approach of the past. In order to assess opportunity and discrimination, the focus of attention shifted to the performance of second-generation immigrants. This recent interest is mirrored by a variety of studies investigating the socio-economically disadvantaged situation of immigrants in Germany. One focus, for example, is on the educational achievements of second generation immigrants (Riphahn, 2003, 2005; Entorf and Tatsi, 2009; Krause et al., 2014; Ludemann and Schwerdt, 2013).[2] For instance, Entorf and Tatsi (2009), Krause et al. (2014) and Ludemann and Schwerdt (2013) identify the disadvantaged social background and parental education of immigrants in Germany as primary reasons for the gap.

With a few exceptions, most of the research in this field does not distinguish between different groups of immigrants. One of theses exceptions, Algan et al. (2010), confirms that Italian immigrants are one of the immigrant groups with lowest educational outcomes on average, and this is especially true for the second generation. These results are also in line with the previous work of Gang and Zimmermann (2000). They account for a huge and significant gap of educational

[2]Studies, dealing the same subject for other countries are e.g. Van Ours and Veenman (2003) for the Netherlands, Chiswick and DebBurman (2004) for the US and Dustmann et al. (2012) in a cross-country comparison.

achievements between natives and immigrants for Germany, even when controlling for parental human capital. Again, they find Italian second generation immigrants to be the ethnic groups with the on average second-lowest educational achievements, preceded by the Turks. Kristen and Granato (2007) and Luthra (2010) come to a similar result, but deviate in their findings when controlling for parental background characteristics. Both conclude that conditional on parental education, the offspring of immigrants is at least equal well of compared to their native even-aged counterparts when it comes to obtaining a high schooling degree. Nevertheless, while Luthra (2010) finds this to be true across ethnic groups, Kristen and Granato (2007)'s results indicate that Italian second generation immigrants are disadvantaged compared to natives.[3]

In order to get more insights into equality of opportunity within a society and its differing subgroups, looking at intergenerational mobility is useful. The more mobile a society, the less economic outcomes realized by any individual depend on parental or social background and, therefore, the higher the equality of opportunity (Schütz et al., 2008).[4]

Following the theoretical contribution by Becker and Tomes (1979), a considerable number of researchers studied the intergenerational transmission of human capital and the influence of parental background on individual outcomes empirically (for an overview, see Black and Devereux, 2011 and references sited within). Using the intergenerational mobility approach to asses the situation of immigrants we are especially interested if there are differences in intergenerational mobility between subgroups. For example, if a socio-economically disadvantaged subgroup shows lower (higher) degree of intergenerational mobility than the overall population, this translates into a higher (lower) intergenerational persistence of disadvantages and less (more) opportunities compared to the overall population.

The literature on intergenerational mobility classifies Germany in general as a society with low intergenerational educational mobility, both in international comparisons (Woessmann, 2008) and looking at historical trends (Heineck and Riphahn, 2009). Following Dustmann (2004), Hanushek and Woessmann (2006) and Bauer and Riphahn (2006) this is primarily attributed to the early school selection in the German education system.[5]

[3]Both studies make use of the German Microcensus. Hence, differences in results may be contributed to differences in the information available to identify immigrants. From 2005 onwards, the place of birth is recorded while prior to 2005 second generation immigrants can only be defined using their citizenship. Thus, studies that rely on data prior to 2005, like Kristen and Granato (2007), cannot take into account second generation immigrants with German nationality. Therefore, they are likely to overestimate the educational disadvantage and studies that are able to define second generation immigrants more accurately (e.g. Luthra (2010)) are prone to yield more accurate results.

[4]Roemer (2004) points out that this implication is not trivially consequential and requires a differentiation between (*given*) *circumstances* and *personal choices*. Even so, Brunori et al. (2013) finds a strong correlation between common indices of inequality of opportunity and indicators for intergenerational mobility. For a thorough overview and discussion see Corak (2013).

[5]Hanushek and Woessmann (2006), Schütz et al. (2008) and Woessmann (2008) show also on basis of an international comparison that early school tracking contributes to inequality of (educational) opportunities. Brunello and Checchi (2007) find the same effect on education and early labour market success, but the opposite on literacy and training.

Regarding the educational mobility of second generation immigrants, a recent study by Bauer and Riphahn (2013) finds a significant effect of the age at enrolment in kindergarten, hence relating educational mobility to the institutional setting of the education system. However, theoretical and empirical research for different countries show that economic outcomes of immigrants are influenced by other factors and differ from natives especially in terms of intergenerational mobility. To capture this, Borjas introduced the notion of *ethnic capital*: a concept, which deals with the intergenerational mobility of immigrants as a separate phenomenon (Borjas, 1992, 1993).

3 Conceptual Framework

3.1 Intergenerational Human Capital Transmission

The focus of the analysis is on the estimation of intergenerational mobility, measured by the effect of parental background on the educational achievements of their children. Following the seminal model by Becker and Tomes (1979) and the adaptations proposed by Solon (1999), the educational achievements of any individual are a function of parental background. In this context, parental background subdivides into observable (e.g. income and education) and unobservable (e.g. abilities and motivation) characteristics. The transmission process from parents to children captures, for example, that parental investments in the human capital formation of their offspring is positively correlated with their own earned income; that there are positive effects of the socio-economic and cultural environment such as living in better neighbourhoods, number of books at home or help with homework; and that genetic transmissions of traits is linked to children's achievements.

The exact empirical identification of every human capital transmission channel from parents to children is due to data limitations next to impossible. The impossible nature of this task is not only attributed to the fact that part of the relevant parental background characteristics are unobservable, but to a greater extend in their strong inter-correlation. This impedes the precise identification of the impact of these factors individually, especially in absence of very rich and detailed data (Goldberger and Manski, 1995). Hence, estimating the effect of parental education on their children's education does not give the direct and causal influence of parental education itself, but the combined effect of cultural, socio-economic and genetic factors.[6]

When it comes to the comparison between natives and immigrants another complexity arises: in the human capital transmission process, the relative strength of the factors mentioned above may differ between natives and immigrants, since "the quality of the ethnic environment in which parents make their investments" (Borjas, 1992) is likely to differ substantially between them if full assimilation is not yet achieved. Nevertheless, the exercise is still useful, since the obtained measure

[6]In some innovative studies of the last decade, efforts have been made to abstract the causal effects of parental environment on children's outcomes through alternative estimation strategies and twin-samples. For a review of the literature on this subject, see Holmlund et al. (2011) and Sacerdote (2011).

of correlation between parent's and children's outcomes provide meaningful insights on equality of opportunity in a society and serves as a between-group measurement (Corak, 2013; Brunori et al., 2013). In the context of migration this approach is of particular interest: if immigrants are on average lower educated than the native population, higher intergenerational (upward) mobility implies lower persistence of educational disadvantages and a faster economic assimilation and social integration. Thereby, assimilation is understood as reducing the gap between natives and immigrants regarding expected educational achievements. Of course, educational achievements do not capture all prospects of assimilation, but they play an important role and are a prerequisite for successful economic integration.

Accounting for the above, our basic estimation equation takes the following form:

$$edu_{it} = \alpha + \gamma' M + \beta edu_{it-1} + \delta'(edu_{it-1} \cdot M) + \vartheta' D_{it} + \upsilon'(D_{it} \cdot M') + \tau'(F_{it} \cdot M') + u_i + \epsilon_{it} \quad (1)$$

where the subscript t identifies children and $t-1$ the respective parents in family i. Hence, edu_{it} denotes the children's level of education and edu_{it-1} the education of their parents, both in log years of schooling. The vector M consists of four dummies m^{ig} where the superscripts $i = 1, 2$ and $g = 1, 2$ subdivide the immigrants into four groups: the dummy m^{11} identifies Italian immigrants ($i = 1$) of the first generation ($g = 1$), m^{12} Italian immigrants of the second generation ($g = 2$), m^{21} non-Italian immigrants ($i = 2$) of the first generation and m^{22} non-Italian immigrants of the seconds generation. Including natives for which all dummies are zero, altogether five different subgroups are considered. Through this vector of dummies, average effects within ethnic groups *a la* Borjas (1992) are captured.[7] The vector F is comprised of controls for migration-specific features including the first immigrated family member's time of migration to Germany, the Italian geographic region of origin, language spoken at home and the parent's birth country. Demographic factors and survey year fixed effects are contained in vector D while α is the constant. Last, the error term consists of an individual ($\epsilon_{it} \sim i.i.d.(0, \sigma_\epsilon^2)$) and a family specific component ($u_i \sim i.i.d.(0, \sigma_u^2)$). This error structure accounts for the observations being independent between, but not necessarily within families.[8]

The analysis of intergenerational mobility mainly focuses on the parameter β for natives and for immigrants on $\beta + \delta^{ig}$. Since the education is measured in log years of schooling, β and $\beta + \delta^{ig}$ give the percentage change of children's mean educational outcomes due to a marginal change in parental outcomes; *i.e.* the intergenerational elasticity. The closer the elasticity to zero (one), the higher (lower) is intergenerational mobility and the lower (higher) is the persistence of

[7] The here presented equation simplifies to one child per family. So, to comprehend also the cases in which there are two or more siblings belonging to the same family, another index - which we omitted for reasons of readability - should identify individuals belonging to family i.

[8] This characteristic shows, that in presence of two or more children per family, in the empirical analysis we will probably face heteroscedasticity. To overcome the problem, a methodology is applied to obtain robust standard errors by allowing clustering. This method mitigates the assumption of independent observations and allows the existence of correlation within certain groups (clusters), in this particular case within families.

parental education in the analysed (sub-)population. Further, one has to take into account that the distribution of educational outcomes from generation to generation may change. For between-group comparisons to be meaningful, a measure is needed that takes into account the differences in distributions. Following e.g. Björklund and Jäntti (2009) the intergenerational correlation coefficient ρ is suitable for this purpose and defined as follows:

$$\rho^{ig} = (\beta + \delta' M)(\sigma_{t-1}^{ig}/\sigma_t^{ig}) \tag{2}$$

where σ denotes the standard deviations of educational achievements of the parent's and children's generation. Obviously, the correlation coefficient corresponds to the intergenerational elasticity for equal $\sigma_{t-1} = \sigma_t$.

3.2 Human capital transmission and assimilation of immigrants

The assimilation and integration of immigrants is a dynamic process involving the first generation immigrants as well as their offspring in terms of children (second generation) and grandchildren (third generation). The process of intergenerational assimilation can be studied by extending the framework of human capital transmission presented above. However, it is important to distinguish between the two concepts of integration and assimilation of immigrants: assimilation mainly refers to some economic characteristics and depicts a convergence process of the outcomes of immigrants and natives, while integration encloses a variety of other (cultural) features and is more a concept regarding social inclusion of immigrants in the host country (for a detailed discussion see e.g. Aleksynska and Algan, 2010; Dustmann and Fabbri, 2003). Nevertheless, there might probably be some interrelationship of the two concepts, as theorized for example in a recent study by Stark and Jakubek (2013), where social integration is modelled as having a causal relation and creating a positive externality in the economic assimilation process. In our study, the use made of these two concepts is not as synonyms but in a complementary way, defining (economic) assimilation as the acquisition of "location-specific human capital", following Borjas et al. (1992).[9]

Following the model proposed by Dustmann and Glitz (2011), we start by illustrating the transmission mechanism in separate equations for natives N and immigrants I (for notational simplicity we reduce to two groups, natives and immigrants, and instead of the superscript ig we use indexes N and I). Therefore, we take equation (1) and substitute the elasticity β by the intergenerational correlation coefficient ρ from (2). Furthermore, we express the coefficients in

[9] On the topic of assimilation of immigrants, see Borjas (1995) and Chiswick (1978); for a sociological discussion, see Esser (2010).

relation to each other, choosing natives as the reference group ($\rho^I = \rho^N + \xi$).[10] We obtain

$$edu_{it}^N = \alpha^N + \rho^N edu_{it-1}^N + \varepsilon_{it}^N \quad (3)$$

$$edu_{it}^I = \alpha^I + (\rho^N + \xi) edu_{it-1}^I + \varepsilon_{it}^I \quad (4)$$

As suggested by Dustmann and Glitz (2011), we assume that ε_{it}^N and ε_{it}^I are asymptotically *i.i.d.*[11] Moreover, all other factors that influence educational outcomes and are independent from parental education are subsumed under α^N and α^I.

