CURRENT PERSPECTIVES ON IMMIGRANT INTEGRATION IN EUROPE AND BEYOND

EDITED BY: Boris Heizmann and Reinhard Schunck

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CURRENT PERSPECTIVES ON IMMIGRANT INTEGRATION IN EUROPE AND BEYOND

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Residential Segregation and Social Trust of Immigrants and Natives: Evidence From the Netherlands

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This study examines the relationship between residential segregation and social trust of immigrants and natives in the Netherlands. Building on previous studies that have found evidence for a negative segregation-trust link, we present a nuanced narrative by (i) distinguishing between an ethnic minority and majority perspective, (ii) elaborating theoretical foundations on the moderating role of individual exposure in the form of ethnic minority concentration in the neighborhood, and (iii) taking income segregation into account. In addition to the refined theoretical framework, our study employs a rigorous empirical approach. Using two waves (2009 and 2013) of the Netherlands Longitudinal Lifecourse Study—a geocoded panel study with an oversampling of Moroccan and Turkish immigrants—we are able to study the influence of (changes in) municipality-level segregation patterns for both natives and immigrants, and consider the roles of both neighborhood ethnic minority concentration, as well as income-based segregation. Results from four-level multilevel models show that ethnic segregation is negatively related to the social trust of immigrants. At the same time, this negative relationship is particularly strong in neighborhoods with a low level of minority population concentration, which provides support for the so-called integration paradox where negative intergroup interactions reduce social trust. For respondents of Dutch origin, we find no evidence that their social trust is sensitive to ethnic segregation or that this relationship is conditional on minority concentration at the neighborhood level.

Keywords: ethnic segregation, income segregation, social trust, neighborhood studies, integration paradox

INTRODUCTION

Residential segregation along ethnic lines is a major hurdle to the social integration of immigrants and ethnic minorities. Previous research has shown that, for example, residential segregation is associated with lower levels of generalized social trust (Rothwell, 2012), and that ethnic diversity has a particularly negative impact on social trust in highly segregated residential areas (Uslaner, 2012). A reason for these findings is that living in segregated residential areas prevents residents from experiencing (positive) intergroup contact, which in turn leads to reservations about the other group, perceptions of intergroup threat, and general mistrust (Putnam, 2007; Van der Meer and Tolsma, 2014).

This study examines the role of residential segregation for social trust of immigrants and natives in the Netherlands. While we generally expect that residential segregation is related to reduced trust, we build on previous research in the following three respects. First, the literature on the effects

of ethnic diversity or ethnic segregation on trust has largely focused on the general population, or on majority members only (Putnam, 2007; Rothwell, 2012). This has been criticized, as for ethnic minority and majority members, underlying mechanisms might be distinct (Abascal and Baldassarri, 2015). We consequently examine the implications of residential segregation separately for ethnic minority members (here: respondents of foreign origin) and majority members (here: respondents of Dutch origin).

Second, previous research has largely ignored the role of individual exposure, i.e., the "experience of segregation as felt by the average minority or majority member" (Massey and Denton, 1988, p. 287). We conceptualize residential segregation as an uneven distribution of ethnic groups across neighborhoods within a municipality. In a low segregation setting, the minority share in a municipality is evenly distributed across all neighborhoods, whereas the share of minorities is concentrated only in some neighborhoods (but not in others) in a high segregation setting. While the degree of ethnic segregation can be expected to shape overall social experiences in a municipality, we argue that whether, for example, an ethnic minority respondent lives in a neighborhood with a high or a low minority concentration is important. This specification allows for a nuanced theoretical framework of trust development, taking exposure as a relevant moderator variable into account.

Third, according to the ethnic (or racial) proxy hypothesis (Emerson et al., 2001), residential segregation along ethnic lines is regularly conflated with socio-economic disparities. This means that concentrated disadvantage, rather than ethnic segregation could be responsible for the negative consequences of segregation. Given the relevance of economic resources for the development of social trust (Brandt et al., 2015), we disentangle the impact of ethnicity and social status by considering individual and contextual variations in socio-economic resources, as well as an explicit measure of income segregation as competing predictor variables.

All in all, we aim to contribute to the literature by explicitly taking the minority perspective into account, by elaborating on the theoretical mechanisms linking segregation and trust through the inclusion of arguments regarding the interplay of ethnic segregation and ethnic concentration, and by disentangling ethnic segregation from socio-economic segregation.

Empirically, we use two waves (2009 and 2013) of the Netherlands Longitudinal Lifecourse Study, a geocoded panel study with a large immigrant sample, which allows for investigating the role of segregation patterns for both natives and immigrants. Results from multilevel models and two-way fixed effects models show that ethnic segregation is negatively associated with social trust of immigrants. In addition, this relationship is moderated by the extent of minority concentration at the neighborhood-level: individuals of foreign origin living in a low-concentration neighborhood experience a considerably greater reduction in social trust due to segregation compared to those living in a neighborhood with a high minority share. For the Dutch majority, our results do not show a relationship between ethnic segregation and social trust.

THEORETICAL FRAMEWORK

Ethnic Diversity, Segregation, and Social Trust

Ethnic diversity refers to the composition of a population with respect to the share of one or more minority groups compared to a reference group (e.g., natives, autochthones, or majority group). Apart from basic measures of minority proportions, a widely-used indicator is the fractionalization index that measures the probability that two randomly drawn individuals within a spatial setting are not from the same ethnic group (Tolsma et al., 2009; Uslaner, 2012; Schaeffer, 2013; Ziller, 2015). In contrast, ethnic segregation refers to the spatial distribution of ethnic groups, or "the degree to which two or more groups live separately from one another, in different parts of the urban environment" (Massey and Denton, 1988, p. 282). Hence, ethnic diversity and ethnic segregation might be empirically related, but are conceptually distinct, with diversity dependent on the relative size of the groups being compared, while segregation is not.

A plethora of studies have examined the potential negative consequences of (immigration-related) ethnic *diversity* for social trust, a term which describes the general expectation that (unknown) others will behave in a reliable and just manner, rather than being selfish or acting against one's interests (e.g., Delhey and Newton, 2005; Gundelach and Traunmüller, 2013; Laurence, 2013; Van der Meer and Tolsma, 2014; Ziller, 2015). While the empirical evidence appears to be mixed, a recent meta-analysis (Dinesen et al., 2020) taking more than 80 studies into account, finds a systematically negative relationship between ethnic diversity and social trust. This negative relationship is typically stronger for trust in neighbors and when studying diversity of local areas.[1] At the same time, several studies find that demographic, economic, political, and cultural characteristics moderate the relationship between ethnic diversity and trust (Kesler and Bloemraad, 2010; Uslaner, 2012; Helbling et al., 2015; Ziller, 2015; Gundelach and Manatschal, 2017; Ziller et al., 2019).

Several arguments have been invoked with regard to the social mechanisms underlying a possible negative link between ethnic diversity and social trust. According to intergroup conflict theory (Blumer, 1958; Esses et al., 1998; Stephan and Renfro, 2002), the presence of outgroup members fosters (perceptions of) intergroup competition for economic resources or cultural dominance, which in turn increases perceived levels of outgroup threat and outgroup distrust. Alternatively, a high concentration of, or an increase in the ethnic minority population might inhibit cooperation across ethnic lines and lead to an increasing impression on the part of residents' that there is a lack of common norms, especially if language barriers exist, or the ethnic minority group is culturally distinct from the majority population. This could result in heightened perceptions of uncertainty and anomie, social withdrawal, and increasing general social distrust, as highlighted in Putnam's (2007) widely recognized "constrict

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[1]Apart from this trend, heterogeneous research findings also exist with regard to the role of neighborhood conditions in general. For example, De Vroome et al. (2013) find only limited evidence for an empirical relationship between neighborhood conditions and social trust.

hypothesis," and related anomie-centered approaches (Tolsma and van der Meer, 2017).

In contrast to conflict approaches, intergroup contact theory (Pettigrew and Tropp, 2011) posits that (immigration-related) ethnic diversity provides an opportunity structure for members of different ethnic groups to interact and connect with each other. Intergroup contact in turn facilitates improving attitudes toward the (ethnic) outgroup and fosters outgroup trust (Stolle and Harell, 2013; Gundelach and Freitag, 2014). Social interactions with outgroup members might also enable the development of generalized social trust (Blau and Schwartz, 1984; Glanville et al., 2013). The reason for this is that through social interactions with people from different backgrounds, individuals can learn about the motives of others and consequently begin to perceive the social world as more predictable, and thus less threatening (Hardin, 2002), and fostering the development of complex and inclusive social identities (Wenzel et al., 2003; Schulz and Leszczensky, 2016).

It has been argued that ethnic residential *segregation,* as a measure of unevenness in the spatial distribution of ethnic group members across living areas, maps underlying theoretical mechanisms more effectively than measures of ethnic diversity or minority concentration (Rothwell, 2012; Laurence, 2017). According to intergroup contact theory, residential segregation along ethnic lines impedes opportunities for interethnic contact, resulting in lower levels of trust directed at outgroups, and social trust in general.

As an extension, segregation has also been conceived of as a moderator that triggers the extent to which threat effects outweigh contact effects, and *vice versa* (Laurence et al., 2019). In a similar vein, Uslaner (2012, p. 15) concluded from empirical analyses carried out in multiple Western countries that "segregation rather than diversity drives down trust," and that "the positive effects of living in an integrated community with friends of diverse backgrounds outweigh any negative impacts of heterogeneity."

While it is plausible to assume residential segregation to be consequential for (intergroup) social contact, it might affect minority and majority members differently regarding the way they feel socially integrated, and perceive fellow citizens as being principally trustworthy.

Taking the Ethnic Minority Perspective Into Account

Most empirical studies on the relationship between ethnic diversity or ethnic segregation and social trust have examined this empirical relationship in the overall or majority population (Rothwell, 2012; Laurence, 2017). In general, ethnic diversity or minority concentration has a clear distinct implication to majority members (i.e., more outgroup neighbors) and minority members (i.e., more ingroup neighbors). Adding the perspective of ethnic segregation, it is useful to simultaneously take the analytical levels of municipalities and neighborhoods into account. At the municipality level, higher rates of segregation mean higher propensities of ingroup contact, on average. However, group-specific effects may vary depending on the actual minority concentration in immediate living areas. **Figure 1** illustrates relevant combinations of municipality segregation by neighborhood concentration.

The left-hand panel in **Figure 1** shows a city in which the minority population residing in a municipality (City 1) is evenly distributed across neighborhoods, which indicates a minimal degree of ethnic segregation. Note that the within-neighborhood shadings illustrate only the share of the minority proportion resident in an area, and do not convey information about the spatial distribution within a neighborhood. The middle and right-hand panels show a highly segregated city (City 2) and randomly selected individuals from the minority and majority group. In the middle panel, the two sampled individuals live in a neighborhood setting with a low minority concentration, while in the right-hand panel, the individuals reside in a high-concentration neighborhood. Hence, although both situations relate to one city with one level of residential segregation, the immediate neighborhood environment is starkly different for the individuals from the middle panel compared to those sampled in the right panel. The middle panel effectively represents a situation where nominal levels of segregation are high, but the sampled immigrant lives in a low-concentration environment, sharing his or her immediate surroundings mostly with majority members. The opposite is true for the right panel, where the sampled majority individual resides in an area where they are effectively in the minority[2].

In terms of theory, we have strong reasons to suspect differential effects on social trust across the respective constellations. With reference to minority members, (i) assimilation theory suggests that living in segregated areas prevents them from having social interactions with majority members (or members of the receiving society in case of immigrants), which in turn hampers their social integration. Ethnic segregation might also stimulate ethnic discrimination (Winter and Zhang, 2018; Zhang et al., 2019). Hence, we expect residential segregation to inhibit social dimensions of minority integration which in turn hampers the development of minorities' social trust (Hypothesis 1). Looking at patterns of exposure, the negative impact of residential segregation on social trust is expected to be particularly strong for minority members living in neighborhoods characterized by a high minority concentration (H1a). In contrast, minority members living in areas with a low minority concentration have higher incentives to assimilate, which should mitigate the negative context effect of municipality segregation (H1b).

A contrasting theoretical perspective to assimilation is (ii) the immigration paradox. Using data from several Western

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[2]It is important to note that conceptually within-neighborhood residential patterns (e.g., at the level of streets or blocks) might also be relevant. However, with the data available we can only approximate individual experiences of the factors evenness and exposure at the level of municipalities and neighborhoods, respectively. We consider the immediate living environment of individuals as a relevant experiential setting, but also want to emphasize that other settings in which people socially interact are also relevant, including the workplace, associations and sport clubs, supermarkets, and public transport. These settings are typically not within the same housing block or street where people live, but are likely to be within the same neighborhood or municipality.

FIGURE 1 | Ethnic segregation and concentration. NBHD, Neighborhood.
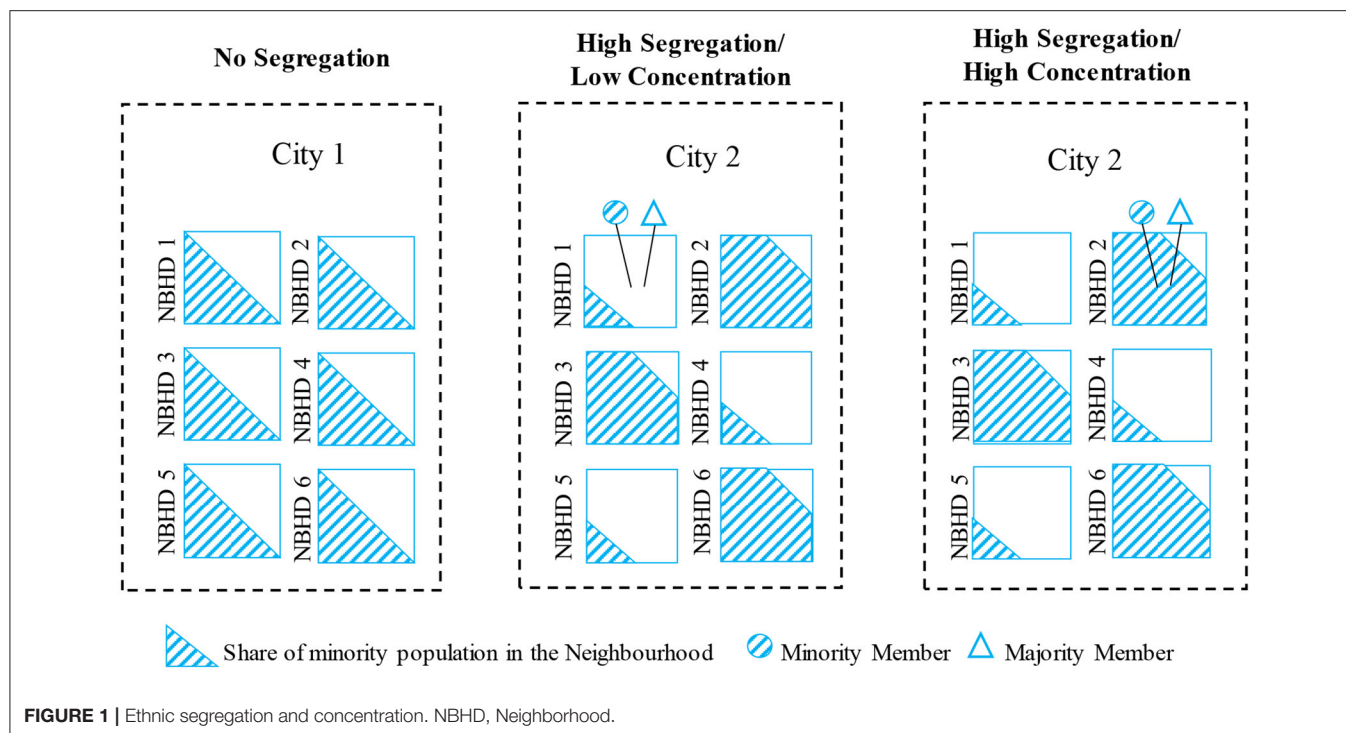
countries, Uslaner (2012) finds that while both natives and immigrants have higher trust levels when living in integrated (i.e., less segregated) residential areas, ethnic minorities or immigrants hardly benefit from intergroup contact with natives in terms of generalized social trust, even if they live in less segregated areas. This implies diverging mechanisms for majority and minority populations when it comes to converting social contact into social trust—possibly because increased contact with members of the receiving society exposes immigrants to additional occasions of discrimination and unequal treatment, as highlighted in works on the integration paradox (Verkuyten, 2016). From this perspective, it can be expected that the relationship between ethnic segregation and minority trust is positive, meaning that high levels of residential segregation lead to high levels of social trust, and vice versa (Hypothesis 2). To elaborate on this theoretical assumption, particularly minority members who live in high-concentration neighborhoods are expected to develop high levels of social trust because they may circumvent negative experiences of rejection or discrimination that are likely to occur as a result of direct contact with majority members (H2a)[3]. In contexts of low concentration, potentially negative experiences are much more likely to occur which should lead to a negative moderation of a positive segregation effect (H2b).

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[3]Nonetheless, possible positive consequences of living in an ethnic enclave are likely to occur with respect to trust in particular others (i.e. ingroup members, neighbors, family, and friends), rather than generalized social trust which is the focus of this study (Freitag and Bauer, 2013). However, due to the non-availability of corresponding indicators, we are not able to study dimensions of particular trust in this study.

For majority members and those living in municipalities that are largely separated from ethnic minorities, we can employ arguments informed by (iii) intergroup contact theory (Pettigrew and Tropp, 2011). According to earlier research on diversity and segregation effects, a high degree of residential separation may impede intergroup contact, heighten the salience of group boundaries, and increase the potential of intergroup conflict (Legewie and Schaeffer, 2016). In turn, this should lead to an overall reduction in generalized social trust (Hypothesis 3). At the same time, this effect should be contingent upon the particular living environment. People in areas of high concentration are expected to nonetheless profit from intergroup contact experiences in terms of social trust (positive interaction, H3a), while for those in low-concentration settings, the negative segregation effect is reinforced instead (H3b).

In contrast to the standard intergroup contact and conflict narrative, it is also plausible to assume conflict-mitigating effects for majority members as highlighted in recent research on the possible beneficial effects of segregation (Light and Thomas, 2019). From this perspective, living in a segregated community improves majority members' social trust as it attenuates conflictual experiences of intergroup contact (Hypothesis 4). It should be emphasized here that this is a plausible narrative on the condition that ethnic inequality is present, and intergroup contact is largely negative, which offsets intergroup contact's prejudice-reducing and trust-enhancing potential (Barlow et al., 2012). Taking experiential settings of neighborhoods into account, we assume that a positive segregation effect is mitigated or reversed (negative moderation) for individuals who live in areas with a highly

concentrated minority population (H4a), while avoidance of negative intergroup contact is a feasible option, on average, for those living in a setting with a low concentration of minority population (H4b).

Figure 2 provides a concise overview of the expected relationships based on the competing theoretical ideas, as well as separately for majority and minority groups.

Disentangling Ethnicity and Status: The Role of Income-Based Residential Segregation

In addition to social contact dimensions, ethnic segregation also reflects socio-economic inequalities, where residential areas with a high concentration of immigrants or ethnic minority members also constitute areas of high socio-economic disadvantage (Teltemann et al., 2015). In other words, ethnic residential segregation may not solely be driven by preferences for ingroup contact, or discriminatory renting practices by native-majority landlords, but rather as a function of immigrants' resources. Due to their on average lower positions on the labor market, and the resulting lower labor market returns in the form of income and status (Luthra, 2013), immigrants essentially have a systematically different set of potential accommodation options, thus leading to their clustering in certain areas of cities where average rents are lower. Conversely, natives, whose average income levels are often considerably higher, are less constrained in this respect and are thus able to avoid the low-rent districts. For example, Spörlein and Schlueter (2018) demonstrate that roughly 25 percent of ethnic segregation patterns within a German city can be explained by the systematic differences in socio-economic resources that immigrants and natives have at their disposal. A further 25 percent are accounted for the local pricing structure as a contextual indicator of the opportunity structure for low resource individuals. Like others before us, we therefore invoke the argument that economic and preference considerations are closely tied together, and need to be disentangled to reach systematic conclusions about the role of segregation (Leckie et al., 2012; Spörlein and Schlueter, 2018).

Stressing the relevance of arguments subsumed under the ethnic (or racial) proxy hypothesis does not negate the fact that preferences and discriminatory practices are irrelevant in generating segregation patterns (Clark, 1986). While economic factors are a major explanation for ethnic segregation, there is also ample evidence that majority members greatly prefer lower rates of outgroup presence compared to minority members. Similarly, research on the so-called "White flight" suggests that social preferences, as well as concerns related to crime and security, account for majority members moving out of diversifying neighborhoods, which additionally fuels residential segregation along ethnic lines (Emerson et al., 2001). Nonetheless, disentangling ethnic from economic or resource-based segregation seems paramount because these two dimensions strongly overlap, and resource-based segregation may confound the relationship between ethnic segregation and trust.

DATA AND METHODS

Data and Variables

To test our hypotheses, we use the first and second wave of the Netherlands Longitudinal Life Course Study (NELLS; Tolsma et al., 2014). The NELLS data survey data includes measures relevant to the proposed theoretical relationships, contains an oversample of the two large ethnic minority groups in the Netherlands (Turks and Moroccans), and allows for constructing segregation indices thanks to it featuring geo-codes at the level of neighborhoods and municipalities. Data collection was based on a random sample of 35 municipalities stratified by region and level of urbanization (including the four biggest cities Amsterdam, Rotterdam, Den Haag, and Utrecht). Subsequently, respondents (between 15 and 45 years of age) were randomly selected from population registries. Moroccan and Turkish individuals were oversampled. However, the sample was restricted to more urban areas, due to the low number of Moroccans and Turkish people living in rural areas. Hence, the population frame represented by the NELLS data refers a population in the Netherlands that tends to be young and urban. The interview was carried out face-to-face in the first wave, and in the second wave, interviews took place either in a face-to-face setting or via a web survey.

We include only respondents in the analytical sample that were interviewed at both time points (the first wave was fielded between December 2008 and May 2010, and the second wave between June and August 2013), and had not changed their place of residence between waves[4]. Since we are interested in group specific effects, we distinguish between respondents of Dutch origin ("natives") and those of foreign origin ("immigrants"). A person is classified as being of Dutch origin if both parents were born in the Netherlands, while a person is classified as being of foreign origin if the person and one, or both parents, were born outside the Netherlands, as well as if the person was born in the Netherlands and one, or both parents, were born in another country. We also present results separately for foreign-born immigrants ("first generation") and people of immigrant descent (foreign-born mother and/or father, so-called "second generation") in the online appendix (**Tables A8, A9**).

As outcome variable, the NELLS survey offers several items on social trust. These are (i) "Nowadays you really do not know who you can trust," (ii) "Most people are disappointing when you get to know them better," (iii) "Most people can be trusted," (iv) "You can't be too careful enough with other people," (v) "If you are too trusting, people will use you," and (vi) "If you help others, you will often be cheated on" (all measured on a 5-point Likert-type scale). Besides their theoretical relevance, selected items need to fulfill the following empirical criteria in order to reflect meaningful indicators and to build a valid index to be used in empirical analysis: (1) Items are required to vary at

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[4]The reason for this decision is that moving to another neighborhood or municipality changes individual exposure to segregation patterns, which might be insufficiently captured by our empirical models, especially since the segregation measures we use are municipality-level characteristics. Nonetheless, including movers in the empirical analysis leads to substantively similar conclusions as reported below.
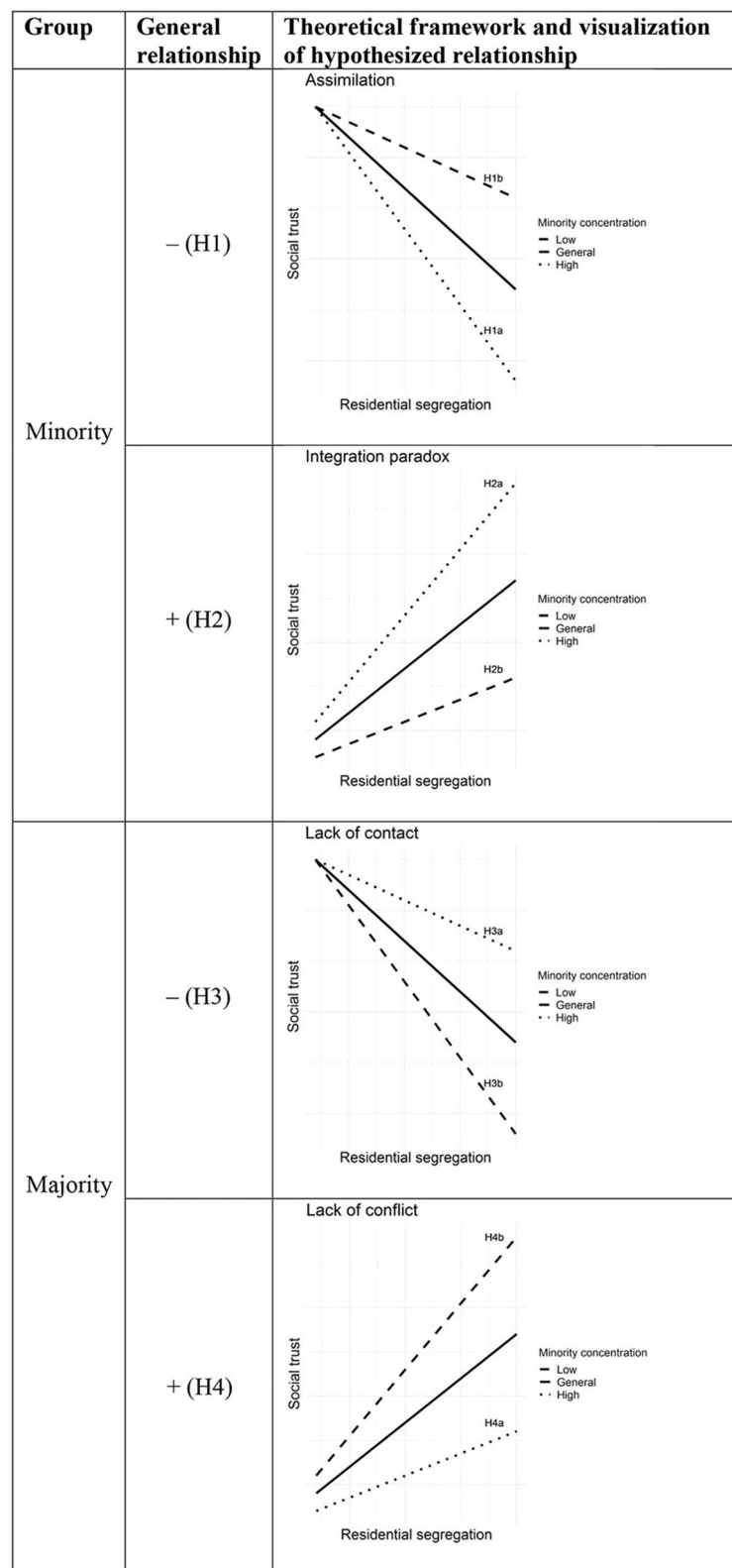
FIGURE 2 | Graphical illustration of hypotheses.

the individual level both between individuals and over time, (2) items are required to display variation at the municipality (and municipality-time) level in order to be explained by differences in municipality (over-time changes in) segregation, (3) items need to be empirically connected to form a coherent index, and (4) they need to be invariant across ethnic groups and time in order to be comparable.