The differential between natives and immigrants in t is then given by

$$E\left[edu_{it}^N\right] - E\left[edu_{it}^I\right] = \alpha^N - \alpha^I + \rho^N (E\left[educ_{it-1}^N\right] - E\left[edu_{it-1}^I\right]) - \xi E\left[edu_{it-1}^I\right]. \quad (5)$$

The model implies that, if the transmission parameter is the same for natives and immigrants ($\xi = 0$) and holding other factors constant between the two groups ($\alpha^N = \alpha^I$), outcomes of immigrants converge to the outcomes of natives for $\rho^N < 1$ (*regression towards the mean*). If $\xi \neq 0$, the intergenerational correlation is different for natives and immigrants (for example immigrants are more mobile than natives; *i.e.* $\xi < 0$), and if $\alpha^N - \alpha^I \neq 0$, other specific factors – which can be interpreted as ethnic capital – play a role. In this two cases, the speed of convergence is determined by the influence of these factors, as well as by the difference between the two transmission parameters.

A final transformation shows that convergence of outcomes between natives and immigrants takes place, if

$$\frac{\alpha^N - \alpha^I}{(1-\rho^N) E\left[edu_{it-1}^I\right]} + \frac{1 - \rho^N - \xi}{(1-\rho^N)} < \frac{E\left[edu_{it-1}^N\right]}{E\left[edu_{it-1}^I\right]}. \quad (6)$$

Thus, for $\alpha^N - \alpha^I = 0$ and $\xi = 0$ there will always be convergence between the two groups. An analysis of intergenerational transmission of human capital in a context of migration has to take into account all of the aspects mentioned above to evaluate assimilation dynamics.

4 Data

4.1 German Socio-Economic Panel (SOEP)

The long-term analysis of assimilation and educational mobility between generations is based on the German Socio-Economic Panel 2011 (SOEP). The SOEP is a representative survey conducted annually since 1984 which records information on demographic, employment-related and other

[10] For notational congruency we slightly deviate from the model presented in Dustmann and Glitz (2011): they define the intergenerational transmission parameter of immigrants (using our notation) as $\rho^I = \rho^N - \xi$.

[11] This assumption and its implications are discussed in the base model.

characteristics for a representative number of individuals and households in Germany, including an over-sampling of immigrants (for a detailed description on SOEP see Wagner et al., 2007).

SOEP is highly suited for the analysis of intergenerational educational mobility of immigrants. First, the data contains detailed information on individual characteristics and information on educational attainment of parents and a variety of other family-specific features. Second, many migration-specific variables are included, such as first and second citizenship, migration background, year of arrival (migration) and spoken language at home.

SOEP provides a categorical variable with information on migration background of individuals. The four categories are: (1) no migration background; (2) direct migration background, (3) indirect migration background; and (4) not further differentiated migration background. This variable enables to identify immigrants. All individuals with migration background are defined as immigrants, all others as natives. Among immigrants, those born in Germany whose foreign-born parents immigrated to Germany (indirect migration background) are denoted as *second generation immigrants*.[12] Also in this category are individuals born abroad by parents of non-German nationality (direct migration background), but immigrated before the age of ten; *i.e.* before first selection of German education system after primary school in nearly all German federal states.[13]

The group of first and second generation immigrants is further divided into two subcategories: Italians and other immigrants. Italians and other immigrants are identified through a set of variables on nationality. Since the main focus of the study are Italian immigrants and their differences regarding the German native population, other immigrants are not further differentiated according to their respective nationalities. To obtain comparability between different subgroups, only individuals born after 1919 are considered, orienting to the first born observable Italian.

The final sample under investigation has one observation for every individual who is at least of age 20 in 2011, and where information on secondary schooling degree and the parent's level of education are available.[14] Altogether, sample consists of 33,902 individuals: 29,453 natives; 4,449 immigrants (first and second generation); and 2,108 second generation immigrants. Italians account for a total of 528 observations, with 278 first generation and 250 second generation

[12]It should be mentioned that "no migration background" in SOEP includes also individuals born in Germany with no information on citizenship of their parents. Thus, some second generation immigrant might be coded erroneously as native. However, we only consider individuals with information on the educational level of parents, so - under the assumption that, unusually, information on parental education are given when information on parental citizenship are not - there should be no distortion in our results.

[13]The definition of *second generation immigrants* in the economic literature is not uniform. While some studies define individuals who immigrated before the age of 16 as second generation (Gang and Zimmermann, 2000; Kossoudji, 1989), other researchers decided differently. Among these Riphahn (2005) and Algan et al. (2010) define only people born in the host country from foreign parents as second generation immigrants, probably due to data restrictions. Others, such as Schüller (2011) and Luthra (2010), put also individuals into this category, who immigrated before getting six or seven years old. This latter decision is justified by the age of school entrance in primary school. In this work a similar approach is adopted, setting the highest age of migration to be considered as second generation, at nine years, following Casey and Dustmann (2008). Robustness analysis performed with other codifications are consistent with the chosen approach.

[14]The lower age limit ensures that a successful completion of secondary schooling is observable. However, our results are robust to different age limitations.

immigrants. Comparing the sub-sample of immigrants with official statistics reveals a slight under-representation albeit the oversampling procedure implemented in the survey design , due to sample selection criteria.[15] Table A.2 shows all relevant descriptive statistics for the SOEP sample.

4.2 Registry of Italians resident abroad (AIRE)

The *Registry of Italians resident abroad* (*Anagrafe degli italiani residenti all'estero*, AIRE) contains records of Italian citizens and their relations who registered with the competent consulate at their region of residence. By law, all Italians who are at least one year abroad or are born outside of Italy are required to register. AIRE itself is based on a centralized and harmonized administration procedure introduced in 1990. Before, registry procedure for Italians abroad was locally administered by consulates and embassies. For the current study, the Italian embassy in Germany provides access to the German AIRE data for 2013.

The data contains all registered Italian citizens in Germany, as well as spouses and children with other nationality than Italian. In total there are 794,463 individuals living in 368,286 different households. Available information are general demographic characteristics like gender, year and place of birth, German region of residence and last place of residence in Italy, but also the year of registration at the respective Italian consulate.[16] In addition, information on education and occupation are recorded. Since statements regarding education and occupation are voluntary, non-responses may cause bias. Nevertheless, data examination shows no obvious non-response patterns across birth or migration cohorts. Hence, we can assume that non-response is unsystematic and does not lead to distortion.

For our analysis we only select children of Italian immigrants which are 20 and above (born before 1993) and where information on own and parental education is available. Our final sample is hence reduced to 6,564 individuals in 5,717 different households, which are all considered as second generation immigrants, regardless of their age at inscription in the registry.[17] All relevant descriptive statistics for the AIRE sample can be found in Table A.1.

4.3 Variables

The two main variables of interest are education of children and education of their respective parents. Hereby, we focus on secondary education and do not consider post-secondary levels (even if information is available). This allows us not only to use more observations, but avoids numerous

[15] Before excluding any observation, SOEP data reports about 19 % of the total population in Germany to have migration background in 2009 which corresponds with German Federal Statistical Office (Destatis, 2010). Due to sample selection the weighted share of migrants drops to about 12,5 %.

[16] The year of registration is later on used to approximate the year of arrival in Germany. Of course, the date of registration and actual date of immigration may differ.

[17] We decided for a different identification strategy than in SOEP data, because, as mentioned, the year of inscription does not necessarily matches the year of arrival. Nevertheless, we run the estimations also for different ages at inscription (10, 14 and 18 years) with no significant differences in outputs.

difficulties concerning specification and comparability. Further, considering school education is more suitable for the evaluation of assimilation and convergence of immigrants in an intergenerational context, because it measures human capital accumulation rather early in lifetime.

In order to obtain education variables suited for our analysis, education is coded as a metric variable defining regular years of schooling associated with the obtained degree.[18] Measuring education in regular school years rather than actual time spend in full-time education avoids distortions that could derive from retaking a term or late enrolments. Also, considering the structure of the German school system it is particularly appropriate to look at regular years of schooling, since children are almost without exception assigned to different school tracks with different durations right after primary school. Hereby, only the highest school track qualifies the student to advance directly to university. Years of schooling is coded according to the scheme presented in Table 1.

[Table 1 about here]

While in SOEP information on secondary education of children and especially of parents is directly provided, constructing a similar education measure in AIRE requires more effort. First, all individuals with tertiary education degree are also classified as holding a secondary school degree equivalent to 13 years of regular schooling. Than, the number of observations with *no school degree* is relatively high, especially among younger individuals. This might be due to a lack of updating the information for children finishing school. Hence, the cases with non-missing information on education indicating *no school degree*, but where the information on occupation is not available or indicate "pre-scholar", are excluded. The distribution of these cases among all classes of parental education is random and should pose no selection problem. If information on both parents is available, parental education equals the highest degree of the parents. Since not all individuals have information on both parents, the variable is generated with the information at hand, assuming that higher education of one parent is sufficient to gain the respective advantage. Moreover correlation coefficients between education of mother and father are high for all subgroups in the sample (*assortative mating*).

Covariates for the econometric analysis further include demographic and migration-specific characteristics such as gender, federal state of residence, year of birth and year of immigration. Following Riphahn (2005) controlling for different effects across birth cohorts is achieved with a polynom of the second degree.[19] The plausibility of the assumed trend is supported by the findings presented in Table 2.

An important issue for the study of migration dynamics is the role of ethnic capital. In order to catch time- and migration-specific factors, four migration cohorts are defined based on the

[18] This approach follows Chiswick and DebBurman (2004). See also Black and Devereux (2011).

[19] The generated variables are *birthcohort* = (*year of birth* - 1900) / 10 and *birthcohort2* = *birthcohort* squared / 100. Regressions are in addition performed including dummies for different birth cohorts. Since results are robust to both approaches, the latter are not included.

historical waves of immigration to Germany: (1) the early wave up to 1955; (2) the guest worker wave from 1956-1973; (3) the post guest worker wave from 1974 - 1987; (4) the recent wave after 1987.[20] Migration cohort is a family characteristic and each individual is assigned to the migration cohort of the first member of the family who immigrated to Germany. Thus, for example the 1956-1973 cohort identifies both, the original guest workers as well as their (possibly in Germany born) offspring. As mentioned above, in AIRE the information regarding the year of migration does not necessarily match the actual year of migration to Germany, but the year of registration. To counter this problem when using AIRE, the family's Italian geographic region of origin is included as a control.[21] As displayed in Figure 3 people from South and Insular Italy immigrated to Germany mainly in the time of guest worker recruitment, while people from other parts of Italy more recently.

It is also well known that proficiency in the host country's language is a crucial determinant for social integration and several works (among others Dustmann, 1999; Dustmann et al., 2001; Casey and Dustmann, 2008) focus on language skills as the principal intergenerational transmission channel. Therefore, another aspect controlled for is the language predominantly spoken at home, information which is provided in SOEP in three categories: (1) German; (2) own native language; or (3) both. This information is better suited to measure transmission-mechanisms than variables indicating language skills, especially due to possible endogeneity. Also, the latter are based on own evaluations of individuals, and therefore very exposed to serious measurement errors (Dustmann, 1999; Dustmann et al., 2001). Contrary to SOEP, AIRE has no information on language features. In case of AIRE, we can control for parental country of birth (e.g. both parents born in Italy, mixed-couples etc.). This is, of course, a very weak approximation to control for language spoken at home, but opens on the other hand the possibility to control for other parental background characteristics.

5 Results

5.1 A snapshot of educational outcomes

Educational outcomes measured in average years of schooling are presented in Table 2 which illustrates some points: Firstly, differences between groups are fairly high, with natives always achieving the highest levels and first generation immigrants mostly the lowest. Secondly, there is a time trend. For all groups the average level is increasing. This overall positive trend most likely

[20] See Zimmermann (1995) for the migration history of Germany in general and Pichler (2010) for the history of Italian immigration to Germany.

[21] Italian geographic characteristics have been merged from Italian national statistical office data (*ISTAT*) through the characteristic in AIRE indicating the last place of residence in Italy before moving to Germany. The categories are: Central Italy (Lazio, Marche, Toscana, Umbria), Insular Italy (Sardegna, Sicilia), North-east (Emilia-Romagna, Friuli-Venezia Giulia, Trentino-Alto Adige/Südtirol, Veneto), North-west (Liguria, Lombardia, Piemonte, Valle d'Aosta/Vallée d'Aoste), South Italy (Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia).

mirrors the structural changes of educational institutions and more generally structural mobility (see e.g. Checchi and Dardanoni, 2003). Thirdly, with the one exception of second generation Italians born between 1971 and 1993, the second generation exceeds the level of the newly immigrated and all second generation immigrants are always better of than their preceding (parental) generation, thus closing the educational gap to the natives significantly. This finding may hint at the integration and assimilation of immigrants. Of technical importance are furthermore the standard deviations. Standard deviation vary substantially between subgroups and generations, taking values between 1.319 and 3.025. This confirms the need to look at the intergenerational correlation coefficients ρ apart from the elasticity β.