Firstly, we computed—for respondents interviewed in both waves—intra-class correlations where within-individual observations over time are nested within individuals, municipalities, and municipality-waves. This provides information about the proportion of variance that can be attributed to the level of individuals, municipalities, or municipality change between waves[5]. While all items display substantial over-time change within individuals (i.e., 1–ICC$_{individuals}$), only items (i), (ii), and (vi) show variance at the municipality and municipality-year level close to five percent. Next, we look at the inter-item correlation and find Pearson's r correlations of between 0.34 and 0.62 (all statistically significant). An index of the recoded (i.e., higher values indicate higher trust) items (i) "Nowadays you really do not know who you can trust," (ii) "Most people are disappointing when you get to know them better," and (vi) "If you help others, you will often be cheated on" shows sufficient consistency (Cronbach's α = 0.78).

Finally, we test the extent to which the three items are comparable across ethnic groups and survey waves using multigroup confirmatory factor analyses (Davidov et al., 2014; and see the Online Appendix for detailed results). The results demonstrate scalar invariance over time, and partial scalar invariance between natives and immigrants, which means that latent variable scores can be compared across groups and can be used in regression analyses. Thus, the outcome variable in the empirical models below consists of latent factor scores obtained from a confirmatory factor analysis of the three trust items ([i], [ii], and [vi]), which were then linearly rescaled to range between 1 ("low trust") and 5 ("high trust") to facilitate interpretation[6].

The core predictor variable is residential segregation. We use the index of dissimilarity, one of the most prominent measures of residential segregation (Duncan and Duncan, 1955; Massey and Denton, 1988), which measures the extent of unevenness in the distributions of two groups over units (i.e., geographical units such as neighborhoods or districts, as well as other units such as occupations or fields of study). To do so, we use municipality-level and neighborhood-level data on proportions of individuals of Moroccan, Turkish, Antillean, Surinamese, other non-Western, and Western origin (i.e., "minority group"), as well as proportions of people of Dutch origin (i.e., "majority

group")[7]. Formally, the index is defined as

$$D = \frac{1}{2} \left(\sum_{j=1}^{J} \left| \frac{a_j}{A} - \frac{b_j}{B} \right| \right), \qquad (1)$$

where a_j (b_j) refers to the number of individuals from the minority (majority) group in unit j, and A (B) to the total number of individuals in the minority (majority) group. Values of D are bounded by 0 (completely integrated) and 1 (fully segregated), and can be interpreted as the proportion of individuals who would have to change units in order to achieve an even distribution across those units[8]. More specifically in our case, a value of 0.21 (in wave 2) would indicate that 21% of foreign-born or Dutch individuals would have to move to a different neighborhood to achieve an even distribution of foreign-born and Dutch individuals across all neighborhoods. We calculate the dissimilarity index for each of the municipalities in the sample separately based on the neighborhoods that constitute them.[9] As an additional control variable, we also calculate the extent of income segregation across municipalities. To do so, we categorized the available income information into low (below or equal to a personal income of 19,200 Euros per year, which corresponds to the lowest 40 percent of the income distribution), and high (above 19,200 Euros) income levels[10].

While ethnic and income segregation are strongly correlated across municipalities (Wave 1: Pearson's $r = 0.61$, $p = 0.001$, $n = 26$; Wave 2: Pearson's $r = 0.39$, $p = 0.047$, $n = 26$)[11], difference scores between waves are virtually uncorrelated (Pearson's $r = -0.08$, $p = 0.683$, $n = 26$) implying that cross-sectional and longitudinal results might vary due to different underlying mechanisms, or confounding. We therefore provide both cross-sectional and longitudinal fixed-effects regressions.

To empirically assess the role of intermediary variables that connect residential segregation and social trust, we include separate measures of intergroup contact (when looking at natives), and intergroup contact and ethnic discrimination (when looking at immigrants). Intergroup contact is measured as an index for an individual's contact in their neighborhood, at work,

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[5]The intra-class correlations (ICC) for the corresponding items in terms of percentages are: Item (i): ICC$_{individuals}$ = 47.2%, ICC$_{municipalities}$ = 4.2%, ICC$_{municipality-wave}$ = 3.4%; Item (ii): ICC$_{individuals}$ = 51.3%, ICC$_{municipalities}$ = 6.4%, ICC$_{municipality-wave}$ = 5.7%.; Item (iii): ICC$_{individuals}$ = 41.7%, ICC$_{municipalities}$ = 2.1%, ICC$_{municipality-wave}$ = 1.8%.; Item (iv): ICC$_{individuals}$ = 42.8%, ICC$_{municipalities}$ = 3.4%, ICC$_{municipality-wave}$ = 2.5%; Item (v): ICC$_{individuals}$ = 40.6%, ICC$_{municipalities}$ = 1.3%, ICC$_{municipality-wave}$ = 0.7%.; Item (vi): ICC$_{individuals}$ = 42.1%, ICC$_{municipalities}$ = 4.4%, ICC$_{municipality-wave}$ = 3.9%.

[6]It is important to note that using a conventional mean index on the three trust items leads to similar results as reported below.

[7]This data is either pre-merged into the NELLS data or was supplemented using the 2009 and 2012 versions of the "Wijk- en Buurtkaart" containing spatial data administered by the Central Bureau of Statistics of the Netherlands. Specifically, we used the following variables to compute proportions and absolute numbers of immigrants (and natives): P_MAROKKO, P_TURKIJE, P_ANT_ARU, P_SURINAM, P_OVER_NW, P_WEST_AL, as well as AANT_INW.

[8]As an example, consider two evenly-populated neighborhoods within a municipality with an overall minority population of 50 out of 100 individuals: if this population lives in a manner so as to be evenly distributed across the two neighborhoods (i.e., 25 in each), the resulting D value would be 0 (i.e., no segregation). However, if 10 minority members live in the first neighborhood, and 40 in the second, this would result in a D value of 0.6, while 50 minority members in one neighborhood, and 0 in the other would lead to a D value of 1 (i.e., full segregation).

[9]In cases in which a municipality consists of only one neighborhood, segregation scores are by definition zero. We excluded these cases from the empirical analysis. It is nonetheless important to note that leaving these municipalities in the analytical sample leads to very similar results, as reported below.

[10]The data on aggregated income also comes from the Wijk- en Buurtkaart. The income thresholds are predefined (variable P_LAAGINKP).

[11]The difference in the correlations across time points (0.22) is not statistically significant: $z = 1.008$, $p = 0.3137$ (Test of equality of two correlation coefficients).

and at leisure clubs with people of Turkish, Moroccan, and Surinamese background (for respondents of Dutch origin), and for an individual's contact in their neighborhood, at work, and at leisure clubs with Dutch people (for respondents of foreign origin)[12]. Discrimination is measured as negative experiences across a variety of occasions (i.e., application for job or internship; in the workplace; at school, in class; in the streets, in shops, on public transport; organizations, clubs, sports; and nightlife, nightclubs). We computed a dummy variable which takes a value of 1 if respondents report to have experienced discrimination in at least one of these areas (at least once in a while), and 0 if they report no experiences of discrimination.

We control for several individual and municipality level variables that potentially confound the relationship between segregation and trust. Specifically, we use age in years, occupational status (dummy variable, 1 = unemployment), income (household income before taxes, 16-point scale of income categories), and home ownership (dummy variable, 1 = owner). As macro-level control variables, we include proportions of foreign-born immigrants at the neighborhood level, and average income per capita at the municipality level. We present descriptive statistics on variables employed in the online appendix.

To distinguish neighborhoods with low versus high levels of ethnic minority concentration, we group-centered the neighborhood immigrant share variable at the corresponding municipality means. This allows high and low concentration neighborhoods to be identified in each municipality. In order to test hypotheses on the moderating relationship between ethnic segregation and concentration, we split the samples into high and low concentration neighborhoods, thereby avoiding the use of three-way interaction effects that are difficult to interpret. Note that centering at the overall mean (i.e., looking at high and low concentration neighborhoods that are not necessarily within the same municipality) leads to similar results, as reported below.

To summarize, ethnic segregation is measured at the municipality level using the dissimilarity index calculated across constituting neighborhoods, whereas ethnic concentration represents the share of immigrants at the neighborhood level.

Methods

In order to test our hypotheses, we first employ a four-level multilevel model where observations over time are nested within individuals, which are again situated in neighborhoods, and municipalities. Second, we use two-way (person and time) fixed effects models that include cluster-robust standard errors at the level of municipality-years to additionally account for clustering and heteroscedasticity. Fixed effects models produce

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[12]The recoded 7-point response scales of the single items range from 0 (never) to 6 (almost every day). We include this ordinal measure as a continuous predictor in the empirical models for the sake of parsimony. Using dummy variables instead leads to similar results, as reported below. Moreover, the survey also contains items on intergroup friendship. We argue that this measure is prone to a selection issue where trusting individuals systematically select into intergroup friendship, and thus we refrain from including it in our empirical models. It is nonetheless important to note that when all items on intergroup friendship are included in the models, all the main conclusions drawn remain intact.

more credible coefficient estimates as they control for all time-constant variations that may be unobserved, and confound the relationship under study (Allison, 2009). The person fixed effects simultaneously absorb all time-constant variations across municipalities, and the time fixed effects account for temporal trending in the outcome variable. Fixed effects models are a quite constrictive approach prone to wiping out the variation necessary to separate signal from noise. Hence, we employ both a flexible multilevel, and a fixed effects approach, and discuss similarities and differences.

It is noteworthy that (fixed effects) regression models assume a correct modeling of the causal order, and that reversed causality would bias estimates (Vaisey and Miles, 2017). We argue that a causal effect from segregation to trust is more realistic (than the other way around) given the pertinence of structural conditions responsible for determining patterns of residential segregation (Lesger and Van Leeuwen, 2011; Grigoryeva and Ruef, 2015). These include features of the physical environment (e.g., location within a city, buildings history, access to transportation), the distribution of employment opportunities, and historical patterns of ethnic diversity or immigrant concentration. Moreover, quasi-experimental evidence from the demolition of public housing demonstrates that changes in residential settings related to the presence of ethnic outgroups have a causal effect on political behavior and underlying social and political attitudes (Enos, 2016). Together, these arguments strengthen our confidence in the reasoning that segregation precedes social trust.

To map our theoretical framework, we present models separately for respondents of Dutch origin, as well as respondents of foreign origin. In addition, we present tests for high and low minority concentration settings separately.

RESULTS

Table 1 presents results from a cross-sectional multilevel model for minority respondents. The first column presents evidence for our main hypotheses. Accordingly, Model 1 shows a negative effect of ethnic segregation at the municipality level on social trust, supporting the reasoning of assimilationist arguments, which highlight the importance of interethnic contact in fostering social trust (H1). In terms of effect size, moving from the least to the most segregated municipalities is associated with a decrease of -0.38 in social trust (roughly half a standard deviation of the trust variable). Including indicators of intergroup contact and discrimination experienced in Model 2 leads to a reduction in the coefficient magnitude of ethnic segregation (now statistically not significant). This provides evidence that the included factors (especially intergroup contact) mediate the relationship between ethnic segregation and social trust. Including income and income segregation (Model 3) does not lead to a reduction but instead leads to an increase in the coefficient of segregation, which points to a suppression effect (i.e., segregation becomes more systematic for predicting social trust once differences in municipality economic status are accounted for). Apart from these core variables, we find negative (and statistically significant) associations for neighborhood

TABLE 1 | Four-level multilevel regression results respondents of foreign origin.

	(1) All neighborhoods	(2) All neighborhoods (with mediators)	(3) All neighborhoods (with mediators & economic status)	(4) Low concentration neighborhoods	(5) High concentration neighborhoods
Ethnic segregation (munic.)	−0.737*	−0.569	−0.732	−1.884*	−0.425
	(0.375)	(0.326)	(0.380)	(0.911)	(0.408)
Prop. immigrants (neigh.)	−0.008**	−0.008**	−0.009**	−0.015	−0.006
	(0.002)	(0.002)	(0.002)	(0.011)	(0.003)
Age	−0.010**	−0.009*	−0.009**	−0.003	−0.012**
	(0.004)	(0.003)	(0.004)	(0.006)	(0.004)
Contact with Dutch		0.047**	0.048**		
		(0.018)	(0.018)		
Discrimination		−0.072	−0.074		
		(0.045)	(0.045)		
Income	0.048**	0.048**	0.047**	0.039*	0.048**
	(0.011)	(0.010)	(0.010)	(0.016)	(0.014)
Unemployed	−0.137*	−0.112	−0.123*	−0.132	−0.167*
	(0.059)	(0.058)	(0.059)	(0.095)	(0.075)
House ownership	0.128*	0.122*	0.127*	0.173	0.099
	(0.059)	(0.059)	(0.059)	(0.096)	(0.075)
Av. income (munic.)			0.043		
			(0.036)		
Income segregation (munic.)			0.935		
			(0.704)		
Wave 2	0.045		−0.080	0.121	0.011
	(0.043)		(0.089)	(0.071)	(0.056)
Constant	3.194**	2.990**	2.174**	3.186**	3.163**
	(0.137)	(0.175)	(0.721)	(0.270)	(0.191)
Random effect municipality	0.188**	0.182**	0.183**	0.227**	0.145**
Random effect neighborhood	0.047	0.061	0.045	0.284**	0.000**
Random effect individual	0.494**	0.492**	0.491**	0.469**	0.461**
Residual	0.609**	0.607**	0.606**	0.556**	0.636**
$N_{Municipalities}$	26	26	26	21	17
$N_{Neighborhoods}$	140	140	140	68	72
$N_{Respondents}$	617	617	617	224	393
$N_{observations}$	1,234	1,234	1,234	448	786

Standard errors in parentheses. *$p < 0.05$, **$p < 0.01$ (two-sided test).

proportions of immigrants, age, and unemployment. In contrast, income and house ownership is positively (and significantly) related to social trust.

Models 4 and 5 re-estimate Model 1 for a subset of respondents in order to explore the differential association between ethnic segregation and social trust conditional on minority concentration at the neighborhood level. Contrary to hypotheses 1a and 1b, results show that residing in a neighborhood with low concentrations of immigrant residents is associated with considerably lower levels of social trust. For minority respondents living in neighborhoods of high minority concentration (Model 5), the results show a negative, yet compared to Model 4, smaller association that is, however, not statistically significant. Thus, instead of supporting assimilation arguments, these results are in line with H2a and H2b that

correspond to the immigration paradox—according to which exposure to the native population is accompanied with increasing potential for conflict.

We now turn to the results for native-born respondents reported in **Table 2**. The findings reported here do not provide evidence for H3 and H4. Instead, the coefficient estimate is indistinguishable from 0 ($b = -0.072$, $p = 0.804$). Consequently, an inclusion of potential mediator variables in Models 7 and 8 do not lead to a substantial change in the estimated relationship. In terms of control variables, we find that age and unemployment are negatively and statistically significantly related to social trust, while income and house ownership yield positive and significant associations. Looking at the relationship conditional upon neighborhood minority concentration (Models 9 and 10), we find that in neither low nor in high concentration environments is

TABLE 2 | Four–level multilevel regression results dutch respondents.

	(6) All neighborhoods	(7) All neighborhoods (with mediators)	(8) All neighborhoods (with mediators & economic status)	(9) Low concentration neighborhoods	(10) High concentration neighborhoods
Ethnic segregation (munic.)	−0.072	−0.064	−0.061	−0.209	0.089
	(0.291)	(0.291)	(0.286)	(0.344)	(0.552)
Prop. immigrants (neigh.)	0.001	0.001	0.000	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.006)	(0.005)
Age	−0.006*	−0.006*	−0.006*	−0.006	−0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)
Contact with non–native		−0.010	−0.010		
		(0.013)	(0.013)		
Income	0.035**	0.035**	0.034**	0.025**	0.052**
	(0.007)	(0.007)	(0.007)	(0.009)	(0.015)
Unemployed	−0.137*	−0.136*	−0.137*	−0.107	−0.166
	(0.068)	(0.068)	(0.068)	(0.073)	(0.170)
House ownership	0.202**	0.200**	0.198**	0.161*	0.211*
	(0.056)	(0.056)	(0.056)	(0.067)	(0.105)
Av. income (munic.)			0.032		
			(0.021)		
Income segregation (munic.)			0.757		
			(0.469)		
Wave 2	−0.005	−0.000	−0.081	0.008	−0.035
	(0.031)	(0.032)	(0.051)	(0.037)	(0.064)
Constant	3.308**	3.325**	2.716**	3.397**	3.124**
	(0.108)	(0.110)	(0.406)	(0.134)	(0.278)
Random effect municipality	0.127**	0.127**	0.101**	0.120**	0.095**
Random effect neighborhood	0.000**	0.000**	0.000**	0.074*	0.000**
Random effect individual	0.518**	0.518**	0.518**	0.530**	0.482**
Residual	0.472**	0.471**	0.472**	0.445**	0.537**
$N_{Municipalities}$	26	26	26	21	16
$N_{Neighborhoods}$	160	160	160	105	55
$N_{Respondents}$	795	795	795	595	200
$N_{observations}$	1,590	1,590	1,590	1,190	400

Standard errors in parentheses. *$p < 0.05$, **$p < 0.01$ (two-sided test).

a systematic relationship between ethnic segregation and social trust apparent in the data.

Supplementary Analyses

In addition to the cross-sectional multilevel models, we present findings from longitudinal fixed effects models in **Tables A6, A7** in the online appendix. The results show how changes in contextual ethnic segregation relate to changes in social trust. With reference to respondents of foreign origin, the general relationship between ethnic segregation and social trust (Model A1) is negative and highly significant, and again supports the assimilation view of segregation in that an increase in the level of ethnic segregation reduces social trust of minority individuals (H1). Here, neither changes in contact with Dutch individuals or discrimination (Model A2), nor average income or income segregation (Model A3) can systematically account for changes in social trust levels. In terms of maximum effect size, we see a social

trust level −0.51 lower in the most than in the least segregated areas of residence. Apart from segregation, individual income and age are systematically related to changes in social trust. Taken together, the fact that there is no systematic relationship between changes in interethnic contact and discrimination, as well as in income-related factors and changes in social trust, suggests that the theoretical mechanisms linking ethnic segregation to social trust can plausibly explain differences across, rather than within, individuals.

Models A4 and A5 replicate the results pattern found in the multilevel analyses. Here, the coefficient estimate in the low concentration setting is considerably higher than that found in the high concentration setting, although only the latter is statistically significant, which likely is due to the higher number of observations (and statistical power) in this group. Hence, also the longitudinal results provide evidence in support of H2a and H2b, and the integration paradox.

Looking at respondents of Dutch origin (**Table A7**), and just as in the multilevel models, we find no systematic relationship between ethnic segregation and social trust in general, as well as no systematic results pattern when comparing low and high concentration neighborhoods.

In a next step, we estimate empirical models for first and second generation immigrants. The results are presented in **Tables A8, A9** in the online appendix. While we find no systematic association for the first generation, the relationship is remarkably strong when looking at second-generation respondents (**Table A9**). Here, we find a strong negative association between segregation and trust, which is mediated particularly by discrimination. Moreover, we find strong evidence that the relationship is strongest in neighborhoods of low minority concentration (i.e., support for H2a and H2b).

Finally, we estimate models based on Moroccan and Turkish respondents (the two largest immigration groups in the Netherlands) and measures of neighborhood minority concentration based on proportions of the respective ingroup residing in a given geographical area (Moroccan or Turkish). The results are presented in **Tables A10, A11** in the online appendix and show similar patterns to those reported in the main models for Moroccan, but not Turkish respondents. The fact the social trust of Turkish respondents is unsystematically related to segregation suggests that this group exhibits similar patterns as in the native population. Nonetheless, additional research is needed to theoretically specify and test immigrant group differences when it comes to segregation effects.

CONCLUSION

In this article, we rely on high-quality data at the individual and contextual level to investigate, first, whether individuals living in highly segregated municipalities differ in their social trust from those living in less segregated context and, second, to what extent minority concentration (as a measure of exposure) moderates how ethnic residential segregation relates to social trust. We stated theoretical expectations separately for minority members and natives. Overall, our findings show a robust negative association between ethnic segregation and social trust for people of foreign origin. This overall pattern supports an assimilationist perspective on segregation and trust. However, looking at specific neighborhood conditions, we also find support for the so-called integration paradox: people of foreign origin are observed to hunker down (in terms of social trust) if they live in a generally segregated municipality and—at the same time—in a neighborhood with few co-residents of foreign origin.

Additional findings from models based on first and second generation immigrants, as well as mediator variables, complement the picture. The negative association between segregation and trust (which is re-enforced in low concentration neighborhoods) is driven by second generation immigrants. Moreover, experienced discrimination appears to critically mediate this relationship for this group. Essentially, this means that segregation decreases the social trust of people with foreign-born parents who are themselves born in the

Netherlands because they experience discrimination. This particularly occurs for those who live in contexts predominantly populated by Dutch natives, which quite accurately represents the integration paradox. According to this narrative, respondents with an immigration background feel less integrated because they are more exposed to natives and thus experience more discrimination and opportunity gaps compared to natives (Verkuyten, 2016; Schaeffer, 2019; Ziller and Heizmann, 2019).

That fact, that results are driven by second generation immigrants also points to another important aspect regarding the mechanisms underlying the purported relationships. What this result may show is that for mechanisms related to perceived discrimination to take hold, immigrants need to possess the cultural resources (e.g., linguistic skills) to decode discriminatory aspects of intergroup interactions in the first place—resources which are on average more prevalent among second generation compared to first generation individuals.

Results from longitudinal fixed effects models also corroborate how minority individuals living in more segregated municipalities express less social trust, by relating over-time changes in segregation with over-time changes in social trust. While the neighborhood context appears to moderate how ethnic segregation translates into social trust of immigrants, we at the same time, find from the multilevel models that the variation at the neighborhood level is quite small (compared to the individual or municipality level) once the municipality context is taken into account. This is a potential reason for why previous research which has focused on neighborhood effects using NELLS data has found only limited evidence for contextual effects (De Vroome et al., 2013).

In contrast to previous studies on segregation effects, which mainly focused on responses from the general population (Rothwell, 2012; Uslaner, 2012; Laurence, 2017), we find no indication for trust-erosion among the native Dutch population. This is in line with previous research, which finds no systematic association between ethnic diversity and social trust in the Netherlands (Tolsma et al., 2009; De Vroome et al., 2013). Apart from specific features of the Netherlands (e.g., population structure, institutional or historical factors), a possible reason is that the sample we use represents a rather young and urban population, the kind that is typically more cosmopolitan and pro-immigration compared to older and more rural segments of the population (Maxwell, 2019). However, even though we did not find any systematic evidence that ethnic segregation hampers the social trust of natives, this does not imply there are no effects on other dimensions relevant for intergroup relations, such as social distance or forms of social conflict.

Despite the careful empirical strategy we exercised, we nonetheless would like to suggest two avenues for future research on the social consequences of residential segregation. First, studying the group of respondents who moved neighborhoods or municipalities between survey waves would enable researchers to assess whether this group is indeed more sensitive to changes in contextual conditions, and whether the decision to move is a result of, or an indication of eroding social trust. This would also provide strong evidence in support of segregation being a causal factor in the decline of social trust (rather than vice

versa), which could not be empirically determined with certainty here, given that the panel data we use in this study comprises two waves only. Second, the advent of available register-based data opens the possibilities of measuring segregation in fine-grained and continuous ways which will additionally improve the examination of individual exposure to ethnic segregation.

DATA AVAILABILITY STATEMENT

Publicly available datasets were analyzed in this study. This data can be found here: https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:59831.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements.

AUTHOR CONTRIBUTIONS

CZ and CS designed research and wrote the paper. CZ performed research and analyzed data. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

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Contact to Natives Among Recent Turkish Migrants in Germany: Gender Differences and Potential Explanations

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Migrant men and women still differ extensively in their integration chances within receiving societies. Research suggests that next to educational discrepancies and traditional gender roles, migrant men benefit particularly from their contact to natives who facilitate the access to other relevant resources such as employment. However, we know actually very little about how recent migrant men and women build their social networks within receiving societies, how their networks differ, and why they potentially differ. In this paper I therefore study Turkish migrants in Germany within their first years after migration and the extent to which Turkish men and women differ in their likelihood to have contact to natives. Theoretically, I explore three main determinants for potential gender differences: Family influence, opportunity structure, and personal preferences. I thereby make use of the two-wave data from the "Social Cultural Integration Processes" Project (SCIP) which studies migrants within their first 3 years after migration. I find that after 3 years after migration Turkish women are not only more likely to report to have no contact to natives than Turkish men; Even if they do have contact, this contact occurs significantly less frequent among Turkish women than among Turkish men. Results suggest that Turkish women, who migrated for family reasons are exposed to the influence of the family in the receiving country, which is often found to govern social behavior. Also, compared to Turkish men, Turkish women are less likely to be employed which limits their opportunity to meet natives. Gendered preferences for contact to natives, however, do not explain why Turkish women have less contact to natives than Turkish men.

Keywords: gender differences, migrants, contact to natives, family influence, opportunity structure, preferences

INTRODUCTION

Migrant men and women still differ extensively in their integration chances within receiving societies, particularly with regards to labor market integration (Khoudja and Fleischmann, 2015; Ala-Mantila and Fleischmann, 2018). Research suggests that next to educational discrepancies and traditional gender roles, migrant men benefit particularly from their contact to natives who facilitate the access to other relevant resources such as employment. Studies suggest that men and women indeed differ in their social behavior (Moore, 1990) and that also among migrants social ties are created differently by men and women (Hagan, 1998; Curran et al., 2006; Martinović, 2013).

However, we know actually very little about how migrant men and women build their social networks within receiving societies, how their networks differ, and why they potentially differ.

In this contribution I study gender differences in contact to natives among Turkish migrants, who arrived only recently in Germany. Integration processes are path-dependent and inequalities at the beginning of migration cumulate over time (Fuller and Martin, 2012). Integration patterns within the first years of arrival require therefore special attention. Theoretically, I focus on Kalmijn's (1998) theoretical distinction of the following three main determinants of contact to natives: Family influence, opportunity structure, and preferences. Each of these dimensions are gendered and therefore likely to lead to different outcomes for migrant men and women with regards to contact to natives. First, migrant families govern social behavior of their family members, by supporting "good" ties and sanction perceived "bad" ties (Kalmijn, 1998). This process is gendered as migrant women are often exposed to gendered norms of social behavior within the family (Arends-Tóth and Van de Vijver, 2009; Röder and Mühlau, 2014), likely to promote co-ethnic contacts instead of contact to natives. Second, migrant women often have fewer opportunities to meet natives than migrant men due to limited access to relevant loci such as educational institutions or the work place (Kalmijn, 1998), but also due to lower language skills compared to migrant men (Haug, 2008). Third, literature suggests that migrant women might have weaker preferences for contact to natives than migrant men: Women generally express stronger preferences than men for close-knit social relations (Moore, 1990), which in the migrant context consist mainly of co-ethnic contacts rather than contacts to natives.