[Table 2 about here]

Moving beyond pure descriptives, Table 3 displays the difference of average regular years of schooling between natives and each considered immigrant group based on an OLS regression approach. The first two columns show the estimates obtained from our sample. Similar to equation (1), the regression controls for demographic factors, time trends and dummies for group affiliation. Contrary to Equation (1), intergenerational relations are not exploited and years of schooling are not expressed in logarithms (For complete regression results, see Table A.3 in the Appendix). Hence, the estimates in Table 3 present a snapshot and correspond methodically to the study of Algan et al. (2010), whose results are displayed in the last two rightmost columns. Despite the methodical similarities, important differences remain: deployed data, shorter time period, definitions of second generation immigrants and measurement of educational outcomes are important factors which all might attribute to deviating results.[22]

[Table 3 about here]

The results in Table 3 confirm the descriptive findings (see Table 2) and are in line with previous studies, e.g. Algan et al. (2010). The pattern of deviations are consistent with differences in the analysis. Nevertheless, for Italian immigrants our estimated values differ to the values determined by Algan et al.: one, differences between Italian male and female are of smaller extent; and two, distance between educational achievements of natives and Italian immigrants turns out to be smaller, especially for the case of second generation immigrants. Keeping the history of migration to Germany in mind, economic theory would predict for the case of low skilled migration, that mean education of second generation immigrants will be higher than the one of first generation immigrants (e.g. Chiswick and DebBurman, 2004). We confirm that this predicament is true for Germany.

[22] Algan et al. (2010) define second generation immigrants as individuals born in Germany with foreign-born parents. Further, education is measured as the age full-time education is left which, compared to the regular years of schooling approach, deviates for cases of late enrolment or retaking a term. Then sample selection differs: individuals having not yet completed their full-time education are considered by means of a censored regression model. However, results are robust to restricting the sample to observation with completed education.

5.2 Transition Matrices and Mobility Indices

Transition matrices provide a standard approach to obtain aggregate measures of intergenerational mobility and a comparison between groups hints at differences in opportunities. For example, if within a low skilled immigrant population mobility is higher (lower) than the one of natives, this can be an indicator for integration (persistence of differences). Following Checchi et al. (1999), Shorrocks (1978) and Sommers and Conlisk (1979), three indicators based on the transition matrix P are computed: (1) second-largest eigenvalue, (2) trace, and (3) determinant index.[23] Thereby, a value of 1 for any of these indices interprets as perfect mobility, while in cases of total immobility from one generation to the next the transition matrix equals the identity matrix ($P = I$).

In addition to the transition matrix based approaches, three alternative mobility measures are calculated: (1) correlation coefficient (child's vs. parent's education); (2) linear regression coefficients (child's vs. parent's education); and (3) relative immobility. The relative immobility is defined as the number of children and parents with equal levels of education - *i.e.* the immobile part of the population - divided by the whole population. In Table 4 all mobility measures are displayed and the rightmost column gives the reference case of perfect mobility.

[Table 4 about here]

Comparing the indicators of mobility we focus on SOEP estimates first. For all six measures, intergenerational mobility is higher for Italians than it is for natives.[24] Following the rational pointed out above, this finding is in favour of successful integration. In the case of other immigrants the correlation coefficient and second-eigenvalue index show this subgroup to be less mobile compared to natives while the other four measure indicate a higher degree of mobility. This highlights the importance to deal with groups of different national or ethnic origin separately. The analysis based on AIRE for Italians basically confirms the results obtained from SOEP. It is important to keep in mind that the subdivision into educational classes for the transition matrix neglects to take specific time effects – e.g. changing years of compulsory schooling – and thus structural mobility into account.[25] Further, all of these indices are subject to critic regarding their consistence (p. 385 f. Dardanoni, 1993). Van De Gaer et al. (2001) even argue, that none of the above measures is able to provide insights beyond a descriptive view on "jumps in the social rank order". Thus, for a more comprehensive picture, a thorough regression analysis is needed.

[23] For a brief discussion of these and other indicators of mobility see Geweke et al. (1986) and Dardanoni (1993). The transition matrices are provided in Table A.5.

[24] That the determinant index based on SOEP for Italians and other immigrants takes the value of one and thus points to perfect mobility has technical reasons. Due to rows of the transition matrix where all elements are zero, the determinant of the matrix is equal to zero.

[25] A classification scheme taking into account this type of changes can be found in Checchi (1997).

5.3 Intergenerational Mobility

The estimation of intergenerational mobility follows the approach outlined in Equation (1). First, we focus solely on the results regarding the intergenerational elasticity β and the intergenerational correlation ρ of educational achievements, a more detailed discussion of the influence of other determinants takes place in the subsequent Section 5.4. Table 5 summarizes the respective results for β and ρ, complete estimations are listed in Tables A.6 and A.7 in the Appendix.

[Table 5 about here]

The upper panel of Table 5 pertains to the estimates based on SOEP and the lower panel to the ones based on AIRE. Obviously, the lower panel only refers to Italian second generation immigrants while in SOEP all subgroups are considered.[26] A set of four regression specifications is run. The specifications differ with respect to included controls: while specification (1) neither accounts for demographic factors, migration cohort or language, specifications (2), (3), and (4) include alternating controls.

The estimates confirm the mobility results from Section 5.2: Italian immigrants are more mobile (or rather less immobile) than their native German counterparts. This is true for first and second generation immigrants and relative differences are significant (see Table A.6). Again, AIRE based results can confirm the robustness of SOEP estimates (with no significant differences in intergenerational elasticity coefficients between Italian geographic regions of origin, as can be seen in Table A.9). The reason for the slightly different values is likely attributed to sample composition.[27]

Regarding the different specifications, a comparison between (1) and (2) reveals, that the measured influence of parental educational background decreases as expected when controlling for demographic factors. While some estimates render insignificant, they remain on a relatively high level in case of natives in comparison to Italian immigrants. Factoring in migration cohorts decreases estimates for elasticity and intergenerational correlation even more. The same mechanism applies if controls for language are considered. Both, language and migration cohorts can be regarded as an approximation for ethnic capital and the respective inclusion yields estimates for Italians that do not deviate significantly from zero. However, the case of language is prone to evoke endogeneity issues. It is plausible, that there is a certain causality between language spoken at home and parental education.[28] For this reason, further interpretations in this study concerning

[26] Since in the analysis with AIRE data we do not need to distinguish between different subgroups since all individuals in the sample are Italian second generation immigrants, the estimated equation is $edu_{it} = \alpha + \beta edu_{it-1} + \vartheta' D_{it} + \tau' F_{it} + u_i + \epsilon_{it}$.

[27] For example, individuals who moved without their parents to an area of different consular jurisdiction cannot be identified as a member of their original family. Typically, students fall into this category.

[28] Actually, this problem could not be excluded through an analysis of rank and correlation coefficients (See Table A.4).

intergenerational mobility will tie to the control for demographic factors. The influence of ethnic capital and other variables will be discussed in more detail in the next section.

Summing up, the influence of parental educational background on their children's educational outcomes are high for natives and other first generation immigrants. In contrast, Italian immigrants show higher mobility in the first and second generation. It is also very conspicuous that other immigrants of the first generation show higher intergenerational correlation than natives, while second generation immigrants are more mobile. This group is, however, too heterogeneous to allow for interpretations.

5.4 The role of ethnic capital and other determinants

The role of various factors correlated with the transmission of human capital, and especially the potential influence of ethnic capital, can be obtained from Tables A.6 and A.7, which list the full set of controls for demographic factors, migration background characteristics and language spoken at home.[29] Looking at the coefficients of demographic factors it becomes apparent that each group exhibits specific patterns. First, native males exhibit slightly higher educational outcomes than their female counterparts, while for second generation immigrants it is the other way around. This result is not significant for SOEP, but robust in case of AIRE for Italian second generation immigrants. Hence we find that Italian second generation females achieve better educational outcomes compared to males when controlling for parental background. Another result is the regional divergence of educational achievements: in three out of four immigrant groups we a find significant divergence between East and West German States whereas there are no significant differences for the native population. This hints at regional distinction regarding the composition of migrant population. Until unification in 1990 East German states were part of the German Democratic Republic. Thus, the influx of unskilled guest workers between 1956 and 1973 is a West German phenomenon, resulting in distinct characteristics for migrant populations in East and West. AIRE results confirm this with negative coefficient estimates for typical guest worker recruitment states, e.g. North Rhine-Westphalia and Lower-Saxony.[30]

Variables pertaining to time effects exhibit a rising trend and oscillate around a stable level from a certain point on. Only in case of first generation immigrants the trend is opposite. This can likely be attributed to a changing composition in the characteristic of migrants to Germany: the older migration cohorts mainly composed of guest workers are very low educated, while a high proportion of more recent immigrants are well educated.

Some of the aforementioned patterns can be linked to the concepts of ethnic capital. Control for this patterns gives the possibility to distinguish more in detail between different and more homogeneous subgroups within the immigrants population and thus between different *environments*

[29] In Table A.10 further test of robustness are provided.

[30] In North Rhine-Westphalia guest workers were especially recruited for work in coal mines, while most immigrants in Lower-Saxony were employed mainly in the automotive sector (e.g. *Volkswagen*).

in which parents makes their investments (Borjas, 1992). Prime suspects are time of migration to Germany (as captured by migration cohorts), Italian geographic region of origin, language spoken at home and parental country of birth. Turning to the time of migration we find, that immigrants who migrated before the official recruiting contracts in 1956 and after 1973 – or more precisely the first immigrated person in their family – have measurably higher educational outcomes than immigrants of the guest worker cohort (1956-1973). A finding in line with the regional differences discussed above. Interestingly, the offspring of Italian guest workers – the second generation immigrants of the 1956-1973 cohort – on average achieve no lower educational outcomes than natives do. While this finding might be attributed to structural mobility, it also can hint at a successful ongoing assimilation process.

Indeed, the relatively higher education of second generation immigrants prefigures an interesting finding leaving room for different interpretations. First, one possible explanation is self-selection of immigrants. Ample evidence from various studies suggest, that guest workers are negatively selected regarding to their qualifications (e.g. Bauer et al., 2002; Dronkers and de Heus, 2009). However, the case of negative selection is not necessarily true for unobservable characteristics like motivation or abilities. Regarding unobservable characteristics, our results suggest self-selection rather to be positive.[31] As argued by human capital theory (Sjaastad, 1962, e.g.), the migratory process is an inter temporal investment in human capital, *i.e.* people leave their country to achieve a better life for themselves and for their children. The consequences are high investments in the education of the children, especially when a longer stay in the host country is intended. The relatively steep increase in educational achievements of immigrant's children hint to this type of dynamics. Second, assuming motivation as constant between emigrants and people not leaving their native country, this findings are in line with better school quality and peer effects in the host country. This results in an improved human capital accumulation for the migrants' offspring in Germany compared to their counterparts living in the migrants' natives country. This interpretation is supported by the findings of Dustmann et al. (2012) for Turkish second generation immigrants. Another possible interpretation that might play a role is return migration. Less integrated immigrants, whose children didn't achieve higher educational levels, are prone to return more likely and thus disappear from surveys and official statistics.

Next to time of migration, language spoken at home defines an important channel of human capital transmission and is linked to ethnic capital. Not surprisingly, results show a significant positive influence of German language on educational achievements for Italian second generation immigrants. This well known fact yields further evidence regarding the importance of parental background for human capital accumulation: children who obtain useful language skills – *i.e.* learning and speaking German in their parents' household – achieve better educational outcomes. German language is also more likely in case of mixed couples with at least one parent possibly

[31] For a general theoretic and empirical discussion on self-selection of immigrants see Borjas (1987) and Chiswick (1999).

(but not necessarily) of German origin. The assumption regarding mixed couples can only be partly confirmed by the analysis with AIRE data using the parent's country of birth as indicator. Neither the case of mixed couples (one parent born in Italy, one parent born in Germany) nor couples with both parents born in Germany shows significant influence on educational outcomes. The last mentioned category could furthermore indicate, that the individual is a third generation immigrant, being at least one of the parents an Italian second generation immigrant. A positive effect pertains only to constellations where one parent was born in another country (not Italy or Germany).[32]

The last interesting characteristic that AIRE has information on, is the Italian geographic region of origin. It shows that individuals coming from Insular and South Italy have significant lower level of education. Indeed, this is in line with general and historical structural peculiarities concerning the distribution of education and educational opportunities in Italy (e.g. Attanasio and Padoa-Schioppa, 1991; Brunello and Checchi, 2005; Checchi and Peragine, 2010). As mentioned, controlling for this characteristic acts also as an approximation for the year of migration and partly captures the negative effect of the guest worker cohort (see Figure 3).

5.5 Probability of high schooling degrees

So far we have established that immigrants exhibit a higher degree of intergenerational mobility. To further validate this results we rum a probability exercise. By means of a Probit regression approach model we estimates the relative probability to achieve a high schooling degree given parental background characteristics. This allows also to test for the hypothesis of no influence of other factors (which translates to $\alpha^N = \alpha^I$ in Equation (6) in Section 3.2) and thus the same probabilities for immigrants and natives.[33]

For this exercise we assume, that an individual reaches at least a secondary school certificate (*Realschule*, 10 years of schooling), if his or her human capital exceeds a certain threshold. This threshold is (without loss of generality) normalized to 0. In order to compare the probabilities of higher schooling between subgroups, we formulate the following estimation approach:

$$Prob(edu_{it} > 9) = Prob(H_{it} > 0) = \Phi(\gamma' M + \Delta' \mathbf{X}), \tag{7}$$

where $\Phi(\cdot)$ represents the cumulative distribution function (CDF), M defines subgroup belonging and $\mathbf{X}$ defines the set of controls used. Two specification are run. In Specification (1), controls $\mathbf{X}$ include demographic factors as defined by D_{it} only, in Specification (2), $\mathbf{X}$ is comprised

[32]Interestingly, most of the parents born in neither Germany nor Italy have Italian citizenship. Among these, more than half were born in North or South America. This indicates that these are the descendants of Italians immigrated to the Americas a long time ago who migrated back to Europe on Italian passports.

[33]The comparison of probabilities to obtain certain educational outcomes is widely used in the literature on educational outcomes of second generation immigrants in Germany (see e.g. Kristen and Granato, 2007; Luthra, 2010; Riphahn, 2005). In particular the strategy applied here is inspired by Schüller (2011).

of D_{it} and parental education edu_{t-1}. Results from the two estimation specifications according to Equation (7) are presented in Table 6.

[Table 6 about here]

Insights are obtained by comparing the two specifications. Once parental education is included in the vector of controls, coefficient estimates for three migration group dummies (second generation Italians, second generation other immigrants, first generation other immigrants) change from negative and significant to non-significant. Thus, holding parental education constant, Italian and other second generation immigrants experience equal probabilities to achieve a high schooling degree compared to natives. These results also hold if only immigrants from the guest worker cohort are considered.

The latter finding adds conclusively to the evidence collected so far. In sum, all results give ample evidence for rejecting the hypothesis of a failed assimilation of second generation immigrants, and second generation Italians in particular, in Germany.

5.6 Assimilation

To close the circle, the last missing piece is to evaluate the results in terms of assimilation. Turning to the assimilation model in spirit of Dustmann and Glitz (2011) formalized in Equation (6) in Section 3.2, the dynamics of convergence of educational outcomes between groups can be studied. Hereby, as stated among others by Smith (2003), a clear point of reference is needed since obviously it would be misleading to evaluate an entire group of immigrants without taking into regard the respective migration cohort. The appropriate way to evaluate intergenerational assimilation is to start with a certain migration cohort (first generation), go on to their direct offspring (second generation) and follow up their grandchildren (third generation) and so on. The natural starting point for Germany is the guest worker cohort. This choice allows us to evaluate if and under which assumptions convergence of educational outcomes is achieved for the children (second generation) and grandchildren (third generation) of Italians immigrated to Germany during the period of guest worker recruitment (1956-1973). Furthermore, only people residing in West Germany are considered since there was no similar recruitment of Italian guest workers in East German states. Figures 1 and 2 illustrate a first approximation to the problem.

[Figure 1 and 2 approx. here]

Figure 1 illustrates educational outcomes in terms of average log years of schooling for four generations and two population groups, natives (black solid line) and Italian (grey solid line). The Italian guest worker cohort defines hereby the first generation and their children the second. The corresponding cohorts for natives mirror the birth cohorts of the Italian guest worker cohort and are defined analogously. The educational outcomes for the third generation (the children

of Italian second generation immigrants and their native counterparts) are predicted using the estimates obtained from the linear regression model and assuming constant intra-group educational growth rates. While this assumption is plausible for natives (unless there are e.g. sudden public secondary education expansions in the years to come), it is quite strong for immigrants: Since second generation immigrants eventually do not share the same, extraordinary motivations to invest in their children's education like their parents, the growth between the second and the third generation is unlikely to be of the same magnitude as the steep increase realized from first to the second generation.[34]

In order to validate the assumption of constant intra-group growth rates, two counterfactual scenarios are provided. The black dashed line is the first counterfactual, predicting outcomes for natives as if behaving like Italian immigrants - i.e. predicting log years of schooling for a population with the characteristics of natives and the coefficients of Italian immigrants. The second counterfactual (grey dashed line) displays the according case of Italians behaving like natives. The counterfactual analysis provides an upper and lower band for the prediction of a prospective assimilation and illustrates one important intuition of the assimilation model: the same behaviour of two groups leads to intergenerational convergence because of the underlying regression to the mean. For both counterfactuals a nearly perfect assimilation is expected in the third generation. According to this model, a complete intergenerational assimilation in terms of secondary education outcomes will be realized for the grandchildren of the original Italian guest workers in Germany.

This finding is underlined by an additional analysis using AIRE data in Figure 2, where the intergenerational elasticity model described in section 3.1 has been used to predict the grandchildren's years of schooling. Hereby, we identified the grandchildren of guest workers (third generation immigrants) as individuals born 1993 to 2013 with Italian parents both born in Germany between 1956 and 1992. The prediction confirms the foregoing assimilation analysis and shows a somehow puzzling finding: for high intergenerational mobility, the educational outcomes in the next generation are substantially lower, while for higher persistence average outcomes are higher. We will discuss this last finding below.

A more detailed view to verify the claim of complete intergenerational assimilation is provided in Table 7. The upper panel of Table 7 displays between-group inequality of immigrants (first and second generation) and natives according to the definition of Equation (5).[35] The lower part of the table gives four alternate scenarios for the process of intergenerational assimilation for the grandchildren of Italian guest workers.

[Table 7 about here]

[34]Unless any persistent cultural traits towards higher education are present in the population of Italian immigrants like e.g. Cohen et al. (1997) identifies for the Asian immigrant population in the US.

[35]Note that the group of first generation immigrants includes parents of second generation immigrants as well as people without children. This explains the slight difference between the inequality of first generation immigrants and natives and the inequality of the parents of second generation immigrants and natives.

Previous results already establish the case of scenario (1): No other influences orthogonal to parental education ($\alpha^N - \alpha^I = 0$) and same between-group mobility ($\xi = 0$) lead, by construction, to convergence. In scenario (2), (3) and (4) we relax this two assumptions step by step. First we allow for other influences to be significant, then, intergenerational correlation coefficients to differ and last, both at the same time. In (2), assuming an intergenerational correlation coefficient of $\rho^N = 0.38$ for natives (the same as in the preceding generation), for a converging process the condition $\alpha^N - \alpha^I < 0.069$ has to be true. In (3) a convergence calls for $\xi > -0.031$. In case of scenario (4) both assumptions are relaxed and we see that the effects have to go in the same direction: Higher persistence of natives ($\xi < 0$) has to be countered by a more favourable situations for immigrants ($\alpha^N - \alpha^I < 0$).

A valuable exercise to get a more meaningful idea is to approach the problem the other way round and to look at what hampers convergence. In scenario (2), that is with constant intergenerational correlation between groups, this allows for no (or very little) inequality caused by other components favouring natives to take place, e.g. like discrimination at school or particulars of the cultural environment. Estimates for the two preceding generations, where $\alpha^N < \alpha^I$ is true, and in combination with the findings of Section 5.5, $\alpha^N - \alpha^I \approx 0$ is a plausible assumption.[36] The intuition is simple: If parental background is the main channel determining the educational disadvantage for immigrant's children, their children should at least face opportunities equal to natives with the same level of parental education.

This leads directly to the somewhat counterintuitive result of scenario (3): If no other factors orthogonal to parental education play a role, the difference in mobility should not be too high between the two groups, *i.e.* immigrants should not be to mobile.[37] The explanation why higher mobility within the immigrants group would actually harm assimilation is that once the disadvantage is overcome, the transmission mechanism is no more of disadvantage. Further, formal years of schooling as measure of education has an upper ceiling of 13 years. So, increased parental outcomes limit upward mobility and lead to higher correlation. This result explains also the findings of the predictions with AIRE data in Figure 2. As discussed above, one can safely assume that abilities are rather reflected more in the formal educational outcomes of second generation immigrants than it is true in their parents' case (due to integration in the host country's education system, regression to the mean in abilities and no special motivation to realize a second "big leap"). Thus, significantly higher mobility of third generation immigrants in comparison to natives is very improbable. These insights apply also for the last scenario. In sum, all evidence from these exercises hint at ongoing assimilation in schooling degrees of Italian immigrants of the guest worker cohort and possibly full convergence within the next generation.

[36] This results are also confirmed by an application of a counterfactual decomposition technique based on the Blinder-Oaxaca approach (Blinder, 1973; Oaxaca, 1973). The Blinder-Oaxaca decomposition assigns no explanatory power to the unexplained part in the differential between natives and Italian immigrants of the guest worker cohort controlling for demographic factors.

[37] Not taking into account the possibility of less mobility in the immigrant group ($\xi > 0$).

6 Conclusions

In this study, we analysed the intergenerational assimilation of immigrants using household survey data, and taking advantage of a powerful administrative data source at our disposal provided by the Italian embassy in Germany. First, this study confirmed previous studies regarding the low performance in terms of educational attainments of Italian immigrants in Germany, and more generally of second generation immigrants. However, we depicted the situation of second and third generation Italian immigrants more optimistic than previous studies and a mere look at official statistics yield. Indeed, our findings suggest that lower educational outcomes of Italian immigrants are not a sign of failed integration into the German society, but reflect the process of an unconcluded assimilation, which is driven by high intergenerational mobility. This is furthermore reinforced by the finding, that after controlling for parental educational background, Italian and other second generation immigrants are not less likely than natives to obtain a high schooling degree.

The reason, why educational achievements of Italian immigrants have not yet converged with those of the native population, is likely to the low starting point – especially of Italians immigrated as guest workers, the bulk of first generation immigrants – and the relatively high persistence within the native population. Predictions of different scenarios for future assimilation trends pointed altogether at convergence, probably within the next generation of Italian immigrants descended from the guest worker cohort. Results concerning the aggregated group of second generation non-Italian immigrants suggest similar developments.

Some minor points worth mentioning are self-selection and discrimination. Albeit we could not rule out discrimination as a factor to hamper successful integration, we did not find evidence for this to be of importance. Regarding self-selection, the educational improvement of second generation immigrants with respect to their parents' education hints that guest workers might be positively self-selected in unobservable characteristics. Better school quality and peer effects for immigrants in Germany are further explanations for the childrens' enhancement. These interpretations do not take into account the possibility of existing return migration that could have a significant impact (Dustmann, 2008).

In line with previous studies, the importance of commanding the host country's language could be confirmed. If immigrants speak German at home they achieve significant better qualifications than those who stick to their parent's native language or who use both languages at home. Furthermore, language emerged as one of the most relevant channels to explain the intergenerational human capital transmission mechanism of immigrants in the host country. However, the causality between language skills and educational attainment naturally goes both ways and establishing a clear causal link was beyond the scope of this study.

Finally, the evaluation of Italian registry data on all Italian families in Germany (AIRE) confirmed the representativeness of the SOEP sample for immigration studies regarding Italians and insured robustness of SOEP based estimates. Further, AIRE added some interesting insights on

aspects of Italian migration to Germany. One of all, that Italian migration flows to Germany are not only a phenomenon caused by recruitment agreements of the fifties and sixties. Moreover, an analysis by different geographic region of origin indicated the structural divergences of migration flows over time.

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Tables and Figures

Table 1: Codification of years of schooling by schooling degree

SOEP		AIRE		
no school	0 years	*no degree*	0 years	ISCED 0
no degree	5 years	*primary school degree*	5 years	ISCED I
Hauptschule	9 years	*lower sec. school degree*	8 years	ISCED II
Realschule	10 years			ISCED II
Fachhochschulreife	12 years			ISCED III
Abitur	13 years	*upper sec. school / diploma*	13 years	ISCED III

Table 2: Weighted average years of schooling - Birth cohorts

Birth cohort	*Natives*	*Italians*		*Other immig.*		*Italian 2nd gen.*
		1st gen.	*2nd gen.*	*1st gen.*	*2nd gen.*	*AIRE data*
1919 - 1949	9.67	6.04	9.00	8.31	9.68	5.50
	(1.319)	(1.939)	(0.000)	(2.947)	(1.648)	(2.673)
1950 - 1970	10.36	7.91	9.64	9.10	10.16	8.52
	(1.654)	(3.025)	(1.871)	(2.762)	(2.062)	(3.044)
1971 - 1993	10.85	10.71	9.51	9.47	10.42	9.01
	(1.803)	(2.484)	(1.654)	(2.093)	(1.752)	(2.434)

Notes: Standard deviations in parentheses. Value of Italian 2nd gen. immigrants born 1919-1949 bases only on 4 observation.