I test my assumptions using two-wave data from the German "Social Cultural Integration Processes" Project (SCIP) (Diehl et al., 2016), which was collected among others among Turkish migrants in Germany who migrated within the last 18 months upon the time point of the survey and who have been surveyed again after another 15 months. The data thereby captures a time period in migrants' migration experience which is crucial for their further integration chances into the receiving society (DiPrete and Eirich, 2006; DiMaggio and Garip, 2012; Fuller and Martin, 2012) and allows for cautious causality assumptions due to its panel structure.

I thereby compare three groups of migrants with each other: The first group indicates to spend almost never time with natives. The second group spends time with natives on a yearly or monthly basis and the third group even at a weekly or daily basis. My findings suggest that Turkish women and men differ quite extensively in their contact to natives. Around 3 years after migration, a significant share of Turkish women still has hardly any contact to natives. In addition, even if Turkish women do report to have contact to natives, they spend significantly less time with these natives than Turkish men. Results suggest that part of this gender difference can be explained by Turkish women being less likely to be employed than Turkish men which limits their opportunity to meet natives. Also, migrant women who migrate for family reasons are more exposed to the influence of the family in the receiving country. Migrant families are found to govern social behavior, particularly of their female family members (Parrado and Flippen, 2005). Gendered preferences for contact to natives, however, do not explain why Turkish women have less contact to natives than Turkish men. Last, but not least, this study shows that family migration is a strong barrier for female labor market participation, thereby hindering their social integration.

This contribution is structured as followed: After discussing the theoretical concept of contact with natives among migrants, I continue with describing the three main determinants by Kalmijn (1998) used to explain contact to natives: family influence, opportunity, and preferences. I then discuss how these factors are gendered and why we can expect different outcomes in contact to natives for migrant women and men, followed by a short discussion about how these factors are interrelated. This section is followed by a description of the data, measurements, and methods as well as the results of the analysis. The contribution finishes with a short summary and discussion of the main results and the societal implications of the findings.

THE IMPORTANCE OF CONTACT TO NATIVES

With reference to Granovetter's concept of strong and weak ties (Granovetter, 1973), the migrant literature distinguishes between bridging and bonding ties. Bonding ties exist between members of the same ethnic group and are characterized by high level of group solidarity and trust (Portes and Sensenbrenner, 1993), whereas bridging ties to natives "cut across the ethnic divide and as that span structural holes" within networks (Lancee, 2012, p. 29). Contact to natives are therefore considered as "bridges" to the native society. Particularly in the field of labor market integration, bridging ties have gained prominence as they increase the chances of employment, a higher income, and a higher occupational status (e.g., Kanas et al., 2011; Lancee, 2012; Seibel and Van Tubergen, 2013; Griesshaber and Seibel, 2015). However, contacts to natives are not only perceived beneficial in terms of better job opportunities; they lead to a stronger identity with the receiving country society (Vroome et al., 2014) and generate interpersonal trust among different ethnic groups as well as reinforce community ties, by interconnecting people of different backgrounds (Putnam, 1993, 2000).

The existing literature on determinants of contact to natives has mainly focused on strong ties such as inter-marriage (Harris and Ono, 2005; Carol, 2014, 2016) and friendship with natives (Martinović et al., 2011; Schacht et al., 2014; Smith et al., 2014)[1]. This focus is certainly justified as strong ties to natives signal the most intimate relation and represent one of the final stages of assimilation (Gordon, 1964). However, the lack of friendships to natives among migrants does not necessarily indicate a lack of integration as migrants can still hold frequent and friendly relations to natives without being close friends. In this contribution I am therefore more interested in migrants' general level of contact with natives as the absence of such

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[1]Strong ties stand in contrast to weak ties which are described as loose connections to a set of different individuals such as colleagues or acquaintances (Granovetter, 1973).

general contacts tells the even more important story: Migrants who report to have (almost) no contact to the native population do not just lack a native friend or a native spouse, they lack the most basic access to the receiving society, its people and culture. It is therefore crucial to study not only the emergence of strong ties to the native population, as done in previous research, but also to ask the simple question whether migrants have contacts with natives at all, and if so, at what intensity. I therefore focus on a looser definition of bridging ties, namely the frequency of time spend with natives, thereby following Lancee's (2012) conception of structural bridging ties of which the frequency of contact to the native population is a valid measurement.

In order to assess gendered dimensions of contact to natives I follow previous research and focus on Kalmijn's (1998) theoretical distinction between third party influence with a focus on the migrant family, opportunity structure, and preferences. I will first introduce these concepts, explaining how each of these factors impacts migrants' chances to engage in contact to natives. In a second step, I will further elaborate how these three dimensions are gendered and why we can therefore expect different outcomes in contact to natives for Turkish women than for Turkish men.

EMERGENCE OF CONTACT TO NATIVES: FAMILY INFLUENCE, OPPORTUNITY STRUCTURE, AND PREFERENCES

The extent to which migrants get in contact with the native population depends, according to Kalmijn (1998), on three main factors: Third party influences, opportunity structure, and individual preferences. So-called third parties influence the extent to which migrants create and maintain ties to the native population by supporting "good" ties and sanctioning perceived "bad" ties (Kalmijn, 1998; Pettigrew, 1998). In this context, previous research has particularly emphasized the relevance of migrant families in exerting influence on social contact building by enforcing cultural-based norms of social behavior (Parrado and Flippen, 2005; Martinović et al., 2011; Schaeffer, 2013; Carol, 2014; Schacht et al., 2014). I will therefore speak in the following specifically about family influence. Particularly in collectivistic cultures, norms of endogamy are transmitted within migrant networks, encouraging particularly contact to co-ethnics rather than natives (Kalmijn, 1998).

Previous research has studied several aspects of *family influence* on migrants' social behavior. Martinović et al. (2011) find that migrants who migrate or reunite with their family are more exposed to norms encouraging co-ethnic relations and therefore have fewer opportunities for inter-ethnic contact to natives than migrants who arrived in the receiving country for work or education. One of the reasons is that family migration often leads to immediate legal dependency on the family members already residing in the receiving country with regards to resident and work permit. This in turn increases the family's negotiation power and influence with regards to family members' social relationship building (Boyd and Grieco, 2003). Research suggests that particularly Turkish families prefer

co-ethnic contact over contact to natives. Carol (2014), for example, finds that Turkish parents exert strong influence on their children's friendship network composition with regards to ethnicity, favoring friendships to co-ethnics. Also, a co-ethnic partner decreases the likelihood of engaging in inter-ethnic friendships to natives compared to a native partner (Martinović et al., 2011). Hence, the likelihood of engaging in contact with the native population seems to be influenced by the presence of family within the host country.

Next to family influence, migrants need to have the opportunity to actually meet natives (Blau, 1977). Hence, depending on the *opportunity structure* within migrants' environment, migrants are more or less likely to get in contact with natives. Certain settings such as educational institutions and the workplace have thereby been identified as important loci for migrants to get in contact with the majority population (Kalmijn, 1998; Kalmijn and Flap, 2001; Mouw and Entwisle, 2006; Schroedter and Kalter, 2008). Hence, whereas previous research has mainly emphasized the importance of inter-ethnic contact for migrant labor market integration (for example, Kanas et al., 2011), the causal relation is likely to also go the other direction: Migrants who manage to find labor also increase their opportunities to get in contact to natives. Moreover, attending education in the host country has been found to lead to increasing contact with the native population (Kanas and Van Tubergen, 2009). Next to ethnic loci, language skills impact migrants' opportunity of getting in contact with natives. Host country language skills not only enable basic communication, they also decrease the social distance between ethnic groups (Bogardus, 1959; Portes and Rumbaut, 1996) which is an important predictor of inter-ethnic contact (Kashima and Loh, 2006).

Several studies have emphasized the significance of language for inter-ethnic contact. Martinović et al. (2009) find for the Netherlands, that migrants who speak the receiving country's language well develop more contact with the native population over time than migrants who lack these language skills. Lancee and Seibel (2014) also show for six European countries that language proficiency positively affects Turkish migrants' chances to receive visits from natives and Schacht et al. (2014) show for Germany that language skills increase the chance for inter-ethnic friendships between migrants of various backgrounds and natives.

Last but not least, individuals must have certain *preferences* for creating contact to a specific group. Most individuals prefer social relations with similar others (McPherson et al., 2001) with regards to the educational background, attitudes, but also ethnic background (Kalmijn, 1998). Research therefore suggests that migrants are likely to prefer co-ethnic contact over contact to natives, since the shared cultural background is also associated with shared values, resources, and tastes (Smith et al., 2014).

GENDER DIFFERENCES

Since integration is a path-dependent process, already small gender inequalities within the first years of migration are likely to lead to larger gender gaps later in life. It is therefore

important to understand how and why migrant men and women differ in their contact with natives within the first years after migration. Each of the dimensions mentioned above, family influence, opportunity structure, and preferences, are gendered and likely to lead to different outcomes for migrant women than for migrant men. With regards to family influence, research suggests that migrant women's likelihood of engaging in contact to natives is more strongly influenced by their families compared to male migrants. The mechanism is two-fold: First, norms of social behavior transmitted within migrant families are often gendered and promote co-ethnic contacts, while discouraging contact to natives, more strongly for women than for men (Arends-Tóth and Van de Vijver, 2009; Diehl et al., 2009; Röder and Mühlau, 2014). One of the reasons seems that Turkish women are often perceived a cultural transmitters by their families (Kalmijn and Van Tubergen, 2010), a notion that is found to be manifested and enforced by the migration process itself, which is often experienced as a disruptive intervention and therefore strengthens the desire for maintaining cultural traditions. As a consequence, "women's roles become the "bastion" of continuity and tradition by idealizing gender behavior" (Parrado and Flippen, 2005, p. 611). This is particularly true if women have frequent contact with their migrant family within the host country, as Parrado and Flippen (2005) show, since migrant families "add to women's domestic responsibilities, tend to reinforce more traditional family values, or are disproportionately skewed toward the husband's side of the family" (p. 628). Such a focus on maintaining the home country's culture might explain why, for example, Turkish women and daughters are more strictly monitored than men and sons (Idema and Phalet, 2007) in terms of, for example, partner choice (Carol, 2014), favoring co-ethnic partners over native partners.

Second, migrant women are more likely to select into migrant families within the receiving country than migrant men. This has, among others, to do with gendered differences in migration motives: Among migrant women in Germany, the dominant migration motive is family reunification, whereas a significant share of migrant men migrate alone in order to seek employment BAMF (2014). Although in the Turkish community the family is also an important pull factor for male migrants, women are still more affected. Turkish women therefore often immediately fall into the family's arms and are as a consequence often being "classified by their relation to men..." (Boyd and Grieco, 2003, p. 5). Because Turkish women are more likely to migrate to the receiving country for family reasons than Turkish men, they are more likely to be exposed to the social influence of their migrant families who, as discussed above, generally favor co-ethnic contact for their female family members over contact to natives. As a consequence, one can expect that Turkish women might be less likely to engage in contact to natives than Turkish men.

Gender differences are also found with regards to migrants' opportunity to meet and establish contact to natives. First, employment rates are significantly lower among migrant women than migrant men, particularly for third-country nationals such as Turkish migrants (Kogan, 2006). As a consequence, migrant women often miss one of the most important loci for meeting

natives, namely the workplace (Hagan, 1998). This gender gap in employment opportunities can be explained by two main factors: First, female migrants remain responsible for care-taking activities at home such as child rearing (Parrado and Flippen, 2005). Secondly, and this relates to the first point: Migrant families often decide to invest first and foremost into men's human capital in the form of job-seeking or language acquisition since male family members are expected a higher pay-off on the labor market (Van Tubergen and Kalmijn, 2008), due to their higher skill level (Tansel, 2002; Gündüz-Hosgör and Smits, 2006). This human capital investment gap might also explain why Turkish women in Germany possess lower language skills than male Turkish migrants (Haug, 2008). Hence, we can assume that Turkish women are less likely to engage in contact to natives than Turkish men because they lack the opportunities to meet and engage with natives.

Last but not least, migrant men and women might also differ in their personal preferences to engage in contact to natives. Studying gender differences in formal participation in associations, Inglehart and Norris (2003) show that women tend to spend more time with their family and immediate relatives (strong ties) than men, independently from other factors such as their opportunity structure. Women generally seem to prefer small networks characterized by high levels of trust (Burt, 1998). Translated to the context of migration one can assume that migrant women might prefer social interaction within kin-based and trusted co-ethnic networks (Portes and Sensenbrenner, 1993) whereas migrant men also seek contact outside of the family or co-ethnic community.

Another aspect supporting this assumption can be found in the argument that preferences for certain social relations are also shaped by the perceived value of these contacts. If certain contacts enable the achievement of set goals than these contacts can be preferred over others (Schroedter and Kalter, 2008, p. 361). Migrant men and women might differ in what they perceive as valuable in a contact. Since migrant men are often interested in finding adequate employment in order to improve their family's living conditions, migrant men might have stronger preferences for contact to natives who are assumed to possess more information about the labor market, both in quantity and quality (Behtoui, 2008; Kanas et al., 2009; Lancee, 2012), and are better informed about job openings (Mouw, 2002). Turkish women are often not expected to enter the labor market and therefore might be less interested in inter-ethnic relations than men. Rather, Turkish women might prefer kin-based relations which are characterized by trust. Indeed, research in the Netherlands shows that Turkish women express stronger preferences for co-ethnic relations than Turkish men which leads to fewer interactions with the native population (Martinović, 2013).

Of course, we have to take into account that these three factors opportunity, family influence, and preferences are not independent and we can think of numerous possibilities how these factors influence each other. However, I would like to analyse their interdependence from the lens of path-dependency, arguing that particularly for migrant women, it matters whether they migrate to Germany for family reasons or not. The presence

or absence of the migrant family at the beginning of migration is likely to impact migrant women's chances of employment but also formation of preferences. Families might influence the likelihood of migrant women participating on the labor market. Strong believes about traditional gender roles within a family, for example, might hinder newly arrived women to put effort into finding employment. Similarly, the need to learn the host country language might be less prevalent if the migrant family is present, particularly for women, who do not intend to enter the labor market. In addition, as argued above, migrant families might influence migrant women's investment in language skills since preference is given to male family members who are expected to provide for their family by entering the German labor market (Van Tubergen and Kalmijn, 2008). In addition, Migrants' preferences for contact with natives, e.g., are likely to be influenced by their family's norms of cultural interaction. This might be particularly true for migrant women who, as discussed above, are considered the "bastion" of culture (Parrado and Flippen, 2005). Migrant women might therefore adapt their preferences to the expectations their families have regarding their social behavior. I therefore expect family migration to influence migrants' chances of contact with natives, particularly for Turkish women, and that the effect of family migration is mediated by (Turkish women's) chances of having the opportunity to meet natives and preferences for contact with natives.

DATA, MEASUREMENTS, AND METHODS

Data

The analyses of this study are based on the two-wave data derived from the "Social Cultural Integration Processes" Project (SCIP) (Diehl et al., 2016). The data was collected via Computer Assisted Personal Interviews (CAPI) within both waves, combined with Computer Assisted Telephone Interviews (CATI) in the second wave. The Survey was conducted in the years 2010 and 2011, inter alia, among migrants from Turkey who migrated within the last 18 months to Germany, with a follow-up survey around 1.5 years later. For most migrants, little physical contact to Germany existed before migration. Over 80% of the respondents indicated that they have never visited Germany longer than 4 weeks before migrating to Germany.

All interviews were conducted in Turkish. The sample was randomly drawn from the population registers of five large cities (Berlin, Hamburg, Munich, Cologne, and Bremen). In total, 580 Turkish migrants between the age of 18 and 60 were interviewed in both waves (please see Gresser and Schacht 2015 for detailed description of the methodological setup of the project). After deleting missing cases on either the dependent or independent variables, 384 cases were left for the analyses.

This data is therefore one of the few that look at the socio-cultural integration of migrants, who only recently migrated to the host society. If we know what factors drive inequalities in the social integration of migrant men and women within the first years after migration, appropriate measures could possibly still be effective. Moreover, the data consists of two waves; all independent variables are taken from the first wave whereas the dependent variable is taken from the second wave. Although

we cannot make clear statements regarding the causality of dependent and independent variables, the data certainly provides a better insight into the causal link between integration concepts than cross-sectional data.

Measurements

Respondents were asked in both waves "How often do you spend time with people from Germany?" with answer categories ranging from 1 to 6 (1 "Never," 2 "less often," 3 "several times a year," 4 "few times a month," 5 "several times a week," 6 "every day"). I regrouped the six categories into the following three: 1 ("never" and "less often") 2 ("several times a year" and "a few times a month") and 3 ("several times a week" and "every day"). Respondents who fall into the first category are particularly interesting since they indicate to have almost no contact to the native population. The outcome variable was taken from the second wave, whereas all independent variables are taken from the first wave.

Family influence is measured as follows: First, respondents were asked about their migration motive: "There are different reasons for moving to Germany. Why did you move?" Respondents could choose multiple answers: For work, education, marriage, joined other family member, moved together with family members, political reasons, and other reasons. This variable unfortunately does not reflect migrants' legal status, but the motive only. Since I am interested in the impact of the family, I regroup all migrants who mentioned, among others, marriage or family members as their migration motive, since this indicates the presence of the family in the host country (1). Migrants who did not mention family but work, education, political reasons or other reasons were regrouped to one category (0). In addition, I look at whether respondents report to have a partner with migration background. Respondents were asked whether they live with a partner and whether this partner was born in Germany or outside of Germany. I created a dichotomous variable with the outcomes migrant partner (1) and native partner/no partner (0). Of course, substantial differences might be present between migrants who have a native partner or no partner at all. However, particularly among migrant women only very few do not have a partner. Moreover, this coding allows me to study my main interest, namely whether migrants experience an influence from their migrant family. We still have to consider, though, that this measurement does not reveal whether partners born in Germany have a migration background themselves. I still refer to this group as "natives," as they have been socialized in Germany and are likely to differ in many dimensions from people who have not been born in Germany.

Opportunity measures include employment status, language skills, and education received in Germany. Respondents were asked about their current main activity (1 = Employed, 0 = unemployed, 3 = in education, 4 = sick, 5 = retired, 6 = at home, 7 = other). Due to the general low number of cases and because I am mainly interested in the relation of labor market participation and contact with natives I created a dichotomous variable with 1 (= working) and 0 (= Not working). Respondents' language skills were operationalized by taking the mean of speaking, writing,

understanding, and reading the host country's language (0 = very bad to 1 = very good). Respondents were also asked whether they have received education in Germany (0 = No, 1 = Yes, primary education, 2 = yes, lower/higher secondary education, 3 = yes, tertiary education). Since only a limited number of Turkish migrants attended education in Germany at all, I regrouped the variable into 0 (No education in Germany) and 1 (yes, received education in Germany). Moreover, respondents who indicated as main activity "in education" were also coded 1 for receiving education in Germany.

Respondents are also asked about their *preferences* regarding their social life by answering to the statement "I prefer social activities which involve 1 = both, people from receiving country (RC) and country of origin (CO); 2 = RC people only; 3 = CO people only; 4 = neither." Since I am mainly interested in whether migrant men and women differ in their preferences for contact with natives, I regrouped these four categories into two categories with the outcomes 1 (prefer social activities that involve both 'people from RC and CO' or 'RC people only') and 0 (preference for social activities involving 'CO people only' or 'neither').

I further control for whether respondents have stayed in Germany for longer than 4 weeks before migrating to Germany (0 = No; 1 = Yes), their length of stay (in months), whether they have children (0 = no children; 1 = children), age, religiosity (1 = very religious to 4 = not religious at all), and for the respondents' highest education within the country of origin (1 = no/primary education, 2 = secondary education, 3 = tertiary education). Last, but not least, do all models contain the variable 'contact with natives' from the first wave [again with the three categories: 1 ("never" and "less often") 2 ("several times a year" and "a few times a month") and 3 ("several times a week" and "every day")] in order to adjust for any bias resulting from social interaction within the first months after arrival.

Method

The outcome variable consist of three categories and results are based on multinomial logistic regression analyses and presented as relative risk ratios (rrr). In principle, the categories are ordered which would call for ordered logistic regression. However, I am particularly interested in the group of migrants who indicate that they never or very rarely spend time with natives and how this group relates to migrants who report more frequent interaction with natives. Multinominal logistic regression allows for such comparisons and form the first step of the analyses. In a second step, I examine the extent to which the effect of gender is mediated by the trias family influence, opportunity, and preferences. This is the case if gender has a significant effect on the mediator in question and if the indirect effect of gender via the mediator is significant. I therefore estimate the effect of gender on each mediator variable (see **Table 5**) and, in a third step, conduct a decomposition analysis using the Karlson-Holm-Breen (KHB) method (see **Table 6**), which is developed for binary and logit probit models, but can also be applied to other non-linear probability models such as multinominal regression. The KHB thereby provides an unbiased decomposition of the total effect into a direct and an indirect effect (Kohler and Karlson, 2010).

Last, but not least, I study the interplay between family influence, opportunity, and preferences separately for Turkish men and women. I am particularly interested in whether migrant families influence migrant women and men's opportunity to meet natives as well as their preferences. Again, the analyses follow these three steps: First, I examine the direct effects of these variables on contact with natives using multinominal logistic regression analyses. Then I estimate the effect of the migrant family on opportunity and preferences followed by the KHB decomposition analysis.

Results are presented in the following order: Discriptives are to be found in **Table 1** and main results in **Tables 2–4**. Estimations of the effect of the main independent variable on potential mediators are presented in **Tables 5**, **6** presents the results of the KHB decomposition analyses.

RESULTS

Figure 1 presents the percentages of Turkish migrant women and men who report to have no to hardly any contact to natives. Three years after migration, over 36% of Turkish women report that they spend no to hardly any time with natives, compared to 18% of Turkish men. Gender differences can also be found among those, who report to have at least some contact to natives: Almost 70% of Turkish men report that they spend time with natives on a weekly or daily basis, which is only the case for 44% of Turkish women. These descriptives therefore suggest that Turkish women are not only less likely to have contact to natives in the first place; once contact is established, Turkish women report lower frequencies of contact than Turkish men.

Table 1 presents further descriptives for Turkish women and men, distinguishing between those who report to spend hardly any time with natives (no contact), those migrants who report to spend time with migrants on a yearly or monthly basis and those who spend time with natives on a weekly or daily basis. The large majority of both men and women migrated to Germany for family reasons, though the numbers are higher for Turkish women. Also, among all three groups, the majority of Turkish women indicates to have a migrant partner, which is less the case for Turkish men.

Stronger differences between Turkish men and women are found with regards to employment. Among migrants who hardly spend any time with natives, only 7% of Turkish women are employed compared to 37% of Turkish men. Among those who spend time with natives on a weekly or daily basis, already 20% of Turkish women are employed, compared to 41% of Turkish men. Language skills are quite evenly distributed between men and women with the exception of migrants who hardly spend any time with natives. In this group, men report better language skills than women. Also, education in Germany has been followed by only 13% of Turkish women and 18% of Turkish men in the group who spends hardly any time with natives compared to 37 and 36%, respectively among those who spend time with natives on a weekly or daily basis. Regarding preferences, the majority of both, women and men, indicate to prefer spending time with German natives, though no gender-related pattern is observable

TABLE 1 | Descriptives of main independent variable and control variables, by time spend with natives and gender.

| | (Almost) never | | | | Yearly/monthly | | | | Weekly/daily | | | | | |
| | Women | | Men | | Women | | Men | | Women | | Men | | | |
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Min	Max
Reason for migration: Family	0.97		0.89		0.85		0.63		0.72		0.72		0	1
Migrant partner	0.59		0.53		0.56		0.44		0.51		0.28		0	1
Employed	0.07		0.37		0.09		0.22		0.20		0.41		0	1
Language skills	2.08	0.55	2.28	0.56	2.35	0.66	2.32	0.63	2.42	0.59	2.37	0.58	1	4
Education in RC	0.13		0.18		0.29		0.15		0.37		0.36		0	1
Preferences for contact with natives	0.80		0.76		0.94		0.89		0.85		0.91		0	1
Contact with natives $_{t-1}$														
(Almost) never	0.54		0.47		0.35		0.33		0.25		0.10		0	1
Yearly/monthly	0.11		0.18		0.24		0.22		0.11		0.07		0	1
Weekly/daily	0.34		0.34		0.41		0.44		0.64		0.83		0	1
Length of stay (months)	28.93	4.99	28.13	5.23	25.76	5.61	27.56	6.08	26.35	5.28	26.97	5.32	18	40
Previous stay in RC	0.11		0.26		0.09		0.26		0.25		0.24		0	1
Highest level of education in CO														
No/primary education	0.38		0.29		0.15		0.11		0.23		0.09		0	1
Secondary education	0.34		0.39		0.47		0.41		0.32		0.38		0	1
Tertiary education	0.28		0.32		0.38		0.48		0.45		0.52		0	1
Children (=yes)	0.34		0.37		0.18		0.41		0.23		0.26		0	1
Religiousity	2.13	0.88	2.68	0.93	2.41	1.05	2.41	1.08	2.52	1.06	2.61	0.90	1	4
Age	30.41	7.70	32.03	7.94	29.09	6.67	32.22	8.02	29.95	7.28	29.57	6.74	19	60
N	61		38		34		27		75		151			
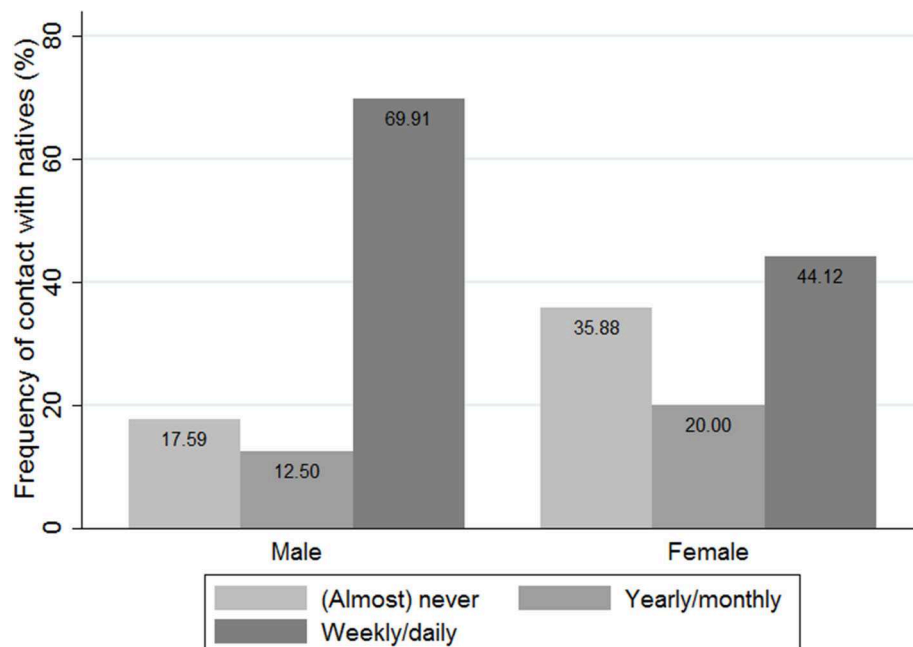
FIGURE 1 | Frequency of contact with natives (%), by gender.

across the three groups. Last but not least, in all three groups Turkish men are higher educated, slightly older and less religious than Turkish women.