Table 3: Educational outcomes - Comparison to Algan et al. (2010)

	present study		Algan et al. (2010)	
	male	*female*	*male*	*female*
Italians 1st. gen	-2.937***	-2.902***	-3.391	-2.403
	(0.299)	(0.285)	(0.182)	(0.189)
Italians 2nd gen.	-1.156***	-1.027***	-2.333	-1.483
	(0.167)	(0.293)	(0.207)	(0.216)
Other immig. 1st. g.	-1.292***	-1.332***	[-3.529 -0.320]	[-3.570 0.386]
	(0.126)	(0.144)		
Other immig. 2nd g.	-0.274**	-0.367***	[-2.333 0.225]	[-1.523 0.275]
	(0.115)	(0.0904)		
Dep.Variable	Regular years of schooling		Age left full-time education	
Data	SOEP (1984-2010)		Microcensus (2005-2006)	

Notes: Values are coefficients of dummy-variables for the corresponding sub-group in weighted regressions, controlling for quadratic year of birth, federal state dummies and year dummies. All significant at 0.01 level. Robust Std. Err. in parentheses. Analyses differ in: dependent variable, data set and definition of second generation immigrants. See Algan et al. (2010) Table 2, (b) Germany, page F14. Full table in Appendix (Table A.3).

Table 4: Scalar indicators for intergenerational mobility

	Natives	*Italians*		*Other immig.*	*Perfect Mobility*
		SOEP	AIRE		
$corr(Educ_t/Educ_{t-1})$	0.425	0.376	0.301	0.514	0
	0.0085	0.0566	0.0141	0.0212	
OLS$(Educ_t/Educ_{t-1})$	0.458	0.171	0.252	0.404	0
	0.0118	0.0539	0.0129	0.0186	
relative immobility	0.550	0.383	0.516	0.423	0
	0.0043	0.0325	0.0059	0.0119	
$ML(P) = 1 - \lvert\lambda_2\rvert$	0.493	0.713	0.624	0.484	1
	0.2162	0.1892	0.1118	0.1041	
$MT(P) = \frac{k-trace(P)}{k-1}$	0.786	0.904	0.822	0.828	1
	0.0149	0.0537	0.0089	0.0152	
$MD(P) = 1 - \lvert det(P)\rvert^{(1/(k-1))}$	0.853	1.000	0.881	1.000	1
	0.0369	0.0000	0.0092	0.0000	

Notes: Weighted. Correlation coefficient: Own education vs. parental education (in years of regular schooling). OLS controlling for gender, federal state, birthcohort (year of birth-1900 / 10) and quadratic birthcohort. Relative immobility: observations on main diagonal of transition matrix / total number of observations. λ_2 is the second largest eigenvalue of the transition matrix P; $trace(P)$ and $det(P)$ trace and determinant of P; k is the number of classes. Bootstrapped standard errors calculated with 100 repetitions below indices. All values (but the two cases where $MD = 1$) are significant at 0.01 level. In AIRE-sample only second generation immigrants.

Table 5: Estimation results: *elasticity* and *intergenerational correlation*

a) SOEP sample

	(1)	(2)	(3)	(4)
			elasticity: β	
Natives ($\hat{\beta}$)	0.491***	0.443***	0.443***	0.442***
Italians 1st gen. ($\hat{\beta} + \hat{\delta}^{11}$)	0.114***	0.0561	0.0222	-0.0297
Italians 2nd gen. ($\hat{\beta} + \hat{\delta}^{12}$)	0.112**	0.129**	0.0977	0.0880
Other immig. 1st gen. ($\hat{\beta} + \hat{\delta}^{21}$)	0.271***	0.264***	0.221***	0.170***
Other immig. 2nd gen. ($\hat{\beta} + \hat{\delta}^{22}$)	0.166***	0.178***	0.143***	0.0985**
			intergenerational correlation: ρ	
Natives ($\hat{\rho}^{00}$)	0.394***	0.355***	0.355***	0.355
Italians 1st gen. ($\hat{\rho}^{11}$)	0.195***	0.092	0.026	-0.065
Italians 2nd gen. ($\hat{\rho}^{12}$)	0.271**	0.293**	0.224	0.236
Other immig. 1st gen. ($\hat{\rho}^{21}$)	0.497***	0.482***	0.406***	0.319***
Other immig. 2nd gen. ($\hat{\rho}^{22}$)	0.279***	0.300***	0.260***	0.184**
			controls	
Demog. factors	No	Yes	Yes	Yes
Migration cohorts	No	No	Yes	No
Language	No	No	No	Yes
N	32376	32376	31631	30506

b) AIRE sample: Italian 2nd generation immigrants

	(1)	(2)	(3)	(4)
elasticity: $\hat{\beta}$	0.185***	0.177***	0.159***	0.176***
intergenerational corr.: $\hat{\rho}$	0.261***	0.249***	0.225***	0.229***
			controls	
Demog. factors	No	Yes	Yes	Yes
Migration cohorts + Italian geographic region	No	No	Yes	No
Parental country of birth	No	No	No	Yes
N	6561	6561	5936	4737

Notes: Elasticity: Values correspond to the coefficient of partents' years of schooling in OLS-regressions with own years of schooling as dependent variable, both in logarithmic values (If years of schooling are 0, $ln(1)$ is used); in SOEP for the case of immigrants it corresponds to the sum of the coefficient and the interacted term with a dummy for each subgroup i in generation g. Intergenerational correlation: Single regressions through standardized beta-coefficients for each subgroup. Italian geographic region of origin: Central, Insular, North-east, North-west and South Italy. Language: dummy signalizing if language spoken at home is German or not (Native language or both). Parental country of birth: both parents born in Italy, one born in Italy and one in Germany, one in Italy and one in another country, both in Germany, one in Germany and one in another country or both in another country. Weighted regressions and robust standard errors clustering by household of origin (overall results in Appendix: Table A.6 for SOEP and Table A.7 for AIRE). Statistical significance level * 0.1 ** 0.05 *** 0.01.

Table 6: Probability of high schooling degree (at least 10 years of schooling) - Subgroup probability

	(1)	(2)
Italian: 1st gen. (0/1)	-1.125***	-0.568***
	(0.159)	(0.177)
Italian: 2nd gen. (0/1)	-0.853***	-0.0346
	(0.111)	(0.157)
Other immig.: 1st gen. (0/1)	-0.399***	-0.0849
	(0.0568)	(0.0631)
Other immig.: 2nd gen. (0/1)	-0.260***	0.0690
	(0.0571)	(0.0648)
Controls		
Parental Education	No	Yes
Demographic	Yes	Yes
N	32376	32376

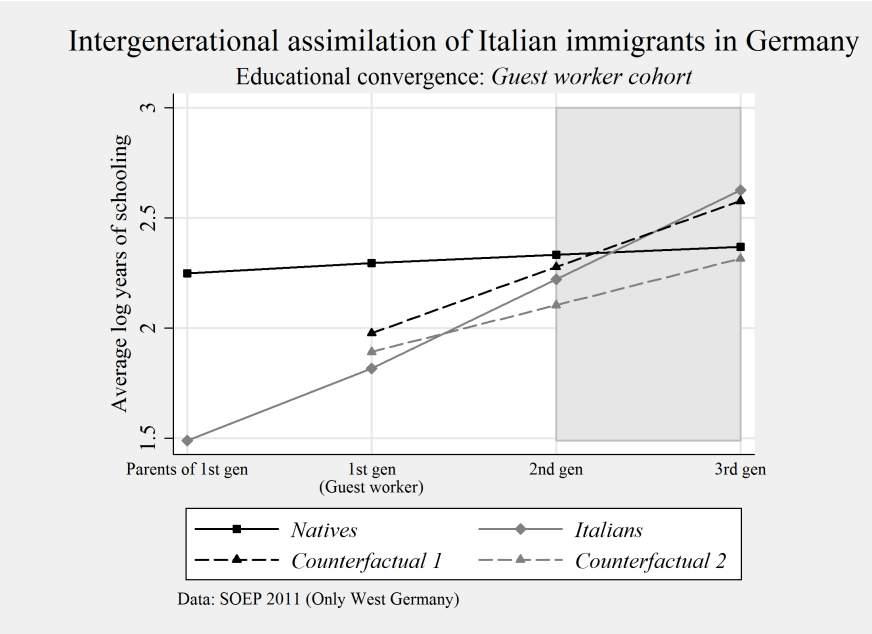
Notes: Base category is *Natives*. Probit estimations with higher schooling as dependent variable ($Prob(y = 1)$ = at least 10 years of schooling). Demographics: gender, birth cohort, quadratic birth cohort and federal state of residence. Parental Education in years of schooling. Weighted regressions and robust standard errors clustering by household of origin. Statistical significance level * 0.1 ** 0.05 *** 0.01. (See Table A.8 in Appendix)

Table 7: Intergenerational assimilation of Italian immigrants in Germany

	$(\alpha^N - \alpha^I)$ a)	ρ^N b)	$(E\left[educ^N_{it-1}\right] - E\left[edu^I_{it-1}\right])$ c)	ξ d)	$= (E\left[educ^N_{it}\right] - E\left[edu^I_{it}\right])$ e)
1st gen.	-0.3551	0.357	0.7598	-0.378	$= 0.4796$
2nd gen.	-0.3075	0.380	0.4308	-0.139	$= 0.1116$
Possible Scenarios:					
3rd gen. (1)	0		0.1116	0	$\longrightarrow 0$
3rd gen. (2)	$\neq 0$		0.1116	0	$\longrightarrow 0$, if $\frac{\alpha^N - \alpha^I}{1-\rho^N} < 0.1116$
3rd gen. (3)	0		0.1116	$\neq 0$	$\longrightarrow 0$, if $\frac{\xi}{1-\rho^N} > -0.0502$
3rd gen. (4)	$\neq 0$		0.1116	$\neq 0$	$\longrightarrow 0$, if $\frac{\alpha^N - \alpha^I - 2.3332621\xi}{1-\rho^N} < 0.1116$

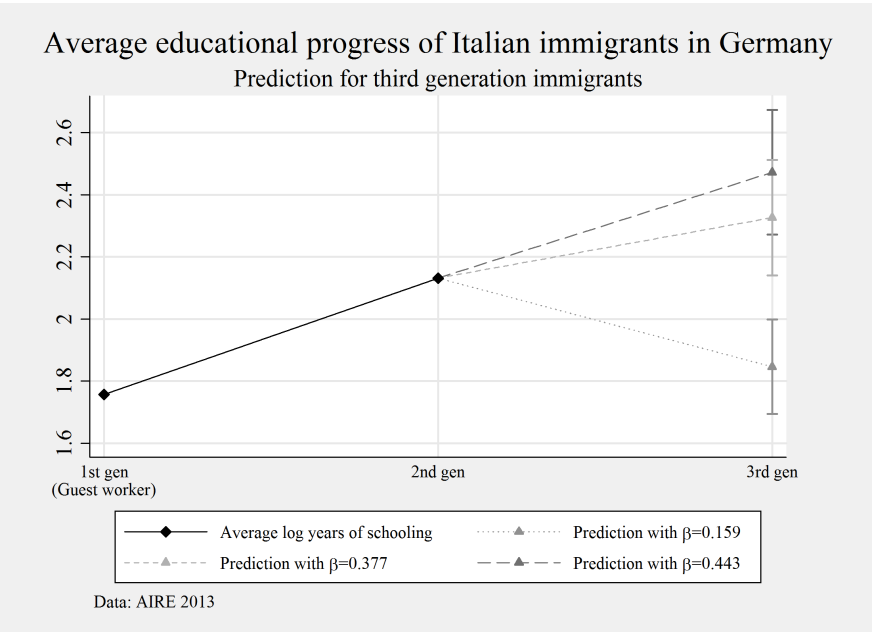
Notes: *a*) Difference in outcomes caused by characteristics that are not related to parental education. *b*) Intergenerational correlation coefficient for natives. *c*) Inequality in parents' generation between Natives and Immigrants. *d*) Difference between intergenerational correlations of natives and immigrants ($\rho^I - \rho^N = \xi$). *e*) Inequality in children's generation between Natives and Immigrants. Underlying equation: $E\left[edu^N_{it}\right] - E\left[edu^I_{it}\right] = \alpha^N - \alpha^I + \rho^N \left(E\left[educ^N_{it-1}\right] - E\left[edu^I_{it-1}\right]\right) - \xi E\left[edu^I_{it-1}\right]$. See section 2.2.

Figure 1: Assimilation of Italian immigrants



Notes: Mean log years of schooling by generations: Parents of first generation immigrants, first generation immigrants (Guest workers), second generation immigrants, children of second generation immigrants. Sample restricted to West-Germany and Italians of the guest worker cohort (immigrated between 1956 and 1973). Outcomes for third generation immigrants have been predicted assuming constant intra-group growth rates (Grey area). Counterfactual 1: Natives *behaving* as Italians; Counterfactual 2: Italians *behaving* as Natives.

Figure 2: Educational progress of Italian immigrants



Notes: Prediction of years of schooling for grandchildren of Italian guest workers (children born from 1993 to 2013 with parents born in Germany between 1956 and 1992) using different intergenerational elasticity parameters.

A Appendix

Table A.1: Descriptive statistics (AIRE sample)

	mean	sd	N
Year of birth	1980.315	6.983682	6561
Year of family migration [a]	1975.004	12.03345	5984
Years of schooling (0-13)	8.954885	2.512853	6561
Years of parental schooling (0-13)	7.430575	2.872298	6561
Male [a]	.60631	.4886047	6561
Guest worker-cohort (1956-1973) [ab]	.4948195	.5000149	5984
Federal State [a]			
- Baden-Wuerttemberg	.2722146	.4451337	6561
- Bavaria	.195397	.3965363	6561
- Berlin	.003658	.0603751	6561
- Brandenburg	.0006097	.0246857	6561
- Bremen	.0047249	.0685805	6561
- Hamburg	.0219479	.1465245	6561
- Hessen	.0621856	.2415108	6561
- Lower-Saxony	.0204237	.1414554	6561
- Mecklenburg-Vorpommern	0		
- North Rhine-Westphalia	.3737235	.4838284	6561
- Rhineland-Palatinate	.0225575	.1484993	6561
- Saarland	.0019814	.0444722	6561
- Saxony	.0067063	.0816231	6561
- Saxony-Anhalt	0		
- Schleswig-Holstein	.013565	.1156851	6561
- Thuringia	.0003048	.0174581	6561
Geographic region [a]			
- Central Italy	.0496847	.2173094	6501
- Insular Italy	.3768651	.4846379	6501
- Northeast Italy	.0915244	.2883756	6501
- Northwest Italy	.0436856	.2044103	6501
- South Italy	.4382403	.4962092	6501
Parental country of birth [a]			
- Both Italy	.5505594	.4974897	4737
- Italy-Germany	.3240448	.4680662	4737
- Italy-Other country	.0825417	.2752173	4737
- Both Germany	.0206882	.1423533	4737
- Germany-Other country	.0107663	.1032116	4737
- Both other country	.0113996	.1061699	4737

Notes: [a] Dummy-variables (0/1), [b] First year of inscription to consulate registry in household.

Table A.2: Weighted descriptive statistics (SOEP sample)

	Natives		Italian 1st gen.		Italian 2nd gen.		Other 1st gen.		Other 2nd gen.	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Year of birth	1954.148	18.23675	1947.316	13.58525	1972.229	9.990063	1952.089	16.15386	1968.086	16.37963
Male [a]	.4945228	.499979	.5377887	.4994789	.4984175	.501021	.4705807	.4992618	.4988248	.500145
Old federal state [a]	.7928659	.4052598	.9967048	.0574138	.9745685	.1577539	.9347985	.2469444	.913489	.2811995
Years of schooling (0-13)	10.18281	1.639105	7.044759	2.592669	9.553177	1.656686	8.808701	2.794154	10.23228	1.888468
Years of parental schooling (0-13)	9.678307	1.352758	5.895071	3.392331	7.047088	2.450041	7.919908	3.330028	8.919711	2.535477
Higher schooling (> 9 years) [a]	.547339	.4977629	.1249056	.3312145	.3936089	.4895499	.359869	.4800849	.5773609	.4941236
Year of family migration [b]			1967.297	6.753663	1966.308	5.920896	1976.187	11.67071	1970.393	9.602559
Guest worker-cohort (1956-1973) [ab]			.7707382	.4211243	.7578885	.4292383	.4371943	.496167	.4188701	.4935184
Spoken language at home: German [a]			.1179963	.3231919	.3059759	.4617629	.2182089	.4131359	.2706512	.4444263
Spoken language at home: Both [a]			.5401966	.4992902	.4911355	.5009448	.3708941	.4831681	.2607149	.4391531
Spoken language at home: Native [a]			.0767944	.2667505	.0195886	.1388652	.058588	.2349123	.0030797	.0554259
Spoken language at home: n.a. [a]			.2650126	.4421446	.1833	.3877043	.352309	.4778122	.4655542	.4989581
N	29,453		278		250		2,063		1,858	

Notes: [a] Dummy-variable (0/1), [b] Year of first immigrated household member. Weighted statistics using SOEP data design variables.

Table A.3: A snapshot of educational outcomes

	Male		Female	
(Year of birth)^2	0.000***	(0.0000)	0.000***	(0.0000)
Hamburg (0/1)	0.547***	(0.2008)	0.202	(0.1830)
Niedersachsen (0/1)	-0.005	(0.1258)	-0.092	(0.1106)
Bremen (0/1)	-0.023	(0.2655)	-0.058	(0.2164)
Nordrhein-Westfalen (0/1)	0.015	(0.1154)	0.021	(0.1034)
Hessen (0/1)	0.322**	(0.1337)	0.208*	(0.1201)
Rheinland-Pfalz (0/1)	-0.218	(0.1325)	-0.364***	(0.1172)
Baden-Wuerttemberg (0/1)	0.105	(0.1226)	-0.131	(0.1082)
Bayern (0/1)	-0.010	(0.1193)	-0.257**	(0.1087)
Saarland (0/1)	-0.372*	(0.2249)	-0.556***	(0.1764)
Berlin (0/1)	0.424***	(0.1475)	0.408***	(0.1329)
Brandenburg (0/1)	0.114	(0.1359)	-0.103	(0.1154)
Mecklenburg-Vorpommern (0/1)	-0.056	(0.1515)	-0.198	(0.1306)
Sachsen (0/1)	-0.025	(0.1278)	-0.171	(0.1065)
Sachsen-Anhalt (0/1)	-0.140	(0.1456)	-0.050	(0.1147)
Thueringen (0/1)	-0.208	(0.1276)	-0.224*	(0.1157)
Italian: 1st gen. (0/1)	-2.937***	(0.2991)	-2.902***	(0.2847)
Italian: 2nd gen. (0/1)	-1.156***	(0.1672)	-1.027***	(0.2930)
Other immig.: 1st gen. (0/1)	-1.292***	(0.1265)	-1.332***	(0.1444)
Other immig.: 2nd gen. (0/1)	-0.274**	(0.1154)	-0.367***	(0.0904)
Constant	-9.252***	(1.1294)	-18.234***	(1.0001)
Survey year	Yes		Yes	
R^2	0.099		0.174	
N_sub	15671		16246	

Notes: Weighted regressions and robust s.e. clustering by household of origin.

Base category: Natives, Schleswig-Holstein

Statistical significance level * 0.1 ** 0.05 *** 0.01.

Figure 3: Year of arrival by Italian geographic region (AIRE)

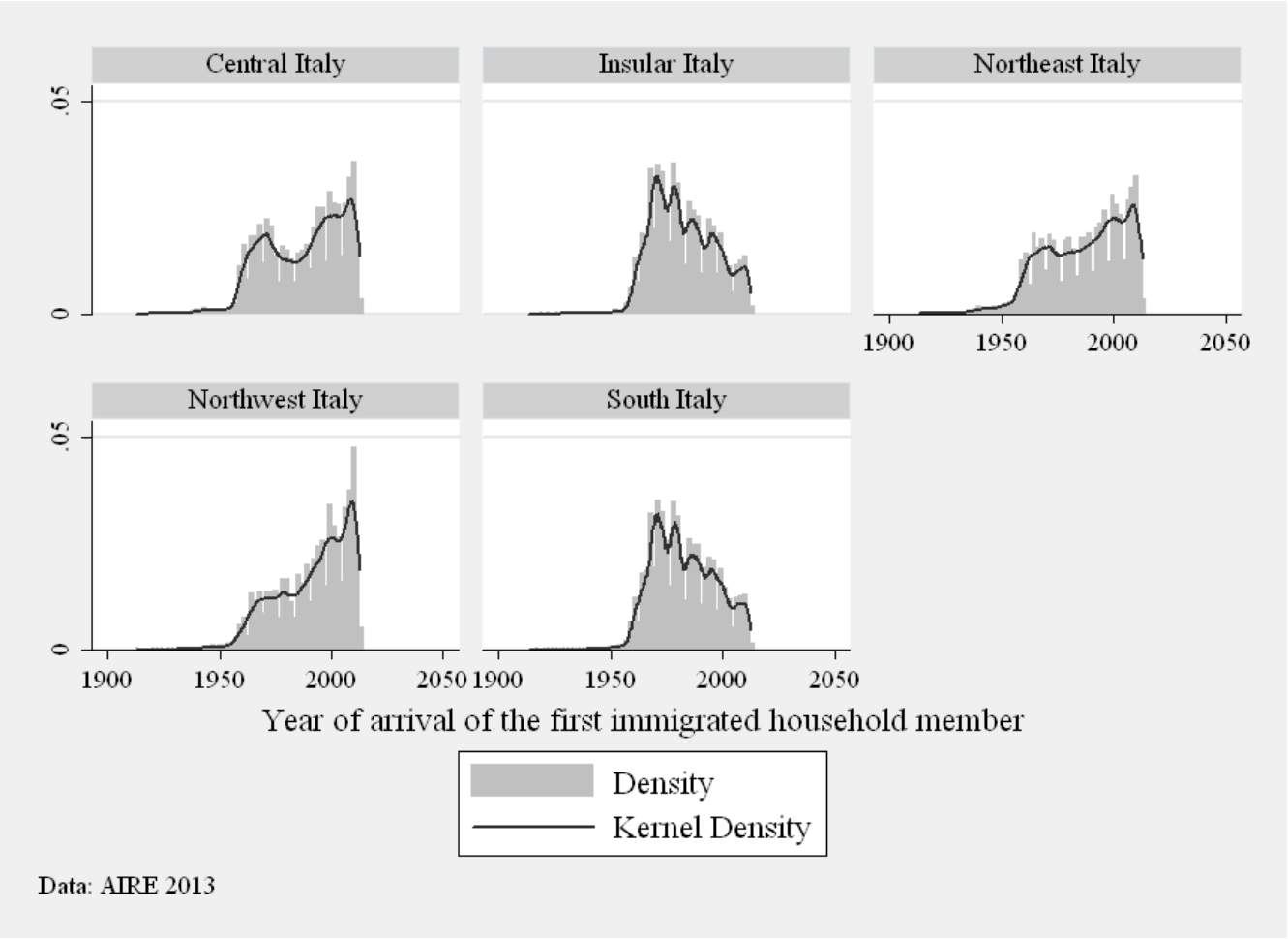


Table A.4: Rank and correlation coefficients - control variables

	spoken language at home		
	german	*native*	*both*
Italians			
$Corr(edu_{t-1}/F)$	0.2869	-0.1753	-0.1387
Rank correlation	0.2948	-0.1386	-0.1253
$Prob > \|t\|$	0.0000	0.0014	0.0039
Other Immigrants			
$Corr(edu_{t-1}/F)$	0.1957	-0.2330	-0.2961
Rank correlation	0.1868	-0.1824	-0.2129
$Prob > \|t\|$	0.0000	0.0000	0.0000

Notes: Weighted Pearson product-moment correlation and Spearman's rank correlation of parental education and spoken language at home; Prob: Probability that H_0 (edu_{t-1} and F are independent) is true.