The descriptive statistics already indicate gender differences in contact to natives. In the following I examine potential explanations for this gender gap. I conduct a multinominal

TABLE 2 | Multinominal Logistic Regression Analysis (Relative Risk Ratio): Impact of gender, family influence, opportunity, and preferences on time spend with natives.

	(Almost) never vs. weekly/daily					Yearly/monthly vs. weekly/daily				
	A1	B1	C1	D1	E1	A2	B2	C2	D2	E2
Gender: Female	2.37**	2.33**	2.06*	2.38**	2.11*	2.21*	2.19*	1.81+	2.18*	1.72+
	(3.10)	(2.85)	(2.50)	(3.11)	(2.38)	(2.55)	(2.51)	(1.79)	(2.49)	(1.65)
Reason for migration: Family		3.12*			2.24		0.72			0.36*
		(2.28)			(1.58)		(−0.82)			(−2.22)
Migrant Partner		1.01			0.99		1.28			1.47
		(0.04)			(−0.02)		(0.71)			(1.06)
Employed			0.53+		0.61			0.36*		0.25**
			(−1.81)		(−1.38)			(−2.52)		(−3.15)
Language Skills			0.81		0.78			1.32		1.34
			(−0.83)		(−0.95)			(0.98)		(1.05)
Education in RC			0.38*		0.45*			0.48+		0.34*
			(−2.56)		(−2.06)			(−1.93)		(−2.42)
Preferences for contact with natives				1.07	1.17				2.86+	2.93+
				(0.15)	(0.33)				(1.82)	(1.77)
Contact with natives$_{t-1}$: (Almost) never (=ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yearly/monthly	0.58	0.55	0.64	0.57	0.59	1.31	1.35	1.29	1.06	1.09
	(−1.19)	(−1.27)	(−0.92)	(−1.21)	(−1.05)	(0.57)	(0.64)	(0.53)	(0.12)	(0.17)
Weekly/daily	0.18***	0.18***	0.20***	0.17***	0.20***	0.29**	0.30**	0.28***	0.22***	0.22***
	(−5.53)	(−5.42)	(−4.71)	(−5.11)	(−4.41)	(−3.21)	(−3.04)	(−3.31)	(−3.84)	(−3.68)
Length of stay in months	1.06*	1.05*	1.05*	1.05*	1.05*	0.98	0.99	0.98	0.99	0.98
	(2.28)	(2.09)	(2.10)	(2.24)	(2.03)	(−0.51)	(−0.46)	(−0.72)	(−0.42)	(−0.57)
Previous stay in RC	0.87	1.06	1.01	0.88	1.13	0.65	0.61	0.67	0.64	0.58
	(−0.39)	(0.15)	(0.03)	(−0.36)	(0.31)	(−1.14)	(−1.21)	(−0.95)	(−1.14)	(−1.21)
Highest education in CO: none/primary (=ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Secondary education	0.58	0.60	0.57	0.58	0.59	1.73	1.69	1.75	1.88	1.85
	(−1.38)	(−1.29)	(−1.44)	(−1.39)	(−1.34)	(1.03)	(0.98)	(1.05)	(1.15)	(1.09)
Tertiary education	0.40*	0.52	0.43*	0.40*	0.51	1.31	1.21	1.45	1.38	1.27
	(−2.26)	(−1.60)	(−2.15)	(−2.27)	(−1.64)	(0.52)	(0.36)	(0.72)	(0.61)	(0.43)
Children (=yes)	0.99	0.95	0.78	0.99	0.80	0.95	0.92	0.83	0.95	0.76
	(−0.05)	(−0.16)	(−0.71)	(−0.03)	(−0.65)	(−0.13)	(−0.23)	(−0.47)	(−0.14)	(−0.68)
Religiosity	0.99	1.03	1.04	0.99	1.04	0.93	0.93	0.92	0.91	0.87
	(−0.07)	(0.18)	(0.27)	(−0.08)	(0.29)	(−0.47)	(−0.47)	(−0.51)	(−0.55)	(−0.78)
Age	1.02	1.01	1.01	1.02	1.01	1.02	1.02	1.03	1.02	1.02
	(0.97)	(0.57)	(0.59)	(0.93)	(0.46)	(1.11)	(0.83)	(1.12)	(1.05)	(0.96)
N	386	386	386	386	386	386	386	386	386	386
Pseudo–R2	0.1380	0.1492	0.1607	0.1438	0.1798	0.1380	0.1492	0.1607	0.1438	0.1798

Relative Risk Ratio; t statistics in parentheses.
*+p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.*

logistic regression and compare migrants who indicated to (almost) never spend time with natives (group 1) and migrants who indicated to spend time with natives on a yearly/monthly basis (group 2) with those migrants who indicated that they spend time with natives on a weekly or daily basis (group 3). I start by examining the gender difference between migrants who have hardly any contact with natives (group 1) compared to migrants who interact with natives very frequently (group 3). Relative risk ratio's (rrr) are presented in **Table 2** (model A1 to E1), the effect of gender on the mediator variables

in **Table 5** and the significance of decomposition analyses in **Table 6**. Migrant women have a 2.37 higher relative risk than men to almost never spend time with natives (model A1). Following Kalmijn et al.'s distinction between family influence, opportunity structure, and preferences, I continue examining this gender effect. First, one can assume that Turkish women are more likely to have no contact to natives due to their stronger embeddedness within their migrant family, which prefers co-ethnic contact over contact to natives for their female family members. In model B1, I therefore examine the potential mediating effect of partnership

TABLE 3 | Multinominal Logistic Regression Analysis (Relative Risk Ratio): Impact of family influence, opportunity and preferences on time spend with natives, female sample.

	(Almost) never vs. weekly/daily					Yearly/monthly vs. weekly/daily				
	F1	G1	H1	I1	J1	F2	G2	H2	I2	J2
Reason for migration: Family	7.41*	9.62**	4.77+	7.29*	6.67*	1.62	1.55	1.28	1.53	0.93
	(2.33)	(2.62)	(1.82)	(2.30)	(2.11)	(0.70)	(0.62)	(0.32)	(0.59)	(−0.09)
Migrant Partner		0.42+			0.38+		1.11			1.56
		(−1.70)			(−1.93)		(0.22)			(0.90)
Employed			0.39		0.41			0.52		0.40
			(−1.44)		(−1.29)			(−0.77)		(−1.05)
Language Skills			0.53		0.45+			1.18		1.18
			(−1.62)		(−1.88)			(0.39)		(0.37)
Education in RC			0.52		0.46			0.83		0.71
			(−1.21)		(−1.48)			(−0.33)		(−0.57)
Preferences for contact with natives				1.38	1.43				5.34+	6.05+
				(0.52)	(0.55)				(1.89)	(1.87)
Contact with natives$_{t-1}$: (Almost) never (=ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yearly/monthly	0.55	0.44	0.63	0.52	0.48	2.23	2.42	2.10	1.82	1.99
	(−0.88)	(−1.22)	(−0.67)	(−0.95)	(−1.10)	(1.18)	(1.23)	(1.10)	(0.89)	(1.03)
Weekly/daily	0.37*	0.30**	0.55	0.34*	0.42	0.48	0.52	0.47	0.34+	0.39
	(−2.38)	(−2.74)	(−1.25)	(−2.36)	(−1.64)	(−1.35)	(−1.19)	(−1.39)	(−1.92)	(−1.64)
Length of stay in months	1.08*	1.08*	1.08*	1.08*	1.09*	0.97	0.97	0.96	0.97	0.96
	(2.04)	(2.09)	(2.04)	(2.03)	(2.07)	(−0.77)	(−0.74)	(−0.83)	(−0.63)	(−0.72)
Previous stay in RC	0.72	0.73	0.91	0.70	0.96	0.33+	0.32+	0.33+	0.29*	0.25*
	(−0.59)	(−0.53)	(−0.16)	(−0.65)	(−0.07)	(−1.75)	(−1.89)	(−1.69)	(−1.98)	(−2.18)
Highest education in CO: none/primary (=ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Secondary education	0.72	0.72	0.68	0.72	0.63	2.00	1.94	2.04	2.14	2.01
	(−0.67)	(−0.66)	(−0.74)	(−0.67)	(−0.86)	(1.06)	(1.03)	(1.07)	(1.11)	(1.04)
Tertiary education	1.06	0.92	0.98	1.06	0.82	1.65	1.59	1.76	1.81	1.96
	(0.12)	(−0.15)	(−0.05)	(0.11)	(−0.36)	(0.72)	(0.67)	(0.80)	(0.81)	(0.90)
Children (=yes)	1.05	1.43	0.89	1.05	1.21	0.68	0.64	0.71	0.64	0.55
	(0.11)	(0.71)	(−0.23)	(0.11)	(0.35)	(−0.64)	(−0.73)	(−0.52)	(−0.73)	(−0.89)
Religiosity	0.89	0.91	0.89	0.89	0.93	1.03	1.03	0.97	1.04	0.97
	(−0.57)	(−0.44)	(−0.55)	(−0.54)	(−0.31)	(0.10)	(0.10)	(−0.10)	(0.15)	(−0.12)
Age	0.99	1.00	0.99	0.99	1.00	0.99	0.99	1.00	0.99	0.99
	(−0.29)	(0.11)	(−0.30)	(−0.33)	(−0.07)	(−0.27)	(−0.30)	(−0.11)	(−0.35)	(−0.38)
N	170	170	170	170	170	170	170	170	170	170
R2	0.1254	0.1366	0.1463	0.1388	0.1768	0.1254	0.1366	0.1463	0.1388	0.1768

Exponentiated coefficients; t statistics in parentheses.
*+p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.*

status and migrants' migration motive (whether family was the main motive), both factors expected to increase family influence on migrants' social behavior. However, the gender effect hardly changes between model A1 and B1. In **Table 5** we see that gender indeed has no effect on the likelihood to migrate to Germany for family reasons, but that women are significantely more likely to have a migrant partner then men. However, the decomposition analysis (**Table 6**) shows that the indirect effect of gender on contact with natives via family migration and migrant partner is not significant (KHB $p = 0.592$). However, two points should be noted here. First, family migration and partnership status are highly correlated. Once, partnership is taken out of

the model, family migration becomes significant (rrr = 3,10, $p = 0.023$; not presented in table); this is not surprising as most migrants who migrate for family reasons are married with the majority of migrant women being married to partners with a migration background, whereas Turkish men also being engaged with native partners. I will come back to this observation when estimating the effects of opportunity, preferences, and family influence separately for Turkish women and men (**Tables 4, 5**). Second, the effect of family migration does mediate the relationship between gender and the relative risk of spending almost no time with natives if the measurement contact with natives$_{t-1}$ is taken out of the model. This suggests that family

TABLE 4 | Multinominal Logistic Regression Analysis (Relative Risk Ratio): Impact of family influence, opportunity and preferences on time spend with natives, male sample.

	(Almost) never vs. weekly/daily					Yearly/monthly vs. weekly/daily				
	K1	L1	M1	N1	O1	K2	L2	M2	N2	O2
Reason for migration: Family	1.94	2.06	1.73	2.04	1.71	0.36*	0.36+	0.06***	0.37+	0.06***
	(1.10)	(1.23)	(0.90)	(1.21)	(0.88)	(−1.96)	(−1.91)	(−3.72)	(−1.87)	(−3.66)
Migrant Partner		2.85*	2.85+	2.84*	2.85+		1.51	1.54	1.50	1.51
		(1.99)	(1.95)	(1.99)	(1.95)		(0.72)	(0.77)	(0.73)	(0.72)
Employed			0.69		0.69			0.08***		0.08***
			(−0.68)		(−0.69)			(−3.65)		(−3.63)
Language Skills			0.96		0.98			1.73		1.65
			(−0.09)		(−0.06)			(1.28)		(1.17)
Education in RC			0.50		0.50			0.07***		0.07***
			(−1.06)		(−1.06)			(−3.41)		(−3.41)
Preferences for contact with natives				0.90	0.97				2.21	1.81
				(−0.16)	(−0.05)				(0.99)	(0.72)
Contact with natives$_{t-1}$: (Almost) never (=ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yearly/monthly	0.44	0.49	0.53	0.51	0.54	0.72	0.74	0.66	0.59	0.57
	(−1.21)	(−1.04)	(−0.89)	(−0.94)	(−0.83)	(−0.50)	(−0.46)	(−0.57)	(−0.77)	(−0.73)
Weekly/daily	0.08***	0.07***	0.07***	0.08***	0.07***	0.14***	0.14***	0.10***	0.11***	0.08***
	(−5.08)	(−4.75)	(−4.49)	(−4.11)	(−3.99)	(−3.48)	(−3.50)	(−3.99)	(−3.81)	(−3.93)
Length of stay in months	1.02	1.01	1.01	1.01	1.01	1.03	1.02	1.03	1.03	1.03
	(0.65)	(0.27)	(0.19)	(0.24)	(0.17)	(0.61)	(0.50)	(0.63)	(0.54)	(0.66)
Previous stay in RC	1.60	1.95	2.13	1.94	2.12	1.01	1.06	0.96	1.11	0.99
	(0.79)	(1.07)	(1.22)	(1.06)	(1.19)	(0.01)	(0.09)	(−0.06)	(0.17)	(−0.01)
Highest education in CO: none/primary (=Ref.)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Secondary education	0.31+	0.25+	0.25*	0.25+	0.24*	0.89	0.82	0.98	0.92	1.02
	(−1.86)	(−1.90)	(−2.01)	(−1.95)	(−2.05)	(−0.14)	(−0.24)	(−0.02)	(−0.10)	(0.02)
Tertiary education	0.18*	0.16*	0.17*	0.16*	0.16*	0.64	0.60	0.46	0.63	0.47
	(−2.52)	(−2.40)	(−2.33)	(−2.41)	(−2.35)	(−0.57)	(−0.64)	(−0.87)	(−0.57)	(−0.83)
Children (=yes)	0.74	0.73	0.63	0.73	0.64	1.59	1.60	1.38	1.63	1.35
	(−0.63)	(−0.62)	(−0.84)	(−0.63)	(−0.83)	(0.88)	(0.89)	(0.56)	(0.92)	(0.53)
Religiosity	1.09	1.00	1.03	1.01	1.03	0.77	0.77	0.74	0.74	0.72
	(0.42)	(0.02)	(0.12)	(0.07)	(0.15)	(−1.11)	(−1.12)	(−1.08)	(−1.26)	(−1.16)
Age	1.03	0.99	0.99	0.99	0.99	1.04	1.02	1.05	1.02	1.05
	(0.85)	(−0.28)	(−0.35)	(−0.28)	(−0.36)	(1.51)	(0.72)	(1.21)	(0.63)	(1.12)
N	216	216	216	216	216	216	216	216	216	216
R2	0.1843	0.1971	0.2593	0.2009	0.2611	0.1843	0.1971	0.2593	0.2009	0.2611

Relative Risk Ratio; t statistics in parentheses.
+p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001.

embeddedness has an effect especially in the first few years with later-ripening consequences. Women who do have little contact with natives because they migrated with or to their family remain to have little contact with natives 1 ½ years later. Because migration in most cases occurs before establishing contact with natives, we can assume a causal effect here.

I continue with adding migrants' employment status, language skills, and education in Germany to the model (model C1). I assumed that because Turkish women generally score lower on these factors than Turkish men, they have fewer opportunities to meet natives. We first look at the direct effects of these factors on migrants' relative risk of spending almost no contact

to natives: Migrants who are employed (rrr = 0.53, $p \geq 0.10$) and/or who followed (part of) their education in Germany (rrr = 0.381, $p \leq 0.01$) are significantly less likely to have little contact to natives. Language skills also decrease the relative risk to spend little time with natives, though the effect is not significant (rrr = 0.808, $p > 0.10$). The next question is whether these human capital factors mediate the gender effect. The gender coefficient drops from 2.37 to 2.06 and Turkish women are indeed significantly less likely to be employed than men (**Table 5**), though no gender differences are found for language skills and education in Germany. Although gender influences the likelihood of employment, the indirect effect of gender via

employment, language skills, and education in Germany is not significant in this model (**Table 6**, KHB $p = 0.141$). Hence, neither employment not language skills or education in Germany mediate the effect of gender on the likelihood of spending almost no time with natives compared to spending time with natives on a daily basis.

Last, but not least I study whether potential gender differences in preferences for contact to natives might explain why Turkish women report a higher risk of spending almost no time with natives (Model D1). The gender coefficient hardly changes and we also do not observe a significant effect of gender on preferences (**Table 5**). In addition, the indirect effect of gender

via preferences is unsurprisingly not significant (**Table 6**, KHB $p = 0.886$). In the final model (Model E1), all explanatory variables are included. We can conclude that the gender effect remains strong and significant and is not mediated by the migrants' opportunity, preferences, and family influence. Further, we see that Turkish migrants with tertiary education have a lower relative risk to have no contact with natives. Children, religiosity, and age, however, have no effect on non-contact to natives.

I continue by comparing the relative risk of spending time with natives yearly or monthly compared to spending time with natives on a weekly or daily basis (Model A2 to E2). Again, I find Turkish women to be more likely to have contact with natives only a few times per year/months than Turkish men (rrr = 2.21, $p \leq 0.05$). The gender effect hardly changes when including family influence measurements into the model (model B2, rrr = 2.19) and the indirect effect of gender via family influence is not significant (**Table 6**, KHB $p = 0.605$). However, when including employment, language skills and education in Germany (model C2), the gender coefficient drops from 2.21 to 1.81 and loses significance. We know that Turkish women are indeed less likely to be employed than Turkish men (see **Table 5**) and the decomposition analysis reveals that the indirect effect of gender on spending time with natives on a yearly/monthly basis compared to weekly/daily is significant (KHB $p = 0.024$). Hence, Turkish women indeed face a higher risk than Turkish men to spend time with natives only a few times per year or per month (compared to weekly or daily) because of their lower chances to be employed on the labor market. Last, but not least, I study whether preferences mediates the gender effect, however, neither does the gender effect change much, nor does the KHB decomposition analysis shows significance (KHB $p = 0.576$).

In a second step, I analyse all multinomial logistic regression models for Turkish men and women separately in order to understand the interplay between family influence, opportunity structure, and preferences (**Tables 3**, **4**). I argue that we first have to look at the conditions under which migrants enter the receiving country. Migrants who migrate for family reasons are immediately embedded within their migrant family, which will have different impact on their social relationship building than

TABLE 5 | Impact of gender (whole sample) and family migration (women and men separately) on mediating variables.

Mediating variable	Impact of gender, whole sample	Impact of family migration, female sample	Impact of family migration, male sample
Family migration	1.49	–	–
	(0.47)	–	-
Migrant partner	2.50***	4.04	0.91
	(0.64)	(3.63)	(0.39)
Employment	0.25***	0.14**	0.63
	(0.07)	(0.09)	(0.24)
Language skills	0.03	−0.14	0.09
	(0.06)	(0.17)	(0.09)
Education in RC	0.94	0.09***	0.29**
	(0.24)	(0.06)	(0.11)
Preferences	1.31	2.13	0.69
	(0.48)	(1.67)	(0.47)

Controlled for contact to natives$_{t-1}$, length of stay, stay in RC before migration, education, children, age;
Standard errors in parantheses;
$^+p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.
Logistic regression for migrant partner, employment, education in RC and preferences for natives (Odds Ratio); Linear regression for language skills (beta).

TABLE 6 | KHB Decomposition analysis: Significance (*p*-value) of indirect effect of gender (whole sample) and family influence (women and men separately) via mediating variables.

	Impact of gender, whole sample		Impact of family migration, female sample		Impact of family migration, male sample	
	(Almost) never vs. weekly/daily	Yearly/monthly vs. weekly/daily	(Almost) never vs. weekly/daily	Yearly/monthly vs. weekly/daily	(Almost) never vs. weekly/daily	Yearly/monthly vs. weekly/daily
Family migration and migrant partner	0.592	0.605	-	-	-	-
Migrant partner	-	-	0.184	0.824	0.676	0.713
Employment, language skills, education in RC	0.141	0.024*	0.06*	0.516	0.257	0.002**
Preferences	0.886	0.576	0.658	0.448	0.888	0.668

Controlled for contact to natives$_{t-1}$, length of stay, stay in RC before migration, education, children, age; $^+p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

if migrating to Germany without any family ties. I will first discuss the results for the female sample (**Table 3**, models F1 to J2) before continuing with the male sample (**Table 4**, models K1 to O2). We see that indeed for women family migration significantly increases the likelihood of spending almost no time with natives compared to spending time with natives on a weekly or even daily basis (model F1, rrr = 7.41, $p \leq 0.05$). Model G1 then includes migrant women's partnership status and we observe two surprising results. First, migrant women who have a migrant partner have a *lower* risk to have almost no contact with natives than women who do not have a migrant partner whereas the opposite is the case for migrant men (**Table 4**, model L1). One explanation could be that migrant women use the ties of their migrant partners to get in contact with natives whereas migrant men do not have the same opportunities provided by their female partners. Still, this result remains puzzling and should be investigated further in future research. Second, the coefficient for family migration increases and not decreases. Further mediation analyses show that family migration does not significantly influence the likelihood of having a native partner for migrant women (**Table 5**) and that the indirect effect of family migration via having a migrant partner is not significant (KHB $p = 0.184$). In a second step I test whether family migration influences the likelihood of acquiring human capital in the receiving country, which in turn impacts migrant women's risk of having hardly to no contact with natives. Indeed, the family migration motive coefficient drops from 7.41 to 4.77 and becomes less significant. Migrant women who migrated for family reasons are less likely to be employed and less likely to have followed education in Germany than migrant women who did not migrate for family reasons (**Table 5**). Also, the KHB decomposition analysis shows that family migration has indeed a significant indirect effect on spending almost never time with natives (compared to spending time on a weekly or daily basis) (KHB $p = 0.06$). Hence, employment and education in Germany mediate the relationship between family migration and spending almost no time with natives. Preferences, on the other hand have neither any effect on the likelihood to spend little time with natives, nor does it mediate the relationship between family migration and contact with natives.

Models F2 to J2 examine the same pattern, this time comparing migrant women who indicate to spend time with natives yearly/monthly to women who spend time with natives on a weekly or daily basis. In these models we actually observe no effect of family migration. Also, employment, language skills, and education in Germany do not impact this relationship. Only preferences for natives increases the likelihood of spending time with natives only on a yearly/monthly basis compared to on a weekly/daily basis. This is surprising as we would expect the exact opposite, namely that migrant women who prefer spending time with natives have more contact than migrant women who do not express a strong preference for contact with natives. Again, we can only speculate, but one explanation could be that this result reflects the women's unrealized wish to spend more time with natives whereas women who do have frequent contact with natives are more neutral in this regard.

I now turn to the results for the male sample in **Table 4**. Neither family migration nor employment, language skills, education in Germany and preferences for natives increase the likelihood for migrant men to spend almost no time with natives compared to spending time with natives on a weekly or daily basis. Only among those who report to spend time with natives several times a year or month, we observe that family migration plays a role (model K2 to O2). Interestingly, Turkish men who migrated for family reasons are less likely to report to have contact with natives only occasionally instead of weekly/daily (model K2, rrr = 0.36, $p \leq 0.10$). One explanation could be that migrant families purposely encourage contact to natives for their male family members in order to increase their labor market chances, whereas Turkish men with no family relations in the receiving country might lack these broker ties. In model M2 I include male migrants' employment status, their language skills and education in Germany. Employment status and education followed in Germany indeed decreases the relative risk of spending time with natives only on a monthly/yearly basis compared to a weekly/daily basis. Interestingly, the effect of family migration becomes stronger (rrr = 0.06, $p \leq 0.001$). For Turkish men, family migration indeed lowers the chances of following education in Germany though not significant effect can be found for employment or language skills (**Table 5**). Also, the KHB composition analysis reveals that for men family migration has a significant indirect effect on the likelihood of spending time with natives on a yearly/monthly basis vs. on a weekly/daily basis via the opportunity factors. Given that family influence only affects Turkish men's likelihood of attending education in Germany, we can assume that this indirect effect can be mainly attributed to the variable education in RC. Adding preferences to the model (model N2 and O2) shows hardly any changes. Also, the effect of employment and education in Germany do not change when taking preferences into account which suggests that there is little correlation between these factors.

CONCLUSION

Contact to natives among migrants in Europe has received increasing interest from the scientific community, mainly because of their beneficial impact on other integration dimensions such as the labor market. However, despite the valuable research in this area, little is known about gender differences in this regard. This is surprising as the outcomes of contact to natives vary tremendously between migrant men and women (e.g., Lancee, 2012) and therefore call out for a substantive research of the mechanisms of gendered relation-building.

This paper therefore contributes to the existing literature by looking at potential gender differences in contact to natives among recent Turkish migrants in Germany who have been staying in Germany for about 3 years at the time of the survey. Using unique two-wave data from the SCIP project I aimed at answering the question to what extent Turkish men and women differ in their contact to natives and why. I thereby compare migrants who indicate to spend almost never time with natives

and migrants who report to spend time with natives on a yearly or monthly basis with natives who spend regularly time with natives, namely on a weekly or even daily basis. Results show significant differences between Turkish men and women. After 3 years of migration, 36% of Turkish women report to spend almost no time with natives, compared to 18% of Turkish men. These numbers are quite alarming as they show that Turkish women are not only less likely to engage in inter-ethnic partnership or friendship, as previous research has shown (Schacht et al., 2014; Carol, 2016); their complete lack of contact to natives indicates the absence of the most basic access to the receiving society, its people and culture.

How can we explain these gender differences? Accoding to Kalmijn (1998), contact to natives depends on three main factors: Family influence, opportunity structure, and preferences. All three dimensions are gendered and might explain why Turkish women have less contact to natives than Turkish men. First, migrants establish contacts under the influence of family members, which, through methods of social sanctioning and rewarding, govern their social behavior (Parrado and Flippen, 2005). However, Turkish women are more exposed to these family norms due to higher family migration and because Turkish women are more likely to engage in co-ethnic partnerships. Second, Turkish women often lack the opportunity to meet natives since they are less likely to participate in native-dominated loci such as the labor market and, related to this aspect, also less likely to learn the language of the receiving country sufficiently (Haug, 2008), which decreases their chances of engaging with natives. Third, contact to natives also depends on the personal preference, independent of people's opportunities and the influence of third parties. Whereas, previous research suggests that men and women might differ in their social preferences (Inglehart and Norris, 2003), little is known whether this is also true for migrant populations with regards to contact to natives. However, one can argue that Turkish men might have stronger preferences for contact to natives than Turkish women, since they benefit more from these relations with regards to their labor market integration.

Results of this study indicate that whereas personal preferences for contact to natives are neither strongly gendered, they also do not explain why Turkish women have less contact to natives than Turkish men. The family, however, seems to play a role, particularly for women. Turkish women who migrated to Germany for family reasons are more likely to spend almost no time with natives than Turkish women who migrate for economic or educational reasons. The data suggests that Turkish women who migrate for family reasons are less likely to enter the labor market than Turkish women who migrate for other reasons, which lowers their chances of meeting natives. However, although family migration impacts women's risk of having no contact with natives, it does not mediate the effect gender has on contact with natives. Similarly, I did not find confirmation for the assumption that advantageous opportunity structures in terms of employment, language skills, and followed education in Germany, nor gender-specific preferences for contact with natives explain why Turkish women have such a higher risk to spend almost no time with natives compared to Turkish

men. It seems like this gender difference is set in stone, and future research has to pay more attention to this group of migrant women who seem to experience social isolation from the native society.

Comparing Turkish migrants who spend time with natives on a yearly or monthly basis to migrants who spend time with natives on a weekly or even daily basis, a strong gender difference is observable, too. However, part of this gender difference can be explained by Turkish women's lower chances to be employed on the labor market, which serves as an important loci to meet and interact with natives (Kalmijn, 1998). These results suggest that it is indeed worthwhile investing in female labor market participation, not only in order to increase their financial independence, but also to strengthen Turkish women's social integration into the society. However, this seems only to be the case for Turkish women who have already a certain amount of contact with natives. For women who report to have hardly no contact with natives, neither labor market participation nor improving language skills would increase the likelihood of having increased contact with natives. We have to consider that not all relevant factors were captured by the data. We do not know, for example, to what extent migrant families actually differ in their influence on their family members' social behavior. It could be, for example, that those Turkish women who report to spend almost no time with natives are embedded within specific family structures which make contact with natives less likely. Reasons can be driven by cultural differences, but also the size of the family might matter, since larger families might be more likely to fulfill the need for emotional and informational support than smaller families, thereby decreasing the need for inter-ethnic contact.

Of course, this study also contains other limitations, which need to be addressed. First, this study examines contact to natives by looking at the time migrants spent with natives. Such a frequency measure does not indicate whether migrants spend time with only a few or many natives and it is open to debate, whether the frequency matters for a successful social integration or the amount of people. Most likely, it is both. In addition, compared to other research studying contact to natives with a strong focus on inter-ethnic marriage or friendship, spending time with natives is a rather broad measure. However, it contains a valuable advantage as it is able to depict social marginalization. If migrants report to spend no time at all with natives but only with co-ethnics than this is alarming since it indicates the absence of any participation of societal life that includes natives in the receiving country. I find that Turkish women are twice as likely to report spending never time with natives than Turkish men. Hence, the absence of contact to natives is a women's issue which needs to be addressed by policy makers. Though this study does not provide explicit solutions for this specific group, we did learn that for Turkish women who already have some contact to the native population one of the most effective measures to further increase their social integration would be to increase migrant women's labor market participation. However, policy makers should also be aware of the extent to which migrant women are embedded within their families and the gender-specific norms they inhibit. Policy makers should therefore initiate

gender-sensible programs, which increase inter-ethnic contact to natives among migrant women. This could be done, for example, by creating networks targeting cross-cultural exchange in form of women groups; particularly for migrant women who originate from countries, which are characterized by gender segregation in social life, women groups can establish a trusting network thereby contributing to inter-ethnic contact.

Second, one should consider that people might differ in their definition of the concept "spending time with someone." Whereas, for some this implies a genuine exchange of time and information, others might think of the daily chat with the supermarket cashier. However, it is exactly this subjectivity of this measurement, which makes it so interesting. People simply perceive inter-actions and social exchange differently (Furman and Buhrmester, 1992) and its the perceptions which govern attitudes and behavior, not so much the objective fact.

Third, the data consists only of Turkish migrants living in one of the five largest cities in Germany and results are therefore not representative. Social behavior among migrants living in rural areas is likely to be different from the social behavior of urban migrants. However, we should note that the large majority of Turkish migrants indeed lives in urban, and not rural, areas.

Lastly, this study only looks at recent migrants in Germany. Although the first years after migration have been shown to be crucial for further integration (Fuller and Martin, 2012), one could argue that the initial gender gap in social integration between Turkish men and women might vanish over time. Turkish women might invest in their human capital after their male family members have been settled in the labor market thereby increasing their chances of inter-ethnic contact. Future research should therefore investigate gender differences in inter-ethnic relations over a longer period of time.

DATA AVAILABILITY STATEMENT

Data available at GESIS, see Diehl et al., 2016.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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Gendered Discrimination Against Immigrants: Experimental Evidence

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Recent migration from Muslim-majority countries has sparked discussions across Europe about the supposed threat posed by new immigrants. Young men make up the largest share of newly arrived immigrants and this demographic is often perceived to be particularly threatening. In this article, we compare pro-sociality and trust toward immigrants from Muslim-majority countries, focusing on gender differences in treatment. We study these questions using behavioral games that measure strategic (trusting) and non-strategic (pro-social) behavior. Our data comes from measures embedded in a large survey of residents of Germany's eastern regions, where anti-immigrant sentiments are high. We find that Germans are similarly pro-social toward immigrant men and women in non-strategic situations, but are significantly less likely to trust immigrant men (but not women) in strategic encounters. These findings provide evidence that immigrants' gender can be an important factor conditioning the behavior of the majority population, but also caution that (gendered) ethnic discrimination may be situationally dependent. Future research should further examine the exact mechanisms underlying this variation in discriminatory behavior.

Keywords: immigration, ingroup favoritism, pro-social behavior, trust, gendered ethnic discrimination, Germany, behavioral games, experiment

1. INTRODUCTION

According to official estimates, 3.21 million migrants have sought asylum in the European Union during the 2014–2016 refugee crisis, a number unprecedented in recent history (Eurostat, 2017). This sudden inflow in turn generated a heated public debate, aroused anti-immigrant sentiments, and fueled the rise of right-wing populism (Czymara and Schmidt-Catran, 2017; Geiges, 2018; Frey, 2020). Standard accounts explain these developments as reactions to rapid cultural change or demographic threats associated with the arrival of large Muslim populations (Hangartner et al., 2019). However, recent research suggests that an important element underlying exclusionary reactions is that many of these arrivals were young and male (OECD, 2017; Eurostat, 2018). While this demographic often shows high economic potential, it is also frequently viewed as a particularly potent security and cultural threat by some members of the public (Ward, 2019).

Against this backdrop, the present article asks: to what extent are anti-immigrant reactions specifically conditioned on the gender of new arrivals?

To address this question, we present results from behavioral games embedded within a large survey on attitudes toward immigrants and refugees in Germany's eastern region, an area where anti-immigrant sentiments are running high, as manifested in levels of support for the populist right.

We included two standard games: the Dictator Game and the Trust Game. These games are commonly used as workhorse models to assess strategic and non-strategic interactions. To measure

discrimination, we randomly varied the gender and ethnicity (German vs. Middle Eastern) of interaction partners. In addition, we also introduced a Split Game in which respondents had to allocate a fixed amount of money between two recipients: one ethnic German and one of immigrant origin. This game captures the common situation in which an individual must choose between natives and immigrants in the allocation of scarce commodities (e.g., access to public housing, educational programs, health services). Discrimination is measured here in terms of deviation from an even 50-50 split between an in-group and out-group member of the same gender.

Overall, different patterns of behavior emerge across our three behavioral games. We do not find any discrimination in the Dictator Game, but record significant anti-immigrant bias in both the Trust and Split Games. Further, we uncover evidence of a gender-specific discrimination effect in the Trust Game: when the decision to trust is motivated by strategic beliefs about one's interaction partner, our participants are significantly less likely to trust immigrant men. In contrast, our results indicate that immigrant men are not especially penalized in non-strategic interactions. In sum, our mixed results highlight the importance of conceptually differentiating different interaction contexts when understanding the conditions under which (gendered) discrimination occurs.

2. RELATED LITERATURE

2.1. Discrimination in Intergroup Relations

Discrimination in intergroup relations is commonly approached from the perspective of Social Identity Theory, which argues that humans have a psychological disposition for social categorization and differentiation between in-group and out-group members (Tajfel et al., 1979; Yamagishi and Mifune, 2008; Balliet et al., 2014). The main finding of this literature is that individuals have a tendency to display in-group bias, and are thus more likely to extend pro-social behavior to members of their own group rather than to out-group members.

This literature has convincingly documented how ingroup favoritism can emerge even in minimal group experiments with arbitrary distinctions between groups (e.g., preferences over paintings) (Oakes and Turner, 1980). We may therefore expect to see similar patterns in real-life situations. Recent applications of Social Identity Theory have posited that ethnic differences constitute salient group boundaries in contemporary European societies (Winter and Zhang, 2018; Bourabain and Verhaeghe, 2019; Choi et al., 2019; Zhang et al., 2019). As such, we expect that:

(H1) Host population members are more pro-social toward in-group members than toward out-group members (individuals of immigrant origin).

2.2. Gender and Discrimination

Although Social Identity Theory provides a plausible mechanism linking ethnic differences to discrimination, it offers only limited insight on the interplay between ethnicity and gender. For that, we must turn to two additional theoretical perspectives. First, building from evolutionary theory, Navarrete et al. (2010) have developed an "outgroup-male-target" hypothesis suggesting that the basis for discrimination and prejudice stems from outgroup threats in intergroup conflict. Since this conflict has been largely perpetuated by male aggressors in human evolutionary history, these authors argue that discrimination will be targeted specifically against outgroup men.

Furthermore, another approach leading to the same expectation—that of more negative out-group bias toward young immigrant men—points to the argument that young men are more likely to commit certain hideous and violent crimes (or are at least more likely to be perceived as doing so), and are thus feared more (Gambetta and Hertog, 2017; Ward, 2019).

This line of research is closely related to social-psychological work on the Integrated Threat Theory, which has linked negative attitudes and prejudice toward immigrants to different types of threat, including realistic and symbolic threat (Stephan and Stephan, 2018)[1]. Even if immigrants do not commit crimes at a higher rate than natives (Feltes et al., 2018), adding more people of this potentially "risky" demographic may *per se* be a reason for natives to perceive immigrant men as a greater security threat.

Lastly, research has also shown that immigrant groups with many young men from Muslim-majority countries are significantly more likely to be perceived as a cultural threat (Ward, 2019). This aligns with cross-country survey evidence (e.g., the World Value Survey) that suggests that cultural values in Muslim-majority countries are on average more distant from Western European societies than those in other common regions of origin (e.g., Eastern Europe) (Inglehart and Welzel, 2005). Furthermore, scholarship on immigrant assimilation has also shown that sociocultural variables such as conservative gender and family values among immigrants from Muslim-majority countries are an alternative source of unexplained ethnic group differences in terms of integration outcomes among immigrants in Europe (Koopmans, 2016). At the same time, discrimination based on the widespread belief among natives that these gender norms are incompatible with liberal ideas of gender equality has added to the marginalization of even second-generation Muslim immigrants and especially of young Muslim men (Adida et al., 2016; Drouhot and Nee, 2019), who are often perceived as instrumental in upholding these values (Higgins, 2015).

Applying these perspectives to our context, we define *gender-specific discrimination* as referring to the phenomenon that immigrant men tend to receive worse treatment than native men, while immigrant women are treated the same as native women. We expect that:

(H2) Host population members discriminate more against immigrant men compared to native men than against immigrant women compared to native women.

2.3. Discrimination in Behavioral Games

In order to study discrimination, the literature has increasingly turned to experimental designs. In particular, behavioral games have been developed to study universal patterns of human

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[1]We understand prejudice here as biased beliefs, thoughts, and attitudes about a group of people. Discrimination is defined as differential behavior toward a specific group of people based on their ethnicity and gender.

behavior and identify and compare mechanisms, such as altruism, trust and cooperation across individuals or groups (Berg et al., 1995). These have also been used "in the field" (Bouckaert and Dhaene, 2004; Abascal, 2015; Baldassarri and Abascal, 2017; Schaub, 2017).

The controlled experimental setting allows scholars to manipulate aspects of the game, such as the identity of the players involved, allowing researchers to obtain behavioral measures of ingroup bias (Schaub et al., 2020a). For example, Adida et al. (2016) used behavioral games with French natives and Muslim and Christian immigrants from Senegal to examine religious discrimination in France. They found that natives showed lower unconditional altruism (but not lower trust) toward Senegalese Muslims in comparison to Senegalese Christians. Along the same lines, Cettolin and Suetens (2019) employed a Trust Game (described below) with a representative sample of the Dutch population, and find that Dutch natives behave more opportunistically toward non-natives.

While our article is closely related to these previous studies, our primary contribution is to focus attention on the intersection of gender and ethnicity in evaluating discrimination effects. Further, we aim to understand how patterns of gendered discrimination vary across different game contexts. Previous research has documented discrimination in some games but not others (Bouckaert and Dhaene, 2004; Adida et al., 2016; Cettolin and Suetens, 2019; Baldassarri et al., 2020), suggesting that a closer examination of the mechanisms underlying discrimination is warranted.

3. METHODS

3.1. Research Setting and Sample

To evaluate these hypotheses, we turn to behavioral games embedded within a large-scale survey that we fielded between March and June 2018. The survey was implemented by the CATI Lab at the University of Jena[2]. Our data comprises a random sample of 1,243 native Germans from more than 200 rural municipalities or small towns in all five states of the former German Democratic Republic (GDR) who agreed to participate in an incentivized online-survey on the topic of "Community and Society in Germany."[3] For more details on our sampling strategy, see Schaub et al. (2020b)[4].

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[2]Prior to data collection, the study received ethical approval from the Ethics committee of the grant hosting institution (Bocconi University).

[3]The average population of the municipalities in our sample is 3,116 with an average population density of 59 persons/km[2]. We excluded 46 individuals with a migration background and 31 individuals that were subject to a randomization error in terms of the profiles shown from our analyses. The results presented below are robust to using the full sample.

[4]The respondents were from closely-matched municipalities, half of which received refugees in the wake of the 2015 refugee crisis. Our starting population were all municipalities in the Eastern German *Bundesländer* of *Mecklenburg-Vorpommern*, *Sachsen-Anhalt*, *Brandenburg*, *Thüringen* and *Sachsen*. A matching strategy at the municipality level (excluding municipalities with foreigner shares above 1.5% and less than 6.6 km distance between them) allowed us to study how local exposure to refugees affects right-wing support, which we report in Schaub et al. (2020b). We find that refugee allocation has no effect on immigrant attitudes and voting behavior. With regards to our analyses here, we find similar treatment

Our study is situated in a context that is fairly common, politically important, but rarely studied: the rural hinterlands of a country, where the presence of foreigners is low, but anti-immigrant sentiments are widespread. In such areas, right-wing populists have continuously increased their vote shares, often mobilizing their voters with an anti-immigrant platform (Alba and Foner, 2017). Our study area is no exception to this trend: between the two general elections (2013 and 2017) that bracketed the onset of the "refugee crisis," support for Germany's populist right-wing party *Alternative für Deutschland* (AfD) surged from 6 to 25%.

Participants were first recruited by phone based on a random sample of telephone numbers using a protocol that allowed targeting specific zip-code areas. During the call, participants were invited to answer an online survey and to take part in the behavioral games on a website that we programmed for this purpose using oTree (Chen et al., 2016). The survey took an average of 30 min, and participants received a variable compensation of 10–20 Euros (2–4 times the federal hourly minimum wage), with the exact amount depending on their decisions in the behavioral games.

Overall, 47% of the sample was male, and the median age was 53 years (which is slightly older than the East German average of around 46 years). Forty-three percent of the sample had a university-qualifying high school education (*Abitur*). In terms of political alignment, 11% reported having voted for the AfD in the 2017 National Elections. This number is lower than the regional average of 25%, indicating that our sample appears to be less xenophobic than the typical voter in the area. Nonetheless, right-wing attitudes were also common in the sample, with 38% of our respondents supporting the statement that "foreigners only come to exploit the welfare system," and 36% endorsing the position that "child support should only be paid to Germans." **Table 1** presents a full description of sample demographics and the summary statistics for the different behavioral games.

3.2. Description of Behavioral Games

To evaluate our hypotheses, we employed a variety of behavioral games. Survey respondents first participated in a Dictator Game (DG) in which they were provided with an endowment of 5 EUR and asked to decide how much of this money they wanted to give to another individual (Alter). Participants kept the difference between the endowment and the amount of money they gave to Alter. Since an individual's payoff in this game depends upon his/her choice alone, the DG has been commonly understood to capture pro-social behavior motivated by non-strategic considerations such as altruism or inequality aversion (Camerer, 2011).

Second, respondents took part in a Trust Game (TG) (Berg et al., 1995; Glaeser et al., 2000; Gereke et al., 2018). This game is similar to the DG in that participants also received an endowment of 5 EUR which they could share with an Alter. However, every EUR the participant chooses to share is multiplied (in our case doubled) by the researchers before being passed to Alter. Finally,
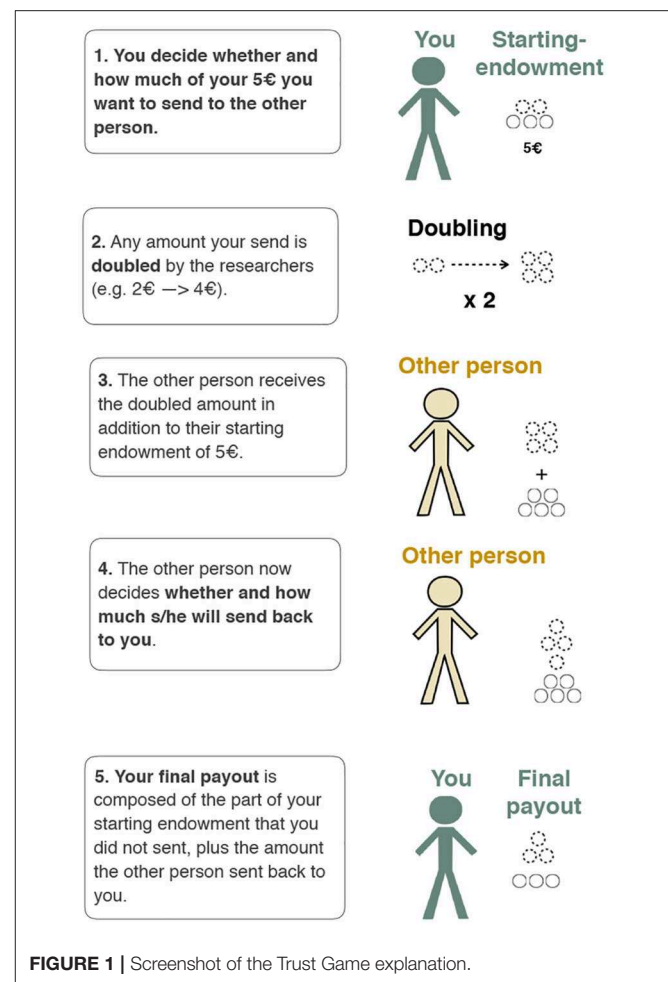
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effects in the behavioral games for people living in municipalities with and without refugees (results not shown).

TABLE 1 | Summary statistics.

Variable	Mean	Std. Dev.	Min.	Max.	N
Behavioral Game Outcomes					
Amount Sent in Dictator Game	2.398	1.579	0	5	2,486
Amount Sent by Ego in Trust Game	2.800	1.592	0	5	2,486
Difference in Split Game: Amount Given to	−0.293	1.545	−5	5	1,243
Minority Alter Minus Amount Given to Native Alter					
Age	52.549	13.985	18	88	1,243
Male	0.47	0.499	0	1	1,243
Education					
Abitur	0.427	0.495	0	1	1,243
Realschule or Fachhochschulreife	0.526	0.500	0	1	1,243
Hauptschule or lower	0.047	0.211	0	1	1,243
Employment Status					
Full-time employed	0.498	0.500	0	1	1,231
Part-time employed	0.180	0.384	0	1	1,231
Other status	0.323	0.468	0	1	1,231
Party voted for in 2017 national election					
CDU	0.256	0.436	0	1	1,150
SPD	0.155	0.362	0	1	1,150
LINKE	0.211	0.408	0	1	1,150
AfD	0.122	0.327	0	1	1,150
GREENS	0.082	0.274	0	1	1,150
Rightwing Attitudes					
Foreigners only exploit welfare state	3.798	1.768	1	7	1,122
Only Germans should receive child support	3.648	2.193	1	7	1,098

FIGURE 1 | Screenshot of the Trust Game explanation.

Alter then decides how much of this money should be *passed back* to the participant. Since the money is doubled in the game, it is possible for the participant to gain more then s/he possessed initially – but only if Alter returns more than what was sent. The trust game therefore captures the features highlighted in Coleman (1994)'s definition of trust, namely that (1) the decision of trust is voluntary; (2) the decisions of the truster and Alter (the trustee) are sequential; (3) only if the truster shows trust can the trustee decide to abuse the demonstrated trust; (4) the truster becomes vulnerable to exploitation by showing trust. **Figure 1** presents a screenshot of how the game was explained to respondents.

The Trust Game differs importantly from the DG in that it introduces an element of strategic calculation: if the participant believes that Alter is trustworthy (i.e., that he/she will pass some of the money back), it makes sense to send money in the first place as this increases the size of the pie to be shared. However, if the participant believes that Alter is untrustworthy (i.e., that he/she will keep all of the money), then it is rational to send nothing. We measure discrimination by comparing the amounts of money that immigrant Alters are sent compared to native Alters, and we can evaluate gender- specific discrimination by comparing the results for immigrant female Alters compared to native female Alters and immigrant male Alters compared to native male Alters.

While the DG and TG are commonly employed to capture elements of two-party strategic and non-strategic behavior, we also implemented a Split Game (SG) to capture situations where the participant must decide how to allocate resources (10 EUR) between two different Alters (Peterson, 2016). This game differs from the DG and TG in that the participant's own payoff is unaffected by his/her decision. This is an important difference because it eliminates self-regarding preferences or egoism, and thus provides a measure of discrimination that is less likely to be confounded or biased by other mechanisms. Moreover, the SG allows for direct comparison between in- and out-group members, while the DG and TG provide information regarding preferences for only one Alter in each round. Importantly, the direct comparison of two individuals in the SG also mirrors more closely a range of situations where decision-makers have to make a choice between two individuals (i.e., between two job candidates who compete for one position).

3.3. Treatment Manipulations

Participants were randomly presented with information about different Alters on which they could condition their decision in each of the games. Each Alter profile contained a picture, as well
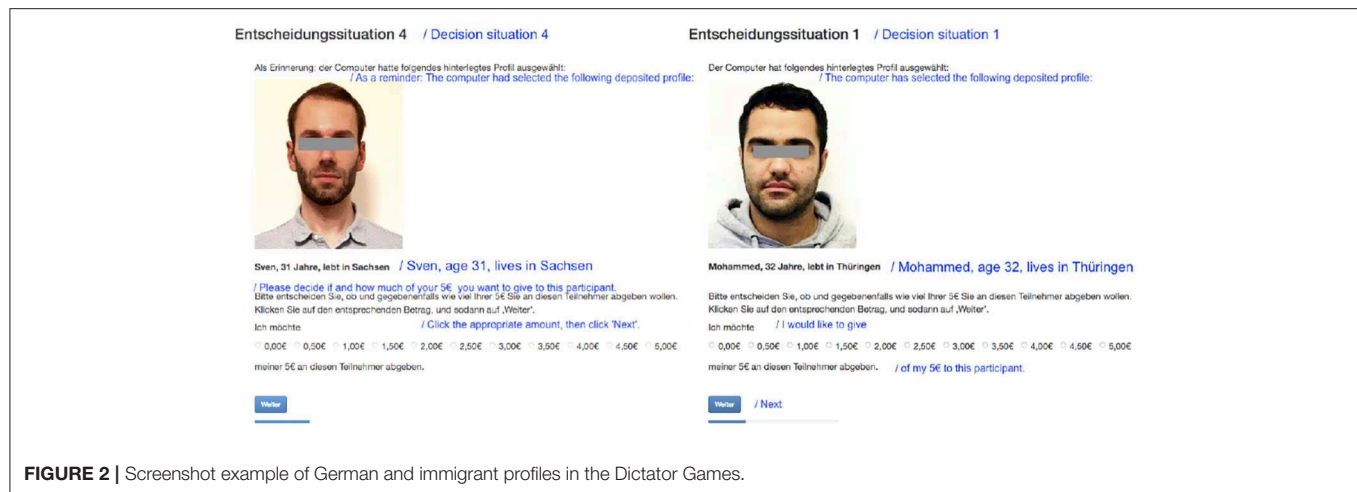
FIGURE 2 | Screenshot example of German and immigrant profiles in the Dictator Games.

as basic information such as Alter's name, age (between 29 and 34 years) and federal state of residence (see **Figure 2**). By providing pictures and using stereotypical German vs. Middle Eastern names, we could manipulate perceptions of Alter's gender and immigrant origin. Overall, we drew upon a set of profiles from eight individual Alters that were carefully selected on gender, age, ethnicity, and physical appearance. This selection was based on the results from a pre-test with a total of 37 pictures on Amazon's Mechanical Turk (MTurk) where we had the photos rated in terms of perceived expressed emotions (happy, angry, fearful, sad, neutral) and attractiveness. These are factors known to influence facial cues for trustworthiness and cooperative decisions (Todorov et al., 2015). Our final sample consisted of four ethnic Germans (two male and two female) and four individuals with migration background (again two male and two female) who were closely matched across all perceived traits[5,6].

Participants played two rounds of both the DG and the TG: once with a German Alter and once with an immigrant Alter. We randomized the order in which profiles were shown (i.e., 50% of participants encountered an immigrant Alter first, while the remainder encountered a German Alter first) in order to account for potential order effects (e.g., participants might become, in general, less altruistic over time). We also randomized the Alters' gender across the two profiles. This design allows us to measure (gendered) discrimination by estimating how behavior in the DG and TG changes as a response to the interaction of Alters' gender and ethnicity. Further, because we employ a within-subjects design, we can include respondent-level fixed effects in our models.

Randomization of profiles in the Split Game (SG) proceeded somewhat differently: here participants were shown two profiles side-by-side, one of a (randomly-chosen) German Alter and the other depicting a (randomly-chosen) immigrant Alter. The left-right placement of German vs. immigrant profiles on the screen was also randomized. However, we constrained the randomization such that both Alters had to be of the same gender. Since the two profiles are shown together, participants played the SG only once, and we measure discrimination as deviation from an even 50-50 split in favor of the German Alter.

4. RESULTS

Results for all three games were analyzed using linear regression models estimated by OLS. For models involving the DG and TG, standard errors are clustered at the individual level because respondents made two decisions each. Huber-White robust standard errors are used in SG models[7].

To test H1, we first compare the amount sent to native vs. immigrant Alters in the DG and TG. Results are presented graphically in **Figure 3**, while statistical tests with respondent fixed-effects to account for our within-subjects design are reported in Model 1 of **Tables 2**, **3**. Native Alters in the DG received 2.42 EUR on average, while immigrant Alters received 2.38 EUR. This difference is substantively small, and not statistically significant at conventional levels. In contrast, immigrant Alters did receive significantly smaller offers in the TG (2.87 EUR for native Alters compared to 2.74 EUR for immigrant Alters), and the effect is statistically significant at $p < 0.001$. Both DG and TG results remain robust after controlling for the order in which Alters' pictures were displayed (see Model 2 in **Tables 2**, **3**).