Table A.5: Transition Matrices (P) - weighted percentages

(a) Natives

	Parental education (in years of schooling)					
Years of schooling	5 years	9 years	10 years	12 years	13 years	Total
5 years	14.35	1.35	0.88	3.31	1.11	1.31
9 years	57.25	58.46	16.43	8.45	8.05	43.95
10 years	14.80	26.94	43.67	27.67	25.83	29.93
12 years	4.74	4.56	7.93	11.80	7.50	5.61
13 years	8.86	8.70	31.08	48.77	57.51	19.20
Total	100.00	100.00	100.00	100.00	100.00	100.00
Percentage in row	0.53	67.53	19.04	0.70	12.20	100.00

(b) Italian immigrants

	Parental education (in years of schooling)						
Years of schooling	no school	5 years	9 years	10 years	12 years	13 years	Total
no school	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 years	62.85	41.35	16.52	0.00	56.07	34.02	32.77
9 years	34.83	40.89	51.18	37.23	0.00	10.03	41.93
10 years	2.32	12.92	21.65	15.25	3.24	15.48	14.78
12 years	0.00	2.17	1.91	0.98	0.00	0.00	1.73
13 years	0.00	2.67	8.73	46.54	40.69	40.47	8.80
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Percentage in row	8.96	49.07	31.24	6.73	1.47	2.54	100.00

(c) Italian 2nd generation immigrants in AIRE data

	Parental education (in years of schooling)				
Years of schooling	no degree	5 years	8 years	13 years	Total
no degree	13.13	1.69	1.00	0.60	1.69
5 years	5.39	5.61	1.64	1.33	2.88
8 years	70.37	77.28	76.64	39.93	71.89
13 years	11.11	15.42	20.72	58.14	23.53
Total	100.00	100.00	100.00	100.00	100.00
Percentage in row	4.53	27.97	54.87	12.64	100.00

(d) Other immigrants

	Parental education (in years of schooling)						
Years of schooling	no school	5 years	9 years	10 years	12 years	13 years	Total
no school	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 years	79.40	33.45	11.33	1.44	12.40	0.96	16.99
9 years	12.98	41.08	49.04	20.22	11.78	11.54	36.80
10 years	2.97	14.54	21.55	40.38	19.33	21.68	21.18
12 years	1.71	4.57	5.65	7.27	4.62	7.12	5.56
13 years	2.93	6.35	12.43	30.69	51.87	58.70	19.46
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Percentage in row	4.45	22.42	46.97	11.03	2.92	12.21	100.00

Table A.6: Linear regressions; Natives vs. Immigrants (SOEP data)

	(1)		(2)		(3)		(4)	
Intergenerational elasticity								
Natives $\hat{\beta}$								
ln(Years of parental schooling)	0.491***	(0.0126)	0.443***	(0.0134)	0.443***	(0.0134)	0.442***	(0.0134)
Immigrants $\hat{\delta}^{ig}$								
ln(Years of parental schooling)*Italian 1st gen.	-0.377***	(0.0407)	-0.387***	(0.0380)	-0.421***	(0.0372)	-0.472***	(0.0413)
ln(Years of parental schooling)*Italian 2nd gen.	-0.379***	(0.0472)	-0.313***	(0.0579)	-0.345***	(0.0759)	-0.354***	(0.0580)
ln(Years of parental schooling)*Other 1st gen.	-0.220***	(0.0196)	-0.179***	(0.0205)	-0.221***	(0.0214)	-0.272***	(0.0255)
ln(Years of parental schooling)*Other 2nd gen.	-0.326***	(0.0383)	-0.265***	(0.0391)	-0.300***	(0.0429)	-0.344***	(0.0481)
Dummies for group belonging M								
Italian 1st gen. (0/1)	0.521***	(0.0684)	0.569***	(0.203)	0.577**	(0.250)	0.420*	(0.217)
Italian 2nd gen. (0/1)	0.826***	(0.0972)	-0.0265	(0.614)	-0.298	(1.090)	-0.558	(1.171)
Other 1st gen. (0/1)	0.402***	(0.0422)	0.500***	(0.0936)	0.663***	(0.104)	0.380***	(0.144)
Other 2nd gen. (0/1)	0.752***	(0.0842)	0.518***	(0.127)	0.569***	(0.176)	0.861***	(0.169)
Demographics D								
Male (0/1)			0.00690***	(0.00236)	0.00692***	(0.00236)	0.00698***	(0.00236)
Male *Italian 1st gen.			0.0374	(0.0381)	0.0261	(0.0373)	0.00550	(0.0426)
Male *Italian 2nd gen.			-0.00823	(0.0379)	-0.00267	(0.0436)	-0.00647	(0.0424)
Male *Other 1st gen.			0.0329*	(0.0172)	0.0356**	(0.0179)	0.0389*	(0.0210)
Male *Other 2nd gen.			-0.00800	(0.0138)	-0.0231	(0.0170)	-0.0379*	(0.0206)
Living in West Germany (0/1)			-0.000662	(0.00289)	-0.000350	(0.00289)	-0.000719	(0.00289)
Living in West Germany *Italian 1st gen.			-0.250***	(0.0643)	(dropped)		-0.0734	(0.0821)
Living in West Germany *Italian 2nd gen.			-0.143**	(0.0598)	(dropped)		-0.0465	(0.0589)
Living in West Germany *Other 1st gen.			-0.0790***	(0.0277)	-0.0752**	(0.0324)	-0.0458	(0.0412)
Living in West Germany *Other 2nd gen.			0.00395	(0.0260)	0.000153	(0.0457)	-0.0157	(0.0674)
Birthcohort=[(year of birth-1900)/10]			0.0246***	(0.00388)	0.0247***	(0.00388)	0.0250***	(0.00388)
Birthcohort*Italian 1st gen.			-0.0307	(0.0934)	-0.0966	(0.120)	-0.00936	(0.0957)
Birthcohort*Italian 2nd gen.			0.272	(0.181)	0.302	(0.297)	0.404	(0.331)
Birthcohort*Other 1st gen.			-0.0616*	(0.0326)	-0.0669*	(0.0364)	-0.0283	(0.0499)
Birthcohort*Other 2nd gen.			0.0234	(0.0266)	0.0520	(0.0391)	-0.0295	(0.0376)
Birthcohort2=[Squared Birthcohort /100]			-0.0865**	(0.0372)	-0.0883**	(0.0372)	-0.0913**	(0.0372)
Birthcohort2*Italian 1st gen.			1.301	(0.995)	1.930	(1.338)	1.217	(1.006)
Birthcohort2*Italian 2nd gen.			-2.142	(1.418)	-2.248	(2.239)	-3.019	(2.472)
Birthcohort2*Other 1st gen.			0.625**	(0.314)	0.607*	(0.347)	0.541	(0.454)
Birthcohort2*Other 2nd gen.			-0.161	(0.227)	-0.447	(0.306)	0.257	(0.321)
Migration specific features F								
Guestworker cohort (1956 - 1973)*Italian 1st gen.					-0.0858	(0.0992)		
Guestworker cohort (1956 - 1973)*Italian 2nd gen.					0.0196	(0.0439)		
Guestworker cohort (1956 - 1973)*Other 1st gen.					-0.142***	(0.0255)		
Guestworker cohort (1956 - 1973)*Other 2nd gen.					-0.0275	(0.0178)		
Spoken language at home: German*Italian 1st gen.							0.256***	(0.0836)
Spoken language at home: German*Italian 2nd gen.							0.0881***	(0.0274)
Spoken language at home: German*Other 1st gen.							0.206***	(0.0294)
Spoken language at home: German*Other 2nd gen.							0.0162	(0.0240)
Constant	1.213***	(0.0287)	1.209***	(0.0320)	1.209***	(0.0320)	1.210***	(0.0320)
Survey year	Yes		Yes		Yes		Yes	
Observations	32376		32376		31631		30506	
R^2	0.250		0.277		0.293		0.279	

Notes: Weighted regressions using SOEP data design variables and robust standard errors clustering by household of origin.
Living in West Germany *Italian 1st gen. and *Italian 2nd gen. omitted because of collinearity: all Italians in guestworker cohort live in West Germany.
Statistical significance level * 0.1 ** 0.05 *** 0.01.

Table A.7: Linear regressions; Italian second generation immigrants (AIRE data)

	(1)		(2)		(3)		(4)	
Intergenerational elasticity $\hat{\beta}$								
ln(Years of parental schooling)	0.185***	(0.0161)	0.177***	(0.0160)	0.159***	(0.0169)	0.176***	(0.0219)
Demographics D								
Male (0/1)			-0.0371***	(0.00877)	-0.0298***	(0.00932)	-0.0465***	(0.00999)
Birthcohort = (year of birth -1900) / 10			0.830***	(0.126)	0.764***	(0.137)	1.153***	(0.250)
Birthcohort2 = squared Birthcohort / 100			-5.451***	(0.807)	-5.005***	(0.879)	-7.497***	(1.574)
Federal State (0/1)								
- Bavaria			0.0130	(0.0141)	-0.0116	(0.0176)	-0.00508	(0.0170)
- Berlin			0.138***	(0.0534)	0.172***	(0.0545)	0.144*	(0.0742)
- Brandenburg			0.245***	(0.0875)	0.193**	(0.0958)	0.221*	(0.123)
- Bremen			0.125**	(0.0501)	0.0824	(0.0592)	0.0869	(0.0567)
- Hamburg			0.0384*	(0.0219)	0.00643	(0.0226)	0.0206	(0.0258)
- Hessen			0.0331	(0.0238)	0.0310	(0.0244)	0.0439*	(0.0261)
- Lower-Saxony			-0.0656*	(0.0374)	-0.0729*	(0.0383)	-0.110**	(0.0464)
- North Rhine-Westphalia			-0.0383***	(0.0105)	-0.0421***	(0.0107)	-0.0454***	(0.0123)
- Rhineland-Palatinate			-0.0242	(0.0426)	-0.0411	(0.0459)	-0.0544	(0.0527)
- Saarland			0.202***	(0.0627)	0.196***	(0.0619)	0.132*	(0.0685)
- Saxony			-0.0349	(0.0510)	-0.0598	(0.0525)	-0.0312	(0.0370)
- Schleswig-Holstein			0.0401	(0.0247)	0.0139	(0.0256)	0.0265	(0.0293)
- Thuringia			0.104	(0.221)	0.318***	(0.0257)		
Migration specific features F								
Family migration cohort (0/1)								
- 1956 - 1973					-0.00963	(0.0247)		
- 1974 - 1987					-0.0127	(0.0251)		
- after 1988					-0.00813	(0.0270)		
Geographic region of origin (0/1)								
- Insular Italy					-0.0588***	(0.0222)		
- Northeast Italy					0.0138	(0.0255)		
- Northwest Italy					0.0396	(0.0293)		
- South Italy					-0.0626***	(0.0219)		
Parental country of birth (0/1)								
- Italy-Germany							0.0153	(0.0126)
- Italy-Other country							0.0474***	(0.0160)
- Both Germany							0.0226	(0.0331)
- Germany-Other country							0.138***	(0.0360)
- Both other country							0.0822	(0.0577)
Constant	1.791***	(0.0328)	-1.284***	(0.492)	-0.957*	(0.538)	-2.547**	(0.998)
Observations	6561		6561		5936		4737	
R^2	0.068		0.092		0.089		0.092	

Notes: Base categories: Baden-Wuerttemberg, Family migration before 1955, Central Italy and Both parents born in Italy.
Robust standard errors clustering by household of origin in parentheses.
Statistical significance level * 0.1 ** 0.05 *** 0.01.

Table A.8: Probability of high schooling degree

	(1)	(2)
Prob(at least 10 years of schooling)		
Man (0/1)	-0.0566***	-0.0647***
	(0.0195)	(0.0209)
Living in West Germany (former FRG) (0/1)	-0.369***	-0.369***
	(0.0280)	(0.0284)
Birthcohort=[(year of birth-1900)/10]	0.366***	0.449***
	(0.0407)	(0.0433)
Birthcohort2=[Squared Birthcohort /100]	-0.897**	-1.907***
	(0.374)	(0.404)
Italian: 1st gen. (0/1)	-1.125***	-0.568***
	(0.159)	(0.177)
Italian: 2nd gen. (0/1)	-0.853***	-0.0346
	(0.111)	(0.157)
Other immig.: 1st gen. (0/1)	-0.399***	-0.0849
	(0.0568)	(0.0631)
Other immig.: 2nd gen. (0/1)	-0.260***	0.0690
	(0.0571)	(0.0648)
Parental education (in years of schooling)		0.316***
		(0.0114)
Constant	-1.560***	-4.653***
	(0.167)	(0.202)
Survey year	Yes	Yes
Observations	32376	32376

Notes: Probit estimations; Prob. of high schooling degree (at least 10 years). Base category: Natives. Weighted regressions and robust standard errors clustering by household of origin.
Statistical significance level * 0.1 ** 0.05 *** 0.01.

Table A.9: Intergenerational elasticity by Italian geographic region of origin (AIRE data)

	(1)		(2)	
ln(Years of parental schooling)	0.236***	(0.0590)	0.237***	(0.0636)
Interaction terms				
Insular Italy × ln(Years of parental schooling)	-0.0774	(0.0643)	-0.0848	(0.0685)
Northeast Italy × ln(Years of parental schooling)	-0.0471	(0.0704)	-0.0594	(0.0758)
Northwest Italy × ln(Years of parental schooling)	0.00539	(0.0997)	-0.000603	(0.109)
South Italy × ln(Years of parental schooling)	-0.0812	(0.0638)	-0.0907	(0.0685)
Geographic region of origin (0/1)				
- Insular Italy	0.0969	(0.138)	0.114	(0.147)
- Northeast Italy	0.114	(0.153)	0.135	(0.164)
- Northwest Italy	0.0268	(0.223)	0.0369	(0.241)
- South Italy	0.105	(0.137)	0.122	(0.147)
Constant	-1.279**	(0.515)	-1.103**	(0.553)
Demog. factors	Yes		Yes	
Migration cohorts	No		Yes	
Observations	6501		5936	
R^2	0.102		0.091	

Notes: Base category: Central Italy. Demographic controls: sex, birthcohort, cuadratic birthcohort, federal state. Robust standard errors clustering by household of origin in parentheses.
Statistical significance level * 0.1 ** 0.05 *** 0.01.