Finally, we turn to discrimination in the SG by examining the extent to which monetary distributions differ from an even split (see **Figure 3**). This inequality is captured in the constant term in Model 1 in **Table 4**. This model simply estimates the average deviation from 50-50, such that a statistically *insignificant* coefficient on the constant term indicates that splits are not

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[5]For the two immigrant women, we included pictures both with and without a Muslim headscarf (hijab), since approximately 28% of Muslim women in Germany report wearing a headscarf (Haug et al., 2009). Overall, we did not find any significant penalty for immigrant women wearing headscarves and therefore pool the immigrant women profiles in our analyses.

[6]The pre-test participants whose pictures we used as "Alter" in the behavioral games were paid the average amounts handed to them by the survey respondents after the completion of the survey.

[7]We additionally present all regression results with standardized regression coefficients in Tables S1–S3 in the **Supplementary Materials**.
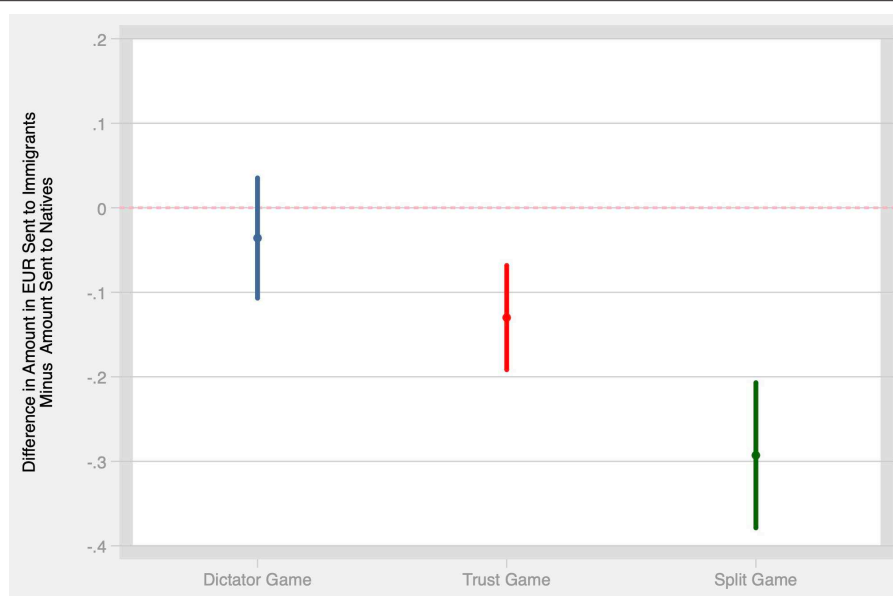
FIGURE 3 | The difference in the amount of money (in EUR) shared with immigrants compared to natives in three behavioral games: the Dictator Game, the Trust Game, and the Split Game. Error bars indicate 95% confidence intervals.

TABLE 2 | Amount of money (in EUR) sent to Alter in the Dictator Games.

	(1)	(2)	(3)	(4)	(5)
Immigrant Alter	−0.036	−0.029	−0.033	0.037	0.050
	(0.036)	(0.036)	(0.036)	(0.062)	(0.061)
Male Alter			−0.196***	−0.127+	−0.119+
			(0.051)	(0.072)	(0.071)
Immigrant × Male				−0.139	−0.151
				(0.103)	(0.102)
Second Decision		0.199***			0.200***
		(0.036)			(0.036)
Constant	2.416***	2.313***	2.513***	2.478***	2.371***
	(0.018)	(0.027)	(0.029)	(0.038)	(0.041)
N	2,486	2,486	2,486	2,486	2,486
Respondent Fixed Effects	Yes	Yes	Yes	Yes	Yes

Notes*: Standard errors are reported in parentheses (+p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001).*

TABLE 3 | Amount of Money (in EUR) sent to Alter in the Trust Games.

	(1)	(2)	(3)	(4)	(5)
Immigrant Alter	-0.130***	-0.136***	-0.126***	0.001	-0.011
	(0.031)	(0.031)	(0.031)	(0.053)	(0.052)
Male Alter			-0.218***	-0.091	-0.098
			(0.043)	(0.062)	(0.061)
Immigrant × Male				-0.253**	-0.242**
				(0.089)	(0.088)
Second Decision		-0.176***			-0.175***
		(0.031)			(0.031)
Constant	2.865***	2.956***	2.972***	2.910***	3.003***
	(0.016)	(0.024)	(0.028)	(0.035)	(0.039)
N	2486	2486	2486	2486	2486
Respondent Fixed Effects	Yes	Yes	Yes	Yes	Yes

Notes*: Standard errors are reported in parentheses (*p<0.05, **p<0.01, ***p<0.001).*

systematically biased toward either natives or immigrants. In contrast, we estimate that immigrant Alters received, on average, 0.29 EUR less than their share of the even split. This estimate is statistically significant at $p < 0.001$, and is also substantively much larger than the effects we uncover in the DG and TG.

Overall, we find partial evidence in favor of H1: while we detect no discrimination when it comes to pro-social behavior as captured in the DG, discrimination does appear with regards to trust (in the TG) and in whether resources should go to natives or immigrants (in the SG).

To test H2, we rely on the fact that respondents were randomly paired with female vs. male Alters in the DG and TG. Since

the ethnicity and gender of Alters in the DG and TG were fully crossed, we include an ethnicity × gender interaction term to test whether male immigrants are the subject of greater discrimination than female immigrants. The results are presented graphically in **Figure 4**, while the estimated coefficients are presented in Models 3–5 of **Tables 2**, **3**.

Turning first to the DG results, Model 3 of **Table 2** shows that male Alters (of any ethnicity) receive offers around 0.20 EUR lower ($p < 0.001$). However, when interacting Alters' gender and immigrant status (Model 4), we see no additional penalty for male immigrants [the difference in margins natives and male immigrants is insignificant at $p = 0.11$

TABLE 4 | Deviation from an even split between in- and out-group in the Split Game.

	(1)	(2)
Male Alters		−0.043
		(0.088)
Constant	−0.293***	−0.272***
	(0.044)	(0.064)
N	1,243	1,243

Notes: Standard errors are reported in parentheses (*p<0.05, **p<0.01, ***p<0.001).

(see Table S4 with margins in **Supplementary Materials**)]. Again, this result is robust to controlling for order effects (Model 5).

Next we turn to results in the TG (see Models 3–5 of **Table 3**). Here Model 3 shows that, in addition to the main effect of discrimination against immigrant Alters discussed above, there is also a penalty for male Alters, who receive on average 0.22 EUR less than females ($p < 0.001$). However, both main effects lose significance once an interaction term is included in Model 4. In other words, it appears that the lower trust shown toward both immigrants and men is driven by reactions toward male immigrants, who are estimated to receive 0.25 EUR less than male natives[8]. As before, these results are also robust to controls for decision order (Model 5)[9].

Finally, turning to the SG, recall that participants were randomized into seeing either (a) native female vs. immigrant female Alters or (b) native male vs. immigrant male Alters. Thus, we can examine the extent of gender specific discrimination by comparing splits in (a) vs. (b). The results are shown in Model 2 of **Table 4** and presented graphically in **Figure 4**. The constant term in Model 2 now represents the deviation from an even split in (a), while the coefficient on male alters indicates the extent to which distributions in (b) differ from this all-female baseline. The coefficient on male Alters is substantively small and statistically insignificant, which indicates no additional gender-specific discrimination in the SG.

Overall, we find partial evidence in support of H2. In the strategic interaction environment of the Trust Game, host population members discriminate against immigrant men, while immigrant women face no such discrimination. In contrast, no gender-specific penalty is observed in the non-strategic games. Neither the DG (no discrimination against either gender) nor the SG (equal discrimination against both genders) support the hypothesis that male immigrants are particularly likely to be the targets of prejudice.

[8]They also receive 0.35 EUR less than native women, and 0.34 EUR less than immigrant women. See margins in Table S5 in the **Supplementary Material**.
[9]We also explore a specific variant of H2, namely that there could be gender-specific differences in gender-discrimination. To that effect, we estimate a three-way interaction effect with respondent's gender, gender of alter and immigrant status for the trust game, which is the only game in which we find gendered discrimination against immigrant alters. Briefly, we find no significant differences in discrimination against male immigrants between female and male respondents. Please refer to Tables S6 and S7 and Figure S1 in the **Supplementary Materials** for more information.

5. DISCUSSION

Recent migration from Muslim-majority countries has sparked discussions across Europe and the U.S. about the supposed threat posed by new immigrants (Adida et al., 2019; Valentino et al., 2019; Helbling and Traunmüller, 2020). Our study presents results from a large-scale online survey with residents of Germany's eastern regions that included several behavioral games designed to capture pro-social behavior and discrimination against immigrant men and women from Muslim-majority countries.

Our study makes three contributions to the literature on discrimination of immigrants and ethnic minorities. The first contribution concerns the study setting: Our study is set in a fairly common and politically important context where anti-immigrant sentiments are generally high but which is rarely studied. We use a unique sample of rural respondents in the five eastern German *Bundesländer*, which is more general than the samples typically employed in experimental studies on discrimination, prejudice and stereotyping. Of course, our sampling strategy may have biased us toward the identification of discrimination since anti-immigrant attitudes are generally more pronounced in non-urban areas. However, given the structural similarity of our study region to other rural areas in Germany and Europe, our findings may extend to similar settings in which there is strong anti-immigrant sentiment. However, it remains to be tested in future work whether our findings replicate and generalize beyond this context and population.

Second, we highlight and systematically examine the role of gendered ethnic discrimination against immigrants and ethnic minorities, which has so far received little attention among social scientists. Our results complement those of Ward (2019) who finds low levels of support for groups of young male refugees in Germany, which he argues is driven by perceptions of young men as cultural and security threats. In Germany, many of the recent refugee arrivals were young and male, which has resulted in a growing imbalance in the gender ratio and increased the competition for female partners. This competitive situation in the mating market has been identified as a critical factor driving hate crimes against refugees (Dancygier et al., 2020) and highlights the importance of studying gender dynamics in immigrant discrimination research. However, one limitation of our study is that by design (since all our Alters are from Muslim-majority cultures) we are unable to disentangle between an outgroup bias against Muslim and non-Muslim immigrant men. Future research should therefore test the boundaries of this outgroup bias.

Finally, our study adds to a handful of articles using behavioral games to measure ingroup favoritism and study discrimination against immigrants and ethnic minorities in European societies (Adida et al., 2016; Cettolin and Suetens, 2019). Behavioral games are useful in the study of discrimination because they allow us to tease apart mechanisms. We focus on strategic and non-strategic pro-social behavior with respect to gendered ethnic discrimination. We find mixed evidence for gendered ethnic discrimination in this paper. While
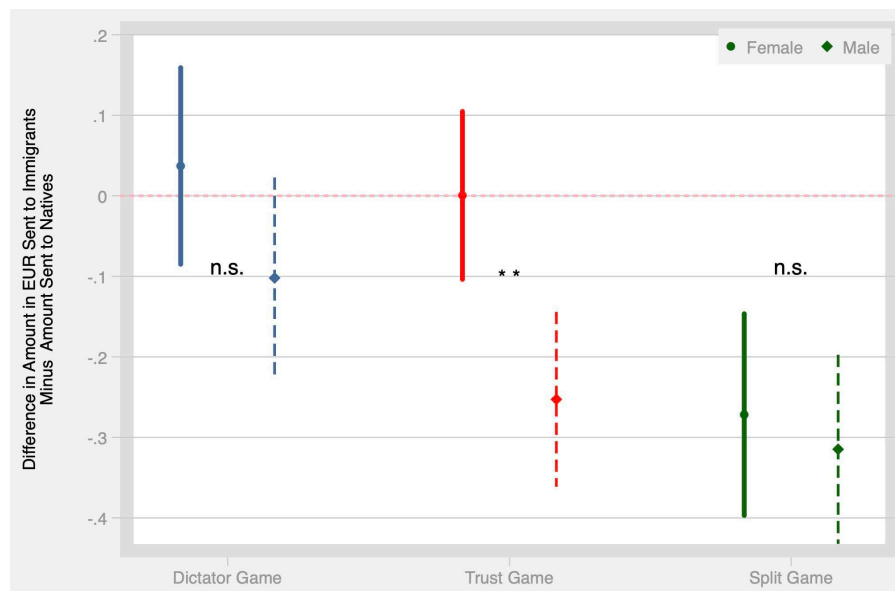
FIGURE 4 | The difference in the amount of money (in EUR) shared with immigrants compared to natives for male and female Alters in three behavioral games: the Dictator Game, the Trust Game, and the Split Game. Error bars indicate 95% confidence intervals.

we find that natives are similarly pro-social toward men and women of immigrant origin in non-strategic situations, we also observe that natives are significantly less likely to trust immigrant men in strategic encounters. Importantly, our results suggest that gendered ethnic discrimination is not simply taste-based (Becker, 1957) since in this case we should observe discrimination in the non-strategic DG and SG. Instead, gendered ethnic discrimination appears to be driven by an unwillingness among natives to trust male immigrants. However, a limitation of the current study that future research should address is to better understand how our treatment effects are moderated by personality factors, such as authoritarianism (Adorno et al., 1950) or implicit biases (Rudman and Ashmore, 2007), which may differ across individual respondents. The estimation of such heterogeneous treatment effects may shed light on the social-psychological mechanisms underlying our results.

Overall, our results call for a better understanding of the conditions under which discrimination occurs with respect to pro-social behaviors and the need to develop a theory for understanding immigrant discrimination that takes into account the differences in reception faced by male and female immigrants.

DATA AVAILABILITY STATEMENT

The dataset generated for this study can be found in the Havard Dataverse Project Gereke, Johanna, 2020, "Replication Data for Gendered discrimination against immigrants," https:// doi.org/10.7910/DVN/G0W9MH, Harvard Dataverse, V1, UNF:6:xGkgR2Q+V62Qd+0mulJdoQ== [fileUNF].

ETHICS STATEMENT

Written informed consent was obtained from the individuals for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

JG, MS, and DB designed research. MS and JG performed research and analyzed data. JG wrote the first draft of the manuscript. MS wrote sections of the manuscript. All authors contributed to manuscript revision, read and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsoc.2020. 00059/full#supplementary-material

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Explaining Immigrants' Worries About Ethnic Harassment: Germany, 1986–2004

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What factors shape immigrants' worries about becoming targets of ethnic harassment? This is an important question to ask, but most previous studies restricted their focus to the microlevel only. By contrast, few if any studies examined the possible macrolevel antecedents driving harassment-related worries among immigrants. This study aims to help fill this gap. Focusing on a 19-years period from 1986 to 2004 in Germany, we apply multilevel regression modeling techniques to repeated cross-sectional survey data collected among immigrants of Greek, Italian, Spanish, Turkish, and (ex-) Yugoslavian origin, linked with contextual characteristics. Our central finding is that German citizens' anti-immigrant prejudice is the key driver of longitudinal differences in immigrants' harassment-related worries. This association holds net of rival variables, such as fluctuations in media attention to ethnic harassment, as well as across all immigrant groups under study. These results bring us one important step further toward a better understanding of interethnic relations between immigrants and host society members.

Keywords: interethnic relations and conflicts, prejudice, discrimination, mass media, multilevel modeling, immigrants

INTRODUCTION

Negative attitudes and behaviors of host society members toward immigrants continue to attract an immense amount of scholarly attention. Consequently, social science knowledge regarding the description and explanation of host-society members' ethnic harassment has become substantial (Semyonov et al., 2006; Zick et al., 2008; Ceobanu and Escandell, 2010; Hainmueller and Hopkins, 2014). Curiously, this body of work is not balanced by research on the consequences of anti-immigrant reactions for immigrants themselves. It is particularly unfortunate that no study seems to have explored the nexus between the prevalence of ethnic harassment and immigrants' concerns that the host society is biased against them. However, several reasons exist as to why such concerns—for brevity, henceforth dubbed "harassment- related worries"—deserve enhanced research attention. To illustrate, one can easily imagine that harassment-related worries impact negatively on immigrants' subjective well-being (Beier and Kroneberg, 2013), their acculturation attitudes (Christ et al., 2013), or their identification with the host society (Reeskens and Wright, 2014). Accordingly, harassment- related worries plausibly represent a considerable obstacle to immigrants' successful social integration. Beyond such applied relevance, investigating harassment-related worries in immigrants is important to resolve provoking theoretical puzzles. Extant research consistently finds that some minority group members tend to systematically underestimate their exposition to hostile practices emanating from majority members, whereas others are inclined to overestimate the occurrence of such intimidating acts (Major and Sawyer, 2009). Combined, both tendencies

might be taken to imply that minority members' evaluations of an event as harassment on ethnic grounds occur relatively independently of the characteristics of the event itself but are mainly driven by personal characteristics. As applied to this study, this begs an intriguing question: Could it be that immigrants' harassment-related worries occur relatively independently of features of the macrolevel social contexts within which interethnic relations take place? Or does a comprehensive understanding of harassment-related worries necessitate accounting for such contextual characteristics? Providing adequate answers to this question is complicated by the fact that extant related work in this filed tends to focus on microlevel factors as antecedents of immigrants' perceptions of hostile intergroup behavior (Major and Sawyer, 2009; Dustmann et al., 2011; ten Teije et al., 2013; McGinnity and Gijsberts, 2016; Simonsen, 2016; Schaeffer, 2019; Steinmann, 2019). While this line of research doubtlessly uncovered several important insights, we know only little about the role that macrolevel factors play in shaping immigrants' beliefs that the host society is biased against them. Simonsen (2016), however, provides evidence that cross-national differences in majority members' anti-immigrant prejudice are associated with a greater likelihood that immigrants perceived their group to be discriminated against. Building on and extending this theoretical vantage point, the present study focuses on two factors that might shape immigrants' harassment-related worries: (a) majority members' anti-immigrant prejudice, and (b) mass media coverage of ethnic harassment. Empirically, we take advantage of a unique longitudinal data set containing information on the prevalence of harassment-related worries in immigrants of Greek, Italian, Spanish, Turkish, and (ex-)Yugoslavian origin living in Germany, covering the 1986 to 2004 period. This empirical source combines 20 waves of individual data ($n = 32,744$) with longitudinal statistics on native Germans' anti-immigrant prejudice and information from content analysis of newspaper reports. To the best of our knowledge, research covering such an extensive time frame and multiple groups of immigrants has not been available up to now. Beyond that, as we describe in detail below, the period under study shows considerable variation regarding the intensity of conflict between host society members and immigrants. This makes Germany an instructive test case to examine the nexus between contextual-level characteristics changing over time and individual-level harassment-related worries in immigrants, thereby complementing the insights from previous cross-national work (Simonsen, 2016).

THEORETICAL FRAMEWORK

Conceptualizing Harassment-Related Worries Among Immigrants

Before we outline our theoretical expectations, we begin by clarifying the object of our inquiry. Building on general definitions of worrying (Borkovec et al., 1998; Gladstone and Parker, 2003), we define immigrants' worries concerning ethnic harassment as repetitive cognitive activities referring to feared future incidences of harassment on the grounds of their

ascribed ethnic group membership. The central implication of this account is that immigrants' harassment-related worries do not need to be based on their factual experiences of intimidating or derogating acts nor on any "objective" likelihood of becoming a target of ethnic harassment. Instead, this definition puts immigrants' subjective appraisal of host society members' harmful intergroup conduct or, synonymously, ethnic harassment, center stage. This ethnic harassment occurs when host society members act with negative intent out of dislike for immigrants due to their believed ethnic group membership[1]. On an empirical level, acts of ethnic harassment might range from relatively frequent and mundane manifestations such as verbal or non-verbal derogation (see also Hayward et al., 2017, p. 351) to more extreme and rare forms, such as murder and physical violence (Allport, 1954; Virdee, 1995). It is important to keep in mind that harassment-related worries of immigrants are conceptually similar to but different from two longstanding neighboring constructs: (a) perceived ethnic discrimination and (b) intergroup anxiety. Simonsen (2016), e.g., conceives of perceived ethnic discrimination as "the subjective experience that one is treated unfairly because of one's group membership" (p. 375). The scope of the broad and diverse literature on perceived ethnic discrimination, however, typically does not cover more extreme forms of ethnic harassment such as anti-immigrant riots or physical violence, as we do. Further, most previous studies on perceptions of ethnic discrimination focus on the subjectively perceived prevalence of discriminatory activities. Deviating from this approach, the data at our disposal enable us to assess whether ethnic harassment is associated with worrying—a specific cognitive reaction.

Relatedly, intergroup anxiety—that is, "a feeling of worry, unease, or concern created by encounters or even thoughts of encounters with a member or members of a different social group (Stephan and Stephan 1985, 2017, p. 1)," also resembles the phenomenon we conceive of immigrants' harassment-related worries. However, intergroup anxiety and harassment-related worries differ with regard to the role played by personal encounters. For intergroup anxiety to occur, such encounters represent a necessary condition (see Stephan and Stephan, 1985)—but not for harassment-related worries. In fact, as we outline below, receiving information about the denigration of fellow group members might suffice to evoke such harassment-related worries. To approach the question as to what macrolevel factors shape immigrants' harassment-related worries, we employ a group threat framework as our theoretical perspective (Stephan et al., 2009). Two arguments support this perspective: First, harassment-related worries and threat perceptions show strong conceptual overlap, because they both represent cognitive appraisals of negative consequences attributed to outgroup members. Second, existing research documents that ethnic threat

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[1]Throughout this article, instead of the more often used term racial harassment we prefer the term ethnic harassment. Doing so helps to emphasize that criteria such as ancestry, language, or physical markers leading to ascriptions of group membership are historically contingent constructions and that their social significance does not rely on observable biological difference between people, as the term racial might imply.

perceptions are susceptible to features of the social contexts within which immigrants and natives interact (e.g., Scheepers et al., 2002; Schlueter et al., 2013). Notice that for the present purposes, immigrants represent the ingroup, whereas host-society members—the source of potential threats to immigrants and harassment-related worries—constitute the outgroup. It seems promising to expect that immigrants' harassment-related worries will also be affected by macrolevel factors[2]. Below, we focus on two such factors: (a) majority members' anti-immigrant prejudice, and (b) mass media attention to ethnic harassment.

Anti-immigrant Prejudice

Several perspectives suggest that anti-immigrant prejudice, broadly defined here as negative evaluations of immigrants based on their ethnic group membership (see Crandall and Eshleman, 2003) will heighten immigrants' worries concerning ethnic harassment.

For example, there is unequivocal evidence that prejudice represents a robust predictor of routine forms of ethnic harassment, such as derogatory comments, gestures, and behaviors in everyday interethnic encounters (Schütz and Six, 1996; Kauff et al., 2013).

Presumably, prejudiced communications and interactions also underlie the systematic discrimination of immigrants observed in the housing market (Klink and Wagner, 1999; Barwick and Blokland, 2015; Schlueter et al., 2018) and in the job market (Kaas and Manger, 2010). Besides individual exposure to discriminatory activities on the part of majority group members, peer communication about experiences of ethnic harassment constitutes a further plausible channel via which prejudice influences immigrants' harassment-related worries. Existing research also holds that anti-immigrant prejudice signals the social norms leading to manifest violence against immigrants (Dustmann and Preston, 2007). Ohlemacher (1994), for example, finds that a heightened negative public opinion climate precedes manifest violence targeted against migrants and refugees living Germany.

Thus, prejudice appears to affect immigrants' worries that the host society is biased against them across different domains. At first sight, this straightforward line of reasoning might lead one to think that there is nothing to question that prejudice has a positive impact on immigrants' harassment related worries. However, as mentioned in the introduction, solid theoretical and empirical arguments exist that speak against the view that anti-minority prejudice is a key driver of minority members' concerns

about an anti-minority bias. On the one hand, minority group members have been found to underestimate the extent of being confronted with prejudice, a relation that has been attributed to self-presentational concerns or the motivation to avoid being stigmatized as a victim. On the other hand, prior research also shows that some minority group members become vigilant with regard to prejudice and discrimination, possibly in order to protect their self-esteem against disadvantage (Major and Sawyer, 2009). These tendencies might easily undermine the presumed impact of anti-immigrant prejudice on immigrants' perceptions thereof, which underlines the need for reinforced research efforts in this field.

Hypothesis 1: We expect that the likelihood that immigrants experience worries about ethnic harassment will be greater in periods characterized by higher levels of anti-immigrant prejudice than in periods characterized by lower levels of anti-immigrant prejudice.

Mass Media Attention to Ethnic Harassment

Alone in the two decades under study, anti-immigrant violent acts in Germany caused the death of at least 100 immigrants (Die Zeit, 2015) and left many more injured. It is well-known that such extreme forms of ethnic harassment are regularly covered by the mass media and thus brought to a wide audience (Brosius and Esser, 1995), thereby enhancing the likelihood that large parts of the immigrant population become aware of the occurrence of ethnic harassment. Given that news reports of ethnic harassment often emphasize the role of immigrants as victims of host society members' negative behaviors mass media coverage of ethnic harassment might represent a further contributor to immigrants' harassment-related worries [3]. Underlying this expectation is the basic notion that information transmitted by the mass media contributes to peoples' intergroup attitudes and behaviors, and that such influences increase with greater media attention, i.e., more frequent mass media reports on a given topic (Boomgaarden and Vliegenthart, 2009; Schlueter and Davidov, 2013; Schemer, 2014). Notice that in addition to immigrants' direct personal exposure to news on ethnic harassment harassment-related worries occur might also be shaped through indirect mass media experiences, e.g., via peer communication about news reports on ethnic harassment. Combined, this leads us to expect that greater mass media attention to ethnic harassment will increase immigrants' harassment-related worries.

Hypothesis 2: We expect that the likelihood that immigrants experience worries about ethnic harassment will be greater in

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[2]Studies relying on arguments derived from group threat theory typically also include measures of economic conditions (e.g., unemployment rates) as well as group size. However, their aim is usually to explain anti-immigrant attitudes of the majority population. In times of, for example, economic hardship, majority members might feel more threatened by immigrants thus increasing the prevalence of anti-immigrant attitudes. Here, we use anti-immigrant to explain why some immigrants are more likely to fear harassment by majority members. There are few reasons to suspect that economic conditions have an independent effect on this likelihood that is not transmitted via the effect of anti-immigrant attitudes. This is also borne out by sensitivity analyses including the German unemployment rate where the coefficients of anti-immigrant attitudes (b = 6.46, $p < 0.001$ vs. b = 5.14, $p < 0.001$) and media coverage (b = −0.00, $p = 0.173$ vs. b = −0.00, $p = 0.756$) remain essentially unchanged.

[3]We acknowledge that extant research also documents that news reports on immigrants and immigration often portray immigrants in negative ways. It might seem tempting to examine if and to what extent this negative news coverage of immigrants contributes to heightened harassment-related worries in immigrants. However, negative news coverage of immigrants are known to centrally shape host-society members' negative sentiments toward immigrants (Schlueter and Davidov, 2013), or anti-immigrant prejudice. This means that any influence from negative mass media portrayals of immigrants on their harassment-related worries should occur indirectly via host-society members' anti-immigrant attitudes, which we already include in our theoretical expectations.

periods characterized by a larger number of news reports on ethnic harassment than in periods characterized by a smaller number of news reports on ethnic harassment.

Before we examine the empirical merits of our theoretical expectations, we briefly consider the setting of our study – Germany, from 1986 to 2004.

RESEARCH SETTING: IMMIGRANTS IN GERMANY, 1986 TO 2004

As in other European destination countries, large parts of the immigrant population living in Germany originated from 1960s labor migration, with later admissions of family members further increasing the number of immigrants (Thränhardt, 1992). In 1986, the total number of immigrants was 4.6 million people (about 6 percent of the population). In the early 1990s a substantial number of refugees arrived in Germany and continued to increase the total number of immigrants. In 2004, the last year of our observational period, the total number of foreigners living in Germany was 6.7 million people, or 8.1% of the total population (Destatis, 2015). It is well-known that German host society members often react negatively to the arrival and presence of immigrants. For example, negative attitudes toward immigrants continue to represent a widespread social problem in Germany (Coenders and Scheepers, 2008; Schlueter et al., 2008). A similar conclusion follows with regard to the violent outbursts against immigrants and refugees noted above. These particularly severe forms of ethnic harassment reached a peak in the early 1990s (Ohlemacher, 1994), but they still occur on a regular basis [BMI (Bundesministerium des Inneren), 2014]. Given these fluctuations in interethnic conflict over time, Germany is an ideal case to examine if and to what extent anti-immigrant prejudice and news reports on ethnic harassment affect immigrants' harassment-related worries.

DATA AND MEASURES

Data

To examine our theoretical predictions we linked individual-level data from 20 waves of repeated cross-sectional surveys with contextual-level characteristics varying over time. Data for the "Ausländer in Deutschland" survey series were collected by the Marplan research institute (Marplan Forschungsgesellschaft, 1986-2004) using face-to-face interviews. For each of the five immigrant groups (immigrants of Italian, Spanish, (ex-)Yugoslavian, Greek, or Turkish origin), every wave comprised representative quota samples of $\sim n = 500$ immigrants living in the West German federal states and Berlin. To be able to match our central contextual-level independent variable with these data, we focus here on data from the period 1986–2004. From 1986 to 1998 as well as in 2003 and 2004, immigrants were surveyed on an annual basis. From 1999 to 2002, the surveys were conducted biannually. In total, the pooled data set comprises $n = 32,744$ immigrants nested in 20 waves of repeated cross-sectional surveys. To our knowledge, this broad empirical source represents the longest time series of repeated cross-sectional surveys conducted among immigrants in Europe.

Dependent Variable
Harassment-Related Worries

To assess immigrants' harassment-related worries, we take advantage of a single indicator that is available in the same format across all of the Marplan survey waves. Respondents were asked in the questionnaire to indicate if they feel worried (= 1) or do not feel worried (= 0) with regard to ethnic harassment (*Ausländerfeindlichkeit*). In asking respondents for their self-reported worries, this single indicator provides a global, well-suited assessment of immigrants' evaluation regarding the likelihood of seeing themselves or their fellow group members as targets of ethnic harassment.

Independent Variables
Anti-immigrant Prejudice

We aggregate individual data from the *Politbarometer* survey series (Forschungsgruppe Wahlen, 2015) to operationalize German citizens' anti-immigrant prejudice as a characteristic of survey waves. The *Politbarometer* is a monthly poll based on probability sampling techniques, conducted among the German non-institutionalized general population aged 16 years and older. In the surveys, participants were asked in an open-ended question format: "What in your opinion is currently the most important problem in Germany?" and "And what is the second most important problem in Germany?" We averaged the percentages of respondents that indicated "foreigners" and/or "asylum seekers" as the most important or the second most important problem to form a proxy-measure of contextual-level anti-immigrant prejudice. Since the Politbarometer provides monthly survey data, we are able to construct this measure using a 3-months lag by considering the actual interview dates of the "Ausländer in Deutschland" surveys. For example, our measure for 1999 is based on the proportion of individuals mentioning immigrant-related keywords when answering the most-important-problem questions in January through March of 1999 as the survey was administered in March. In utilizing this measure, we follow several existing studies that demonstrate that responses to the most-important-problem question represent a valid indicator of negative attitudes toward immigrants (Ohlemacher, 1994; Lubbers and Scheepers, 2001; Boomgaarden and Vliegenthart, 2009)[4].

Mass Media Attention to Ethnic Harassment

To operationalize mass media attention to ethnic harassment, we conducted a computer- assisted frequency analysis (Krippendorf, 2003) of the digitally available content of the conservative broadsheet *Frankfurter Allgemeine Zeitung* and the left-wing broadsheet *Die Tageszeitung* for the 1986–2004 period. We identified relevant articles by searching for key words such as

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[4]We examined the robustness of our findings using additional proxy-items to assess anti- immigrant negativity. To this end, we constructed a dummy-variable from the Politbarometer Survey series measuring respondents' voting intentions for radical rightwing parties (0 = other parties, 1 = *Die Republikaner*, DVU, NPD), given that anti- immigrant prejudice is a known predictor of such voting intentions. The results were highly comparable (i.e., a significant association of German citizens' average intention to vote radical rightwing parties covaries positively with immigrants' harassment-related worries) to our findings reported in the main analyses.

"ethnic harassment" (*Ausländerfeindlichkeit*) or "ethnic hate" (*Ausländerhass*) in the headlines (Althaus et al., 2001) of all articles appearing up to 12 months before the start of the fieldphase of the surveys assessing immigrants' harassment-related concerns.

Irrespective of the different political learnings of both national newspapers, the trends in the attention paid to ethnic harassment in each news outlet were very similar ($r = 0.92$, $p < 0.001$). This indicates a considerable level of similarity in media attention to ethnic harassment across both news outlets, which reduces the risk of selection bias (Barranco and Wisler, 1999). We therefore averaged the number of articles from both newspapers to indicate media attention to ethnic harassment.

Note that anti-immigrant prejudice and mass media attention to ethnic harassment are strongly correlated ($r = 0.76$) but VIF values for both values are well below common cut-off points with 2.1 for both measures.

Control Variables

Differences in the composition of the immigrant population over time (Kalter and Granato, 2002) might alter the prevalence of harassment-related concerns among immigrants. To reduce this possibility, we included several individual control variables in our models (see André et al., 2009; ten Teije et al., 2013). To assess immigrants' *ethnic group membership*, we employ five dummy variables to indicate whether the respondents were of (ex-)Yugoslavian, Greek, Italian, Spanish, or Turkish origin. *Sex* was coded with males as the reference category (1 = "female"). Respondents' *age* was originally measured in years. We recoded this variable in five categories 1 = "18–29 years"; 2 = "30–49 years"; 3 = "50–64 years"; 4 = "65 years and older." Further, we classified respondents' *immigrant generation* according to whether they were born in Germany or not (born outside Germany = "first generation," born in Germany = "second generation"). We assessed immigrants' employment status using a trichotomous variable (0 = "not in the labor force"; 1 = "unemployed"; 2 = "working").

Educational attainment was assessed with years of fulltime formal education. We recoded these scores according to the ISCED-Scheme (UNESCO Institute for Statistics, 2012) in four categories: <7 years of education = "ISCED 0–1"; 7–11 years of education = "ISCED 2"; 12–13 years of education = "ISCED 3"; more than 13 years of education = "ISCED 4–6." Survey participants were also asked to evaluate *Germans' attitude toward foreign co-workers at the workplace*[5]. Answer options were given on a scale from 1 ("very friendly") to 6 ("very unfriendly"). We employ this item to account for interindividual differences in respondents' preexisting sentiment toward Germans and the German host-society. Finally, we also control for differences in respondents' *German language proficiency*. The interviewers evaluated immigrants at the end of the survey questionnaires on both their reading and speaking skills in German. Reading skills were assessed using a four-point scale with the endpoints 1 = "has perfect skills in reading German" and 4 = "is unable to speak German." Speaking skills were evaluated using

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[5]This question was presented to all survey participants regardless of their occupational status.

TABLE 1 | Descriptive statistics of dependent and independent variables ($n = 32{,}744$; $N = 20$).

	Range	Mean	SD
Dependent variable			
Worried about ethnic harassment	0–1	0.19	
Independent variables			
Spaniards	0–1	0.19	
Italians	0–1	0.20	
(Ex)Yugoslavians	0–1	0.20	
Greeks	0–1	0.20	
Turks	0–1	0.21	
ISCED 0–1	0–1	0.16	
ISCED 2	0–1	0.73	
ISCED 3	0–1	0.09	
ISCED 4–6	0–1	0.02	
Age: 18–29	0–1	0.30	
Age: 30–49	0–1	0.49	
Age: 50–64	0–1	0.19	
Age: > 64	0–1	0.02	
Female	0–1	0.43	
First generation	0–1	0.81	
Second generation	0–1	0.19	
Not in the labor force	0–1	0.29	
Unemployed	0–1	0.07	
Employed	0–1	0.64	
German attitudes at the workplace	1–6	2.61	0.96
German language proficiency	1–5	2.01	0.67
Immigrants/refugees currently most important problem	0–0.46	0.12	0.11
Media attention to ethnic harassment	3–135	21.19	28.51

a five-point scale from 1 = "speaks German perfectly" to 5 = "no verbal communication in German possible." As the two language variables were strongly correlated ($r = 0.81$, $p < 0.001$), we averaged them to form a single indicator. Subsequently, we reversed the coding so that higher values indicate higher German language skills. Descriptive statistics are reported in **Table 1**. Moreover, we relied on list-wise deletion to deal with missing information[6].

RESULTS

Descriptive Results

We begin presenting our results by taking a descriptive look at the trajectory of immigrants' harassment-related worries. These observations are based on aggregated scores only, but they provide an informative empirical vantage point for the subsequent multivariate multilevel regression analyses. Preliminary analyses indicated that the group-specific scores of derogation-related concerns for immigrants of Greek, Italian, Spanish, Turkish, and (ex-)Yugoslavian origin were quite similar. To simplify matters, we averaged the group-specific trajectories and focus here on the overall development of immigrants' harassment-related worries only.

Figure 1 suggests that immigrants' harassment-related worries (dotted line), majority members' anti-immigrant

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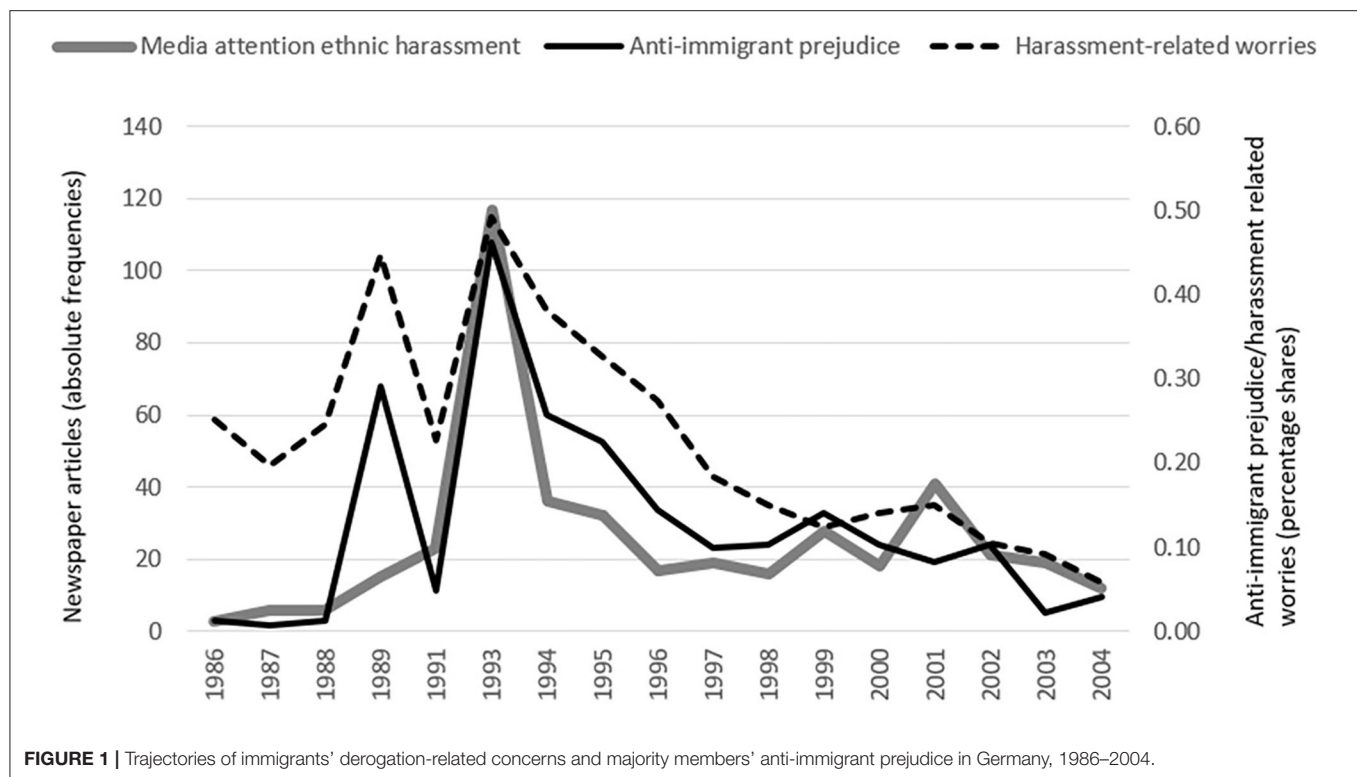[6]Replication code can be found at doi: 10.17605/OSF.IO/JN9ZH.

FIGURE 1 | Trajectories of immigrants' derogation-related concerns and majority members' anti-immigrant prejudice in Germany, 1986–2004.

prejudice (straight black line), and mass media attention to ethnic harassment (bold gray line) display quite similar trajectories over time. Starting with relatively low scores at the beginning of the observational window in 1986, both harassment- related worries and anti-immigrant prejudice show a sharp rise in 1989—the year of the electoral breakthrough of the German radical rightwing party *Die Republikaner* (Mudde, 2003)—and decline to their initial level thereafter. Anti-immigrant prejudice, harassment- related worries and mass media attention to ethnic harassment reach their maxima in 1993, after a period well-known for its exceptional rise in widespread anti-immigrant violent acts (Ohlemacher, 1994). For the remaining time, the data reveal a gradual decrease for each of the three variables up until the end of the observational window in 2004. This common trend was interrupted only by smaller peaks in anti-immigrant prejudice in 1999 as well as in harassment-related worries and mass media attention to ethnic harassment in 2000, respectively. From a broader perspective, then, these descriptive findings point to an overall decrease in immigrants' harassment-related worries, paralleled by similar developments in anti-immigrant prejudice and mass media coverage of ethnic harassment. Yet irrespective of this general trend, the data also shown remarkable common spikes which point to a positive relation of prejudice, respectively, mass media coverage with immigrants' harassment-related worries. However, we do not know whether this suggestive evidence remains intact once we submit the data to a more systematic empirical test. To achieve better insights on this issue, we now turn to the results from hypothesis testing using multilevel modeling techniques.

Results From Hypothesis Testing

We begin by noting that in our repeated cross-sectional survey data, individual immigrants (level 1) are nested in surveys (level 2). To deal with this data structure adequately, we employed two-level hierarchical regression models with a logit link (Hox, 2010). These models account for the clustering of respondents within surveys by treating each survey wave as a separate context and specifying a variance component that allows the intercept (i.e., the proportion voicing ethnic harassment-related worries) to vary across surveys. All models are based on penalized quasi-likelihood estimation procedures. **Table 2** shows that we started with an "empty" model (model 1) that contains no covariates but where the intercept varies randomly between contexts. Converting the results into a variance partition coefficient indicated that $\sim$13% $[0.495/(\pi^2/3)+0.495]$ of the total variance in immigrants' harassment-related worries were situated between years[7]. Consistent with the descriptive results above, this result indicates a substantial amount of contextual-level, longitudinal differences in the dichotomous dependent variable.

Model 2 builds on and extends the "empty" model by adding the individual-level control variables. The main aim here was to account for compositional differences among immigrants for the period under study, which otherwise might distort the subsequent results.

In short, the results show that the estimate of the random effect from model 1 to model 2 remains virtually unchanged. This means that compositional differences explain very little of

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[7] The individual-level variance in logistic models is fixed to $\pi^2/3$ (Hox, 2010).

TABLE 2 | Logistic multilevel model predicting harassment-related worries ($n = 32,744$, $N = 20$).

	Model 1	Model 2	Model 3	Model 4
Intercept	−1.480* (0.151)	−4.218* (0.206)	−4.632* (0.243)	−4.842* (0.199)
Individual level variables				
Spaniards (Ref.)		-	-	-
Italians		−0.245* (0.055)	−0.245* (0.055)	−0.245* (0.055)
(Ex-)Yugoslavians		0.644* (0.049)	0.644* (0.049)	0.644* (0.049)
Greeks		0.098 (0.052)	0.098 (0.052)	0.098 (0.052)
Turks		0.311* (0.050)	0.311* (0.050)	0.311* (0.050)
ISCED 0–1 (Ref.)		-	-	-
ISCED 2		0.237* (0.047)	0.236* (0.047)	0.236* (0.047)
ISCED 3		0.270* (0.074)	0.300* (0.074)	0.299* (0.074)
ISCED 4–6		0.494* (0.115)	0.493* (0.115)	0.494* (0.115)
Age: 18–29 (Ref.)		-	-	-
Age: 30–49		0.023 (0.040)	0.022 (0.040)	0.022 (0.040)
Age: 50–64		−0.057 (0.052)	−0.057 (0.052)	−0.058 (0.052)
Age: > 64		−0.004 (0.131)	−0.006 (0.131)	−0.009 (0.131)
Female		0.059 (0.036)	0.058 (0.036)	0.058 (0.036)
First generation (Ref.)	-	-	-	-
Second generation		−0.096* (0.046)	−0.096* (0.047)	−0.097* (0.049)
Not in labor force (Ref.)	-	-	-	-
Unemployed		−0.198* (0.066)	−0.198* (0.066)	−0.198* (0.066)
Employed		−0.070 (0.041)	−0.070 (0.041)	−0.070 (0.041)
German attitudes at the workplace		0.750* (0.017)	0.750* (0.017)	0.751* (0.017)
German language proficiency		0.048 (0.027)	0.048 (0.027)	0.047 (0.027)
Contextual-level variables				
Media attention to ethnic harassment			0.016* (0.006)	−0.006 (0.006)
Immigrants/refugees currently most important problem				6.097* (1.261)
Random effect				
Var(year)	0.471	0.465	0.336	0.152

*= $p < 0.05$.

the longitudinal differences in immigrants' derogation-related worries. The specific findings for the control variables are only considered briefly here, as they are not the main focus of our research. The data reveal that relative to Spaniards, all but Italian respondents were more likely to voice concerns about ethnic harassment. Accordingly, (ex-)Yugoslavians had the highest odds, followed by Turks and Greeks[8]. The results also provide evidence that more educated immigrants were more likely to exhibit harassment-related worries. Migrants with medium levels of education (ISCED 2-3) were between 27 and 35% ($e^{.237}-1$ and $e^{.297}-1$) more likely to mention ethnic harassment-related

concerns than migrants with a low level of education (ISCED 0–1). This figure is even higher for immigrants with a high level of education (∼64%). However, only very few migrants in our data reported ISCED levels >3 (ca. 2%, see **Table 1**). A further corollary finding is that immigrants who evaluate Germans' attitude toward foreign co-workers at the workplace as relatively more negative are more likely to voice worries about ethnic harassment. With regard to the remaining control variables, our findings reveal little difference with respect to gender or age. In addition, members of the second generation as well as unemployed members of the labor force were less likely to be worried about ethnic harassment. The subsequent models shift attention to the contextual-level independent variables and are key in answering our research question. Model 3 adds the measure of mass media attention to ethnic harassment. Providing preliminary support for the idea that more intense mass media attention heightens immigrants' harassment-related

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[8]We note that Germany admitted a substantial number of (ex-)Yugoslavian refugees during the early 1990s, a time of comparatively high levels of anti-immigrant sentiment (see **Figure 1**). Perhaps (ex-)Yugoslavians had been targets of the high levels of anti- immigrant sentiment, which potentially explains their higher levels of ethnic harassment worries.

worries, the data reveal a significantly positive parameter estimate (b = 0.016). Model 4 extends the analyses by including the indicator assessing anti- immigrant prejudice. In this model, the relation between mass media attention of ethnic harassment and harassment-related worries observed before disappeared. Probably due to the strong co-variation with anti-immigrant prejudice over time, the parameter estimate for the mass media indicator changes its sign and is no longer distinguishable from zero. The central finding from model 4 is that greater anti-immigrant prejudice leads to a remarkable increase in the odds of immigrants experiencing harassment-related worries. To illustrate, the data show that the odds of immigrants reporting harassment-related worries more than double ($e^{.10*6.463}-1 = 91\%$) for survey waves where anti-immigrant prejudice is 10% points ($\sim$ one standard deviation) above its mean. Further, the contextual variance situated between survey waves decreases from 0.336 (model 3) to 0.123. This indicates that German citizens' anti-immigrant prejudice accounts for 63% of the residual longitudinal variance in immigrants' harassment-related worries—a large effect. To further probe the robustness of the results, we estimated model 4 for each of the five immigrant groups separately (not shown in the table). These supplementary analyses revealed that Spaniards' odds of voicing concerns about ethnic harassment were the most sensitive to changes in the majority populations anti-immigrant prejudice (+118 percent), followed by Italians (+99%), (ex-)Yugoslavians (+93%), Greeks (+87%), and Turks (+70%). Even though Turks were the least sensitive immigrants to majority members' anti- immigrant prejudice, the magnitude of this relation was still comparable to the difference between migrants with the lowest and highest education levels. In conclusion, we find unequivocal evidence for *hypothesis 1* according to which stronger anti-immigrants prejudice increases harassment-related worries in immigrants. However, the assumption that mass media attention to ethnic harassment heightens harassment-related worries as stated in *hypothesis 2* receives no consistent empirical support[9].

CONCLUSION

This study sought to shift scholarly attention to the role of contextual-level sources for shaping immigrants' harassment-related worries. Drawing upon repeated cross-sectional survey data from immigrants living in Germany spanning the period from 1986 to 2004, this study is the first that approaches this task from a longitudinal perspective. Controlling for a range of individual-level characteristics, the results provide evidence that differences in immigrants' harassment-related worries over time are centrally shaped by fluctuations in majority members' anti-immigrant prejudice. This is a novel finding, with important implications for theory and research on the social integration

of immigrants. First, from a more general perspective, it is noteworthy that the present results are consistent with much prior social science inquiry underlining the need to account for contextual characteristics to better understand differences in immigrants' integration into host societies. Another implication of the current results is that worries among immigrants that the host-society is biased against them cannot be attributed to personal characteristics alone. Instead, by adding the insight that harassment-related worries partly represent a response to host-society members' prejudice, the present findings underline the need to account for the interdependency of ethnic relations between host-society members and immigrants.

This conclusion should also be consequential for policy makers and activists. Accordingly, those interested in successful interethnic relations among immigrants and host society members are well advised to take efforts to prevent or reduce the prevalence of anti- immigrant prejudice in host societies.

This study also has various limitations, many of which point to promising avenues for future research. For instance, although our research was based on an unusually broad empirical source, data limitations did not allow us to combine the current longitudinal research perspective with an examination of spatial differences in immigrants' hostility- related worries. Specifically, differences in hostility-related worries in immigrants across spatial contexts (e.g., municipalities) might plausibly be associated with spatial variation in host society members' anti-immigrant prejudice. Due to absent small-scale spatial information we also refrained from investigating the possible impact of local anti-immigrant events such as demonstrations, riots or other violent acts on immigrants' views that host society members are biased against them. Could it be that the spatial distance to the location of an anti-immigrant event is irrelevant for the strength of harassment-related worries? Or do harassment-related worries increase in response to local racist protests or acts of violence?

Data permitting, future research might productively explore the relevance of spatial contexts for different sources of harassment-related worries in immigrants.

Further insights might also be gained from differentiating between harassment-related worries related to one's ethnic ingroup as different from worries related to oneself.

For example, related research finds that minority members commonly perceive discriminatory activities targeted against their ingroup to occur more often as compared to personal experiences of discrimination (Major and Sawyer, 2009). Accordingly, future research might investigate whether a similar pattern of results also holds when distinguishing between harassment-related worries with regard to oneself as different from worries related primarily to one's ethnic ingroup.

Finally, as mentioned above, the current results do not support the assumption that immigrants' harassment-related beliefs are shaped by the amount of mass media attention to ethnic harassment. Initially, the data revealed a significantly positive parameter estimate for the indicator of mass media coverage on ethnic harassment. Yet once we extended our model to include majority members' anti-immigrant prejudice, the parameter estimate for the news reports variable became statistically insignificant and changed its sign. This result might be taken

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[9]In supplemental analyses, we explored the plausible idea suggested by a reviewer that highly educated immigrants tend to be especially sensitive to forms of discrimination and ethnic harassment. However, the cross-level interaction models we estimated to test this suggestion showed that the effect of anti-immigrant attitudes on immigrants' harassment-related worries does not vary with individual's educational attainment.

to indicate that mass media coverage on ethnic-harassment has little to add in shaping immigrants' harassment-related concerns. However, it is well-known that many aggregate characteristics tend to move together over time (Janoski and Isaac, 1994), which often implicates methodological difficulties. Presumably, the longitudinal co-variation between the average level of Germans' anti-immigrant prejudice and the frequency of newspaper articles on ethnic harassment represents no exception from this. Thus, more conclusive insights regarding the possible impact from mass media reports on ethnic harassment on subjectively experienced worries await additional empirical results using alternative research designs.

Further, it should also be acknowledged that our frequency analyses of news reports on anti-immigrant events was based on German-speaking broadsheets only. It is conceivable that content analyses of ethnic newspapers appearing in Germany (Halm, 2006) might deliver alternative results regarding the frequency of news reports on ethnic harassment.

These limitations and directions for future work notwithstanding, it is important to keep in mind this study's main contribution to the extant literature – namely, the novel finding that longitudinal differences in immigrants' harassment-related worries are systematically shaped by majority members' anti-immigrant prejudice.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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A Threat to the Occident? Comparing Human Values of Muslim Immigrants, Christian, and Non-religious Natives in Western Europe

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With a growing Muslim population, many European countries need to integrate Muslims into their societies. One aspect that can hinder successful integration are substantial differences in human values. This is because such values are consequential for attitudes as well as behavior. We compare basic human values between Muslim immigrants and non-Muslim natives in four European countries with distinct immigration histories and integration politics: Belgium, France, Germany, and Sweden. For most insightful comparisons, we contrast values of Muslim immigrants with those of Christian natives as well as those of non-religious natives. We employ data of more than 50,000 individuals based on the first eight waves of the European Social Survey. Our findings reveal significant differences in value priorities between Muslims, Christians and non-religious individuals in all four countries. Amongst other things, Muslim immigrants score particularly high in *conservation* values (*security* and *tradition/conformity*). At the same time, they also score higher in *self-transcendence* values (*benevolence* as well as *universalism*). While many of these findings are in line with theory and previous research, the higher score in *universalism* is unexpected. A potential explanation is the combination of religious traditionalism and discrimination experiences. In other words, religious traditions are associated with more conservative views, but being subject to marginalization can still result in an appreciation of equal opportunities. We find only limited support for differences in *hedonism*. Religiosity correlates with values of *tradition/conformity* for Muslim immigrants as well as for Christian natives. Thus, accounting for religiosity renders differences in these values between Muslims and other groups statistically insignificant. While most of these findings hold in all countries, differences are most pronounced in Sweden and lower in the other three countries, which is also true after accounting for differences in socio-economic status and religiosity between the three groups. This suggests that a combination of a country's history of diversity and national integration policies either encourages the convergence of values or leads to a solidification of value differences between groups. We discuss these political and social implications of our findings.