Table A.10: Robustness

	Variation of sample definition (results are provided in the supplemental material)
1	Sample restricted to West-Germany.
2	Parents with 0 and more than 10 years of schooling omitted from sample.
3	"No schooling degree" coded with 5 years of schooling instead of 0.
4	"Other schooling degree" coded with 1, 5, 9, 10 and 12 years of schooling instead of missing.
5	Age limited to older than 18 (instead of 20) years old.
6	Different definitions of second generation immigrants.
7	Different codifications of "lower secondary school degree" to 9 and 10 years of schooling.

Supplemental material (not intended for publication)

Bönke and Neidhöfer, "Parental background matters: Intergenerational mobility and assimilation of Italian immigrants in Germany."

	Robustness Variation of sample definition	
(1)	Sample restricted to West-Germany.	p. II
(2)-(3)	Parents with 0 and more than 10 years of schooling omitted from sample.	p. II
(4)	"No schooling degree" coded with 5 years of schooling instead of 0.	p. II
(5)	Age limited to older than 18 (instead of 20) years old.	p. II
(6)-(10)	"Other schooling degree" coded with 1, 5, 9, 10 and 12 years of schooling instead of missing.	p. III
(11)-(17)	Different definitions of second generation immigrants.	pp. IV-VI
(18)-(19)	Different codifications of "lower secondary school degree" to 9 and 10 years of schooling.	pp. V-VI

[SOEP sample] (1) Sample restricted to West Germany. (2) Parents with 0 years of schooling omitted. (3) Parents with more than 10 years of schooling omitted. (4) 'No schooling' coded with 5 instead of 0 years of schooling. (5) Age restricted to individuals older than 18 instead of 20.

	(1)	(2)	(3)	(4)	(5)
ln(Years of parental schooling)	0.471***	0.443***	0.490***	0.443***	0.445***
	(0.0152)	(0.0134)	(0.0377)	(0.0134)	(0.0131)
Italian 1st gen. # ln(Years of parental schooling)	-0.415***	-0.0548	-0.433***	-0.0901	-0.389***
	(0.0387)	(0.0980)	(0.0519)	(0.0960)	(0.0377)
Italian 2nd gen. # ln(Years of parental schooling)	-0.332***	-0.271***	-0.379***	-0.272***	-0.321***
	(0.0650)	(0.0666)	(0.0684)	(0.0665)	(0.0556)
Other immig. 1st gen. # ln(Years of parental schooling)	-0.212***	0.0674**	-0.252***	0.119***	-0.181***
	(0.0226)	(0.0343)	(0.0411)	(0.0312)	(0.0201)
Other immig. 2nd gen. # ln(Years of parental schooling)	-0.299***	-0.220***	-0.413***	-0.225***	-0.274***
	(0.0414)	(0.0273)	(0.0541)	(0.0276)	(0.0367)
Italian 1st gen.	0.374*	-0.232	0.721***	-0.0866	0.590***
	(0.205)	(0.320)	(0.217)	(0.288)	(0.203)
Italian 2nd gen.	-0.464	-0.191	0.114	-0.191	0.304
	(0.968)	(0.655)	(0.625)	(0.658)	(0.476)
Other immig. 1st gen.	0.505***	-0.0465	0.619***	-0.198*	0.504***
	(0.0974)	(0.116)	(0.130)	(0.113)	(0.0918)
Other immig. 2nd gen.	0.601***	0.405***	0.871***	0.414***	0.516***
	(0.136)	(0.106)	(0.161)	(0.106)	(0.120)
Constant	1.124***	1.208***	1.110***	1.209***	1.185***
	(0.0371)	(0.0320)	(0.0850)	(0.0320)	(0.0311)
Demographic controls	Yes	Yes	Yes	Yes	Yes
Survey Year	Yes	Yes	Yes	Yes	Yes
Observations	24304	32078	27763	32376	33543

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[SOEP sample] 'Other schooling degree' coded with 1, 5, 9, 10 and 12 years of schooling.

	(6)	(7)	(8)	(9)	(10)
ln(Years of parental schooling)	0.132***	0.366***	0.440***	0.443***	0.440***
	(0.0147)	(0.0145)	(0.0134)	(0.0134)	(0.0132)
Italian 1st gen. # ln(Years of parental schooling)	-0.0867**	-0.311***	-0.384***	-0.387***	-0.385***
	(0.0354)	(0.0384)	(0.0378)	(0.0377)	(0.0374)
Italian 2nd gen. # ln(Years of parental schooling)	-0.168***	-0.309***	-0.288***	-0.290***	-0.293***
	(0.0248)	(0.0554)	(0.0594)	(0.0568)	(0.0510)
Other immig. 1st gen. # ln(Years of parental schooling)	0.0299	-0.112***	-0.174***	-0.177***	-0.177***
	(0.0200)	(0.0208)	(0.0205)	(0.0205)	(0.0202)
Other immig. 2nd gen. # ln(Years of parental schooling)	-0.107***	-0.236***	-0.264***	-0.272***	-0.286***
	(0.0168)	(0.0288)	(0.0390)	(0.0381)	(0.0344)
Italian 1st gen.	-0.144	0.383*	0.554***	0.563***	0.559***
	(0.202)	(0.202)	(0.200)	(0.200)	(0.200)
Italian 2nd gen.	0.0453	0.0771	0.0219	0.0564	0.120
	(0.514)	(0.644)	(0.604)	(0.584)	(0.550)
Other immig. 1st gen.	0.118	0.356***	0.453***	0.454***	0.440***
	(0.0982)	(0.0947)	(0.0946)	(0.0947)	(0.0949)
Other immig. 2nd gen.	0.237***	0.489***	0.541***	0.562***	0.603***
	(0.0844)	(0.104)	(0.124)	(0.122)	(0.114)
Constant	1.919***	1.387***	1.217***	1.209***	1.215***
	(0.0356)	(0.0350)	(0.0320)	(0.0320)	(0.0316)
Demographic controls	Yes	Yes	Yes	Yes	Yes
Survey Year	Yes	Yes	Yes	Yes	Yes
Observations	33111	33111	33111	33111	33111

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[SOEP sample] Different definitions of second generation immigrants: Only migrants with indirect migration background (born in Germany); (11). Migrants born in Germany or migrated before the age of 7 (12), 16 (13) or 18 (14).

	(11)	(12)	(13)	(14)
ln(Years of parental schooling)	0.443***	0.443***	0.443***	0.443***
	(0.0134)	(0.0134)	(0.0134)	(0.0134)
Italian 1st gen. # ln(Years of parental schooling)	-0.382***	-0.382***	-0.401***	-0.395***
	(0.0369)	(0.0380)	(0.0392)	(0.0405)
Italian 2nd gen. # ln(Years of parental schooling)	-0.314***	-0.323***	-0.277***	-0.319***
	(0.0633)	(0.0557)	(0.0528)	(0.0570)
Other immig. 1st gen. # ln(Years of parental schooling)	-0.185***	-0.180***	-0.161***	-0.160***
	(0.0195)	(0.0201)	(0.0210)	(0.0215)
Other immig. 2nd gen. # ln(Years of parental schooling)	-0.268***	-0.264***	-0.280***	-0.250***
	(0.0545)	(0.0432)	(0.0326)	(0.0304)
Italian 1st gen.	0.443**	0.509***	0.614***	0.473**
	(0.188)	(0.195)	(0.224)	(0.237)
Italian 2nd gen.	0.0556	0.0516	-0.422	-0.623
	(0.584)	(0.558)	(0.666)	(0.720)
Other immig. 1st gen.	0.481***	0.482***	0.443***	0.425***
	(0.0867)	(0.0897)	(0.103)	(0.109)
Other immig. 2nd gen.	0.512***	0.519***	0.638***	0.639***
	(0.154)	(0.135)	(0.114)	(0.109)
Constant	1.209***	1.209***	1.209***	1.210***
	(0.0320)	(0.0320)	(0.0320)	(0.0320)
Demographic controls	Yes	Yes	Yes	Yes
Survey Year	Yes	Yes	Yes	Yes
Observations	32376	32376	32376	32376

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[AIRE sample] Different definitions of second generation immigrants: Only Italians born in Germany (15). Italians born in Germany or registered before the age of 15 (16) or 10 (17). Lower secondary school coded with 9 (18) and 10 (19) years of schooling.

	(15)	(16)	(17)	(18)	(19)
ln(Years of parental schooling)	0.144***	0.167***	0.168***	0.249***	0.228***
	(0.0192)	(0.0219)	(0.0226)	(0.0288)	(0.0269)
Federal State (0/1)					
- Bavaria	-0.00502	-0.0198	-0.0203	-0.0230	-0.0278
	(0.0197)	(0.0232)	(0.0235)	(0.0175)	(0.0175)
- Berlin	0.210***	0.208*	0.205*	0.130***	0.106***
	(0.0532)	(0.109)	(0.110)	(0.0379)	(0.0295)
- Brandenburg	0.296***	-0.107***		0.140*	0.111*
	(0.0599)	(0.0287)		(0.0727)	(0.0585)
- Bremen	0.0443	0.0288	0.0259	0.0527	0.0420
	(0.0587)	(0.0677)	(0.0677)	(0.0490)	(0.0398)
- Hamburg	0.00281	-0.0385*	-0.0403*	0.00300	0.00836
	(0.0236)	(0.0221)	(0.0224)	(0.0192)	(0.0161)
- Hessen	0.0183	0.0799**	0.0909**	0.00862	-0.00932
	(0.0288)	(0.0386)	(0.0402)	(0.0242)	(0.0240)
- Lower-Saxony	-0.0835**	-0.0356	-0.0163	-0.0701*	-0.0614
	(0.0402)	(0.0883)	(0.111)	(0.0399)	(0.0408)
- North Rhine-Westphalia	-0.0533***	-0.0559***	-0.0561***	-0.0327***	-0.0175*
	(0.0118)	(0.0114)	(0.0116)	(0.0103)	(0.0101)
- Rhineland-Palatinate	-0.0384	-0.0294	-0.0329	-0.0457	-0.0573
	(0.0489)	(0.0630)	(0.0678)	(0.0461)	(0.0464)
- Saarland	0.260***	-0.0351		0.191***	0.169***
	(0.0689)	(0.0254)		(0.0682)	(0.0593)
- Saxony	-0.0636	-0.0975	-0.105	-0.0716	-0.0633
	(0.0660)	(0.0730)	(0.0804)	(0.0562)	(0.0582)
- Schleswig-Holstein	-0.00554	0.0253	0.0263	0.00441	0.00975
	(0.0261)	(0.0288)	(0.0292)	(0.0210)	(0.0178)
Birthcohort = (year of birth -1900) / 10	0.896***	0.891***	0.976***	0.786***	0.841***
	(0.208)	(0.198)	(0.230)	(0.133)	(0.136)
Birthcohort2 = squared Birthcohort / 100	-5.895***	-5.838***	-6.368***	-5.155***	-5.479***
	(1.314)	(1.256)	(1.455)	(0.852)	(0.871)
Family migration cohort (0/1)					
- 1956 - 1973	-0.0182	-0.00630	-0.00961	0.000187	-0.00263
	(0.0212)	(0.0263)	(0.0264)	(0.0224)	(0.0212)
- 1974 - 1987	-0.0142	-0.00985	-0.00913	-0.00206	-0.00239
	(0.0227)	(0.0267)	(0.0268)	(0.0228)	(0.0216)
- after 1988	0.00216	-0.0157	-0.0129	0.00113	0.000890
	(0.0281)	(0.0329)	(0.0379)	(0.0248)	(0.0237)

Geographic region of origin (0/1)					
- Insular Italy	-0.0282	-0.0381	-0.0365	-0.0351	-0.0268
	(0.0249)	(0.0282)	(0.0287)	(0.0214)	(0.0207)
- Northeast Italy	0.0297	0.0265	0.0290	0.0140	0.0130
	(0.0287)	(0.0319)	(0.0325)	(0.0240)	(0.0230)
- Northwest Italy	0.0597*	0.0349	0.0317	0.0313	0.0262
	(0.0343)	(0.0367)	(0.0382)	(0.0273)	(0.0259)
- South Italy	-0.0318	-0.0477*	-0.0443	-0.0344	-0.0236
	(0.0245)	(0.0282)	(0.0286)	(0.0212)	(0.0205)
- Thuringia				0.273***	0.219***
				(0.0251)	(0.0243)
Constant	-1.427*	-1.477*	-1.822**	-1.182**	-1.320**
	(0.822)	(0.785)	(0.916)	(0.524)	(0.537)
Observations	4857	4239	4058	5742	5742

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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