Keywords: immigration, Muslims, Christians, human values, Europe, religion, integration, natives

INTRODUCTION

Europe is becoming increasingly diverse in terms of religion and ethnicity, including a strong increase of Muslims (Pew Research Center, 2017). Some natives view Muslim fundamentalism as a threat to liberal achievements of Western societies (Helbling, 2014). Some far-right politicians take up public concerns to justify restrictive migration policies (e.g., Kaminski, 2015; Waterfield, 2015). This dynamic does not only influence public opinion (Czymara, 2019) but also gives rise to hate crimes targeted against Muslims, especially after Islamist terror attacks (Borell, 2015). At the same time, some native Europeans consider Muslim fundamentalism as threatening secular norms (Helbling and Traunmüller, 2018). Existing public opinion data suggest that Muslims, on average, score higher on, for example, homonegative (van Den Akker et al., 2013; Jäckle and Wenzelburger, 2015) or Anti-Semitic (Kaplan and Small, 2006; Bevelander and Hjerm, 2015) views compared to other religious groups, and are more likely to hold patriarchal values (Alexander and Welzel, 2011) as well as dismissive attitudes toward gender equality (Diehl et al., 2009). Higher levels of traditionalism (Connor, 2010) or even fundamentalism (Koopmans, 2015) might be an explanation. It seems reasonable to assume that these intertwined conflicts between Muslims, Christians and non-religious groups in Europe lead to differences in worldviews.

We know little, however, about the distribution of *human values* of Muslim immigrants in Europe. Human values can either foster or impede the integration of immigrants because (dis-)agreement in worldviews in terms of values is typically regarded consequential regarding peaceful cohabitation within societies. Moreover, human values of natives are directly linked to the perception of immigration and the evaluation of different minorities (Davidov et al., 2019; Eisentraut, 2019). This lack of evidence is striking given that human values are consequential regarding, for example, attitudes toward homosexuality (Kuntz et al., 2015), toward immigration (Davidov and Meuleman, 2012; Eisentraut, 2019) or toward the welfare state (Kulin and Meuleman, 2015), as well as individual well-being (Burr et al., 2011) or behavioral aspects such as alcohol consumption (Schwartz et al., 2001). Previous studies have shown that human values in European societies differ, for example, across age groups (Robinson, 2013) or, to lesser degree, with sex (Schwartz and Rubel, 2005). However, Schwartz and Rubel (2005) report that most variation in human values is not explained by such demographics but by "culture," understood as differences across countries. We exceed the rather vague culture definition of Schwartz and Rubel (2005) by comparing basic human values across religious and non-religious groups in several European countries. We examine human values of Muslim immigrants in Europe, a group that received only limited attention in the human values literature so far with, first, Christian natives and, second, non-religious natives. The comparison of these three groups will lead to insights into the interplay of immigration and religion in the process of value formation in Europe. This is because, in case Muslim immigrants and Christian natives share more values compared to non-religious natives, differences would likely stem from religiosity in general. If, on the other hand, Christian and non-religious natives hold more similar values, general religiosity could be ruled out as an explanation, pointing to specific effects of religion, minority status or carry-over effects of origin societies (Röder, 2015; Soehl, 2017).

We test these considerations based on more than 50,000 individuals contained in the European Social Survey. For further insights, we distinguish differences between groups within four European countries with distinct immigration histories and integration politics (Belgium, France, Germany, and Sweden). Moreover, we examine how far potential value differences between groups can be attributed to differences in each group's level of religiosity or to structural differences in socio-economic characteristics. Given the strong correlation between human values and both attitudes and behavior, conflicting values between social groups impede integration into host societies, ultimately threatening social cohesion within and across European countries.

BASIC HUMAN VALUES AND RELIGION

Shalom H. Schwartz defines basic human values as *"desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity"* (Schwartz, 1994, p. 21). Their importance is ordered in individual hierarchies that are usually viewed as (more or less) stable across time and situations (Rokeach, 1973). Therefore, individuals' values serve as guidelines to judge people, events, and actions. A plethora of studies has empirically validated the structure and definition (Schwartz, 1994) of basic human values (e.g., Schwartz and Boehnke, 2004; Davidov et al., 2008; Schwartz et al., 2012; Steinmetz et al., 2012). **Figure 1** displays the quasi-circumplex structure of the basic human values. Adjacent values share common motivational cores and are, thus, more compatible with each other, whereas conflicting values and incompatible motivational goals are located on opposing sides of the circle. Each of the 10 values belongs to one of the four higher-order dimensions, which have two different lines of conflict. The first set of values we are interested in involve avoidance of change, self-restriction and order. These values are subsumed under the broader category *conservation*, in contrast to values expressing the need for new experiences (*openness to change*) (Schwartz, 2012). Such self-restriction and resistance to change is highly compatible with religiosity on a theoretical and empirical level, as prior research has demonstrated (Roccas and Elster, 2013, p. 195). The second set of values we are interested in are those that emphasize the well-being of other people (*self-transcendence*), which contrast others that reflect the prioritization of one's own interests (*self-enhancement*) (Schwartz, 2012). As we elaborate below, the connection between *self-transcendence* and religiosity are more complex. Finally, because it directly opposes one of the core functions of religion (see below), we also examine differences

FIGURE 1 | Basic human values according to Schwartz (2012).
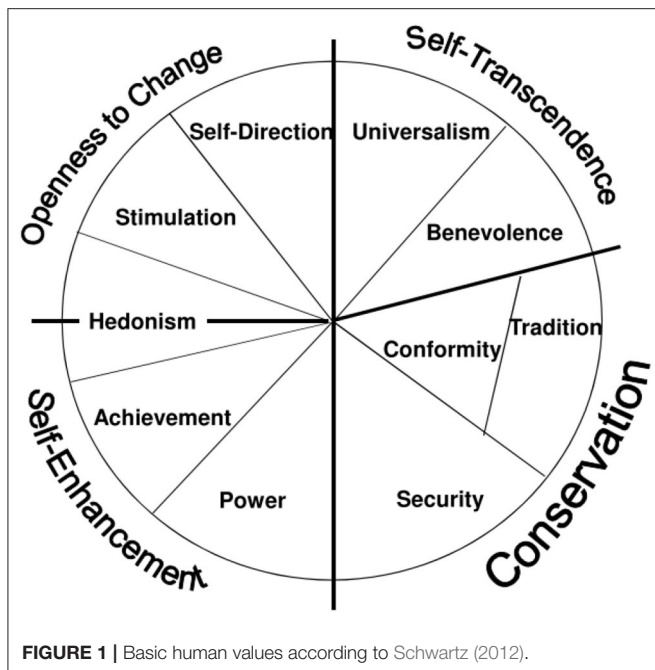
in the *hedonism* value, which belongs to both higher-order values *self-enhancement* and *openness to change* (Schwartz, 2012).[1]

Generally, religiosity is strongly connected to the values of *conservation* because these values have a strong focus on tradition. This is very compatible with religion's "central goals of submission to transcendental authority and protecting individuals from uncertainty" (Roccas and Elster, 2013, p. 195). These theoretical considerations are backed by evidence collected in the meta-analysis of Saroglou et al. (2004), who show that religious people tend to favor values that belong to the higher-order dimension of *conservation*, especially its sub-values *tradition/conformity* (and tend to dislike values of *self-enhancement* or *openness to change*). The higher-order dimension of *conservation* is, thus, particularly relevant when comparing religious with non-religious groups. This leads to our first hypothesis:

- Hypothesis 1: Muslim immigrants (and Christian natives) score higher in *conservation* values (*tradition/conformity* and *security*) (*Conservation Hypothesis*).

In contrast to *conservation* related values, the *hedonism* value is highly incompatible with religion. This is because the *hedonism*

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[1]We do not include the remaining values belonging to *openness to change* or *self-enhancement* in our analysis. This is because comparing all Schwartz values across three groups *and* all groups across four countries would make the study very complex, both in terms of theoretical expectations and in terms of empirical estimation. Not least, the computation of a model including all values is practically not feasible (see method section). Thus, we focus on those values, which we see as most relevant for our case. For a discussion on the relationship between the remaining values and religion in general, we refer to the review of Roccas and Elster (2013) and to the meta-analysis of Saroglou et al. (2004).

value expresses the goal of having fun and enjoying oneself to the most (Schwartz, 2012). The gratification of material desires directly opposes one of the primary principles of religion, which is to "temper self-indulgent tendencies" (Roccas and Elster, 2013, p. 195). For Christians as well as Muslims, this pattern is also confirmed by the meta-analysis of Saroglou et al. (2004). Thus, we hypothesize that:

- Hypothesis 2: Muslim immigrants (and Christian natives) score lower in *hedonism* compared to non-religious people (*Hedonism Hypothesis*).

The connection between the higher-order value *self-transcendence* and religiosity is more ambiguous. According to Schwartz (2012), *self-transcendence* consists of the two values *universalism* and *benevolence*. What these values have in common is that they measure compassion with and concern for other people. However, what separates *universalism* and *benevolence* is the scope of these concerns. While *benevolence* refers to people who are close to oneself, *universalism* applies to all people, which should also include members of, for example, other religious groups (Roccas and Elster, 2013, p. 195). *Universalism* is, thus, an eminently important value when it comes to the evaluation of different ethnic or religious out-groups (Eisentraut, 2019) and expresses the goal of appreciation and tolerance. Most religions, including Christianity and Islam, emphasize selflessness with close others. Hence, *benevolence* is compatible with religiosity (Roccas and Elster, 2013, p. 195), which is also found in most empirical studies (Saroglou et al., 2004). In contrast, however, religious people tend to score low on *universalism*, especially in Mediterranean countries (Saroglou et al., 2004). This can be explained by the particularisms of religions that make *universalism* less compatible with religiosity (Roccas and Elster, 2013, p. 195). Based on these considerations, we formulate the two hypotheses that:

- Hypothesis 3a: Muslim immigrants (and Christian natives) score higher in *benevolence* compared to non-religious people (*Benevolence Hypothesis*)
- Hypothesis 3b: Muslim immigrants (and Christian natives) score lower in *universalism* compared to non-religious people (*Religious Universalism Hypothesis*).

Our argumentation thus far mainly differentiates between religious and non-religious individuals. That is, hypotheses 1 to 3 implicitly contain that value differences between Christian natives and Muslim immigrants are negligible. On the one hand, this reasoning is in line with the meta-analysis of Saroglou et al. (2004), who report, on average, rather similar value patterns across Christians and Muslims in previous research. This is mirrored by that fact that European Christians do not seem to discriminate Muslims more than non-religious people do (Czymara and Schmidt-Catran, 2016, p. 214). Helbling and Traunmüller (2018) conclude that the "current political conflict is not about Muslims vs. Christians or immigrants vs. natives, but about political liberalism vs. religious fundamentalism" (p. 15). Similarly, van der Noll and Saroglou (2015) find that Christians rather support Islamic education than abolishing religious

education altogether. However, the pure focus on the role of religiosity neglects potential differences also between different branches of religion. Moreover, it does not take into account the specific situation of most European Muslims, that is, their status as a religious, and often ethnic[2], minority within each of the host societies we analyze. Hence, there are reasons to assume differences also within the category "religious," depending on the particular denomination or ethnic minority status that make it worthwhile to test potential differences between these groups, as we will elaborate in the following.

Previous research suggests that Muslims in Europe tend to exhibit higher values of traditionalism (Connor, 2010) and fundamentalism (Koopmans, 2015) compared to Christians, which translates into, for example, dismissive attitudes toward homosexuality (van Den Akker et al., 2013; Jäckle and Wenzelburger, 2015) or gender equality (Diehl et al., 2009). While neither traditionalism nor fundamentalism are identical to the basic human value *conservation*, there is conceptual overlap, especially with its sub-values *tradition* and *conformity*. In the context of Islam, *tradition* relates to "eternal" rules that are binding for its believers (Koopmans, 2015) and a literalist reading of the Quran. Submission, the literal translation of *Islam*, to God and the collective belonging to one *Ummah* (Tibi, 2010) can be understood as a form of religious *conformism* that is especially pronounced in Islam. In the European context, such religious conformism among Muslims might be boosted by religious gatherings with conservative peers, as prior research indicates that mosque attendance predicts support for patriarchal values in non-Muslim societies (Alexander and Welzel, 2011). Hence, while *conservation* should generally be larger for religious compared to non-religious individuals, as we elaborated above, this value might be even more prevalent in Muslims compared to Christians in Europe due to higher levels of traditionalism/fundamentalism. Moreover, traditionalism or fundamentalism might be seen as a form of religiosity. In this case, differences in *conservation* should be explained by different levels of religiosity between Muslims and Christians (Simsek et al., 2019). On the other hand, a literalist reading and collective belonging might make religiosity a stronger predictor of *conservation* for Muslims than for Christians. While we will test these considerations, for now, we formulate the following hypothesis:

- Hypothesis 4: Muslims exhibit higher levels of *conservation* than Christians do (*Muslim Conservation Hypothesis*).

On the other hand, native Europeans' tend to view Muslim immigrants particularly negatively (Strabac and Listhaug, 2008; Bansak et al., 2016; Czymara and Schmidt-Catran, 2017; Czymara, 2019), in some incidents even including violence and hate crimes targeted against Muslims (Borell, 2015). Moreover, the rhetoric of political elites, especially on the far-right, on Muslims is often very hostile (Peachey, 2018), and links Muslim immigration primarily to Islamic terrorism (Kaminski, 2015;

Waterfield, 2015). (Potentially) being the target of hate speech and violence could be another reason why Muslims might score higher in the *security* dimension of the *conservation* value (see hypothesis 1). Furthermore, experiences of discrimination may increase sensitivity toward social exclusion. This, in turn, may boost values of tolerance and equal opportunities. This is what the human value *universalism* captures. The particular social position of Muslims in Europe might, hence lead to the special situation where religion is not only associated with particularistic compassion toward those who are close, but a universal one toward people in general. In this case, being Muslim should not only be related to scoring higher on self-transcendence's *benevolence* sub-value (see hypothesis 3a) but also on its *universalism* value. This leads to our final hypothesis, which partly competes with hypothesis 3b:

- Hypothesis 5: Muslims in Europe exhibit higher levels of *universalism* than Christians do (*Discrimination Universalism Hypothesis*).

MUSLIM IMMIGRATION IN GERMANY, FRANCE, BELGIUM, AND SWEDEN

From a global perspective, many European countries, including those destinations that are part of the present analysis, can be regarded as rather exceptional terms of culture and values. Schulz et al. (2019) describe European countries as "Western, Educated, Industrialized, Rich, and Democratic" (WEIRD) and argue that higher levels of individualism, liberalism, and social trust are rooted in a historical decrease of kin-based institutions caused by rules of the Western Church. In contrast, many sending countries, including Muslim ones, are characterized by high(er) kindship intensity and collectivism (Tibi, 1994), which should then lead to value differences between (descendants of) Muslim immigrants and non-Muslim Europeans.

The four European countries we analyze are all popular destinations for immigrants—including a sizable, and growing, Muslim population (Koopmans, 2013; Pew Research Center, 2017), a point that is crucial for our study. In all countries, Muslims are considerably younger than the average population (De Raedt, 2004; also see **Table 1**) and tend to have higher fertility rates, leading to a predicted increase in their population share even without any future immigration (Pew Research Center, 2017). Political elites as well as the general public often vividly debate the inflow and demographics of Muslims in Europe (Czymara, 2019). Yet, all four countries have distinct immigration histories, different economies, and integration politics. In the following, we will give a brief description of the situation of Muslims in each country.

Belgium can be considered *"one of the most multicultural and multiracial countries of the European Union"* (Martiniello, 2020, p. 225). While Belgium has a rather liberal integration policy, it lies in the midfield regarding religious rights for Muslims (Koopmans, 2013) and regarding public sentiments toward Muslim immigrants (Strabac and Listhaug, 2008; Savelkoul et al., 2012; Czymara, 2019). Most of Belgium's Muslim population consists of immigrants from Morocco and Turkey, and their

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[2]Although religion and ethnicity are distinct concepts, both are interrelated in the case of European Muslims and religion is a central aspect of many ethnic identifications (Czymara, 2019, p. 6; also see Tibi, 2010; Brubaker, 2013).

TABLE 1 | Number of cases and demographics.

	Belgium (N)	Germany (N)	France (N)	Sweden (N)	Religiosity [mean (SD)]	Gender (percentage male)	Age [mean (SD)]	Education—ISCED (median)
Muslim immigrants	584	508	426	268	7.5 (2.4)	54.1	34.6 (13.4)	3: Upper Secondary, lower tier (17.7%)
Christians natives	4,483	10,145	4,155	3,418	5.8 (2.3)	44.8	53.6 (18.8)	3: Upper Secondary, lower tier (30.6%)
Non-religious natives	6,693	8,837	6,164	7,993	2.3 (2.5)	53.0	45.5 (18.0)	4: Upper secondary, upper tier (16.0%)
Total	11,760	19,490	10,745	11,679	3.9 (3.0)	49.7	48.5 (18.8)	3: Upper Secondary, lower tier (28.4%)

Data source: European Social Survey waves one to eight.

descendants (De Raedt, 2004; Koopmans, 2015). In 1974, Belgium was the first European country to recognize Islam as an official religion and from the mid-1980 on, Islam was increasingly present in the Belgian public (De Raedt, 2004). The history and tradition of ethnic and religious diversity might make it more likely that Muslim immigrants in Belgium and Christian as well as non-religious native Belgians hold values that are more similar compared to countries with less history of diversity[3].

Most Muslims in *France* originate from the Maghreb, due to France's history of holding colonies in this area. Immigration laws gave many Muslims from former colonies the possibility to gain French citizenship (Croucher, 2013). However, France's strong tradition of *laïcité*, the strict separation of church and state, leads to policies that are rather restrictive for all religions, including Islam. For example, there is no religious education in schools, no confessional schools and neither teachers nor students are allowed to wear a headscarf (or any other religious symbols) at school or any other public institution (Koopmans, 2013; Kuru, 2016). This leads to tensions between secularists and religious groups in general, and Muslims in particular. In addition, religious fundamentalism seems to be particularly widespread among Muslims in France (Koopmans, 2015). While Frenchmen are indeed most likely to reject the religious headscarf (Helbling, 2014), public opinion toward Muslim immigrants does not seem to be particularly negative, relatively to other countries in Europe (Strabac and Listhaug, 2008; Savelkoul et al., 2012; Helbling, 2014; Czymara, 2019). In recent years, several Islamist terror attacks of Islamists shocked France (see, for example, Jungkunz et al., 2018; Vasilopoulos et al., 2018). On the one hand, France's long history of diversity may have caused a convergence of values between Muslim immigrants, Christian and non-religious natives. We might, thus, expect that human values of Muslim immigrants, Christian and non-religious natives are relatively similar in France. On the other hand, strict secularism may have led to clashes between religious groups and non-religious native Frenchmen. Hence, one could also hold the competing expectation that human values of religious groups (Muslim

immigrants and Christian natives) differ more strongly from those of non-religious natives.

Germany began to receive sizeable numbers of Muslims from Turkey from the 1960s on, based on a treaty between the German and the Turkish governments. These migrants were recruited as *Gastarbeiter* ("guest workers") and meant to contribute to Germany's labor market, primarily filling temporary labor shortages (Ellermann, 2015). Contrary to the initial plan, large-scale immigration and family unification lead to *"unanticipated and, ultimately, unwanted mass immigration"* for Germany (Ellermann, 2015, p. 1236). This may explain why Germany grants relatively few religious rights to Muslims, ranking just above France in this respect (Koopmans, 2013). However, German Muslims seem to be less religiously fundamentalist compared to their counterparts in other European countries (Koopmans, 2015) and the German public is relatively neutral (Strabac and Listhaug, 2008; Helbling, 2014) or even positive (Czymara, 2019) toward Muslim immigrants (but see Savelkoul et al., 2012). During the refugee flows to Europe in 2015/16, Germany received most refugees in total, who primarily originated from Muslim areas (Pew Research Center, 2017). The intake of a large number of refugees was connected to some dramatic events. Some acts were committed by refugees such as the sexual assaults taking place on New Year's Eve 2015/16 (Czymara and Schmidt-Catran, 2017) or the Islamist terror attack on a Christmas market in Berlin in 2017 (Fischer-Preßler et al., 2019; Schmidt-Catran and Czymara, 2020). Other acts were committed by German natives, such as personal attacks against refugees or arson attacks on asylum shelters (Jäckle and König, 2018). Historically relatively reluctant integration politics and recent inter-ethnic tensions might lead to expect larger value differences in Germany.

Finally, *Sweden* has the youngest history of Muslim immigration, with Muslims being largely absent in the Swedish population before the 1980s, but with a steady increase afterwards (Bevelander and Otterbeck, 2010). Sweden's Muslims tend to exhibit rather low levels of religious fundamentalism (Koopmans, 2015) and Swedish natives are consistently the most Muslim friendly in Europe (Strabac and Listhaug, 2008; Helbling, 2014; Czymara, 2019). In contrast to Germany, only few of Sweden's Muslims entered the country as guest workers,

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[3]Note, however, that Koopmans (2015) reports that levels of religious fundamentalism among Muslims are high in Belgium.

while most were refugees or their families (Bevelander and Otterbeck, 2010). This tendency further rose in 2015, when Sweden accepted a relatively large number of refugees (Pew Research Center, 2017). Drawing upon the reasoning of Schulz et al. (2019), Sweden is an especially "WEIRD" country, with a strong welfare state and a long tradition of cultural liberalism and social democracy. Differences in values between Muslim immigrants and native non-Muslim Swedes might thus be especially strong. Moreover, Sweden has a very multi-culturalist approach to diversity, aimed at preserving origin cultures instead of assimilation. Therefore, Sweden grants most religious rights to Muslims from all countries analyzed, while having little requirements for civic integration (Koopmans, 2013). Pre-existing value gaps in combination with Sweden's multi-cultural immigration politics (Koopmans, 2013), might lead to lower investments of Muslim immigrants in cultural and social capital (Esser, 2010) and, hence, less assimilation and the persistence of value differences (Kymlicka, 1995). Given these considerations, we expect that value differences between Muslim immigrants and (Christian and non-religious) native Swedes are most pronounced compared to the other three countries of investigation.

DATA

We draw upon pooled data from the first eight waves of the European Social Survey (European Social Survey Cumulative File ESS, 2018) to examine how basic human values distribute across Muslim immigrants and Christian natives in Europe. To capture basic human values, the ESS uses the Portrait Value Questionnaire (PVQ) 21, a modification of the PVQ-40 (Schwartz, 2007). It describes portraits of different people and asks respondents to evaluate how similar this portrait is to them. Each of the five values were measured by two items: *universalism* by the importance of equality and understanding other people, *benevolence* by the importance of the well-being of others and loyalty toward friends, *conformity* by the importance of following rules and behaving properly, *tradition* by the importance of being modest and following customs and religion, *security* by the importance of living in secure surroundings and having a strong state that defends its citizens and *hedonism* by the importance of having a good time and to do things that give pleasure. Responses ranged from 1 (very much like me) to 6 (not like me at all) and were recoded so that high scores indicated a high importance of the value. See **Table 3** for the wording of the items measuring each human value.

To differentiate the religious denominations, we use the following ESS item: *"Do you consider yourself as belonging to any particular religion or denomination?"* Using the responses *"Islamic"* for Muslims and combining *"Roman Catholic," "Protestant," "Eastern Orthodox,"* and *"Other Christian denomination"* for Christians. We define non-religious individuals as those stating that they do not belong to a religion or denomination at present. To account for religiosity, we draw upon the item *"Regardless of whether you belong to a particular religion, how religious would you say you are?"* with answers ranging from 0 (*"Not at all religious"*) to 10 (*"Very religious"*). Importantly, this question is asked for all

respondents, including "believers without belonging" (i.e., those that are religious but not part of an official denomination)[4].

In this study, we understand immigrants as first and second generation immigrants (i.e., people with a migration background), while we refer to those without a migration background as natives. We define a migration background as an individual who is herself not born in the country of residence or whose mother or father was not born in this country[5].

For deeper analysis, we account for differences in socio-economic status (SES), which we here capture with age and education. We measure a person's age in years. For education, we use the *International Standard Classification of Education* (ISCED). **Table 1** gives an overview of the descriptive statistics of these variables for each of the three groups we want to compare in each county. As **Table 1** shows, Muslim immigrants are clearly a minority in each country, their total numbers range from 268 in Sweden to 584 in Germany (which is sufficient for our SEM approach). Furthermore, Sweden is the least religious country of our comparison, with almost 70 percent of our sample of analysis being non-religious natives. In contrast, with more than half of the analyzed sample, Germany has the highest amount of Christian natives.

METHOD

Similar to previous studies (i.e., Davidov et al., 2019) we employ multi-group confirmatory factor analysis (MGCFA), to analyze the differences in the values *universalism, benevolence, tradition, conformity, security* and *hedonism* of Muslim immigrants, Christian natives and non-religious natives[6]. MGCFA is a method that allows to test whether a hypothesized measurement model fits with the data that are used (Jöreskog, 1977). In our case, this means that we can test if the ESS human value scale items really measure their respective values (as latent constructs) and if the same constructs are measured in every group.

Because our main aim is to analyze statistical differences for values between the three (non-)religious groups in each country, we estimate four separate models—one for each country. The studies of Davidov (2008, 2010) show that when using the human value scale of the ESS, only a subset of countries share the same value structure. For Belgium, Germany, France and Sweden the same value structure can be found empirically, which enables us to use four identical models that are comparable (Davidov, 2008). Those studies also show that only a certain amount of values can be used at the same time when using confirmatory factor analysis with the ESS human value scale. Beside our theoretical considerations, this is one of the reasons to not include more human values into the analysis—the statistical model would simply not work anymore (for a deeper analysis of the statistical

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[4]However, it is perhaps not too surprising that those who do not belong to a religion are significantly less religious compared to Muslims or Christians (see **Table 1**).

[5]It should be noted that being Muslim and being immigrant are almost perfectly correlated in our data, with only 3.6 percent of Muslims not having an immigration background ($n = 67$). Thus, we usually mean non-Muslims when we speak of "natives" in this article.

[6]We use MPlus Version 8 (Muthén and Muthén, 2017). All code is available at: https://dx.doi.org/10.17605/OSF.IO/YXR45.

TABLE 2 | Fit measures for the different levels of measurement invariance.

Country	Global fit measures	Configural	Metric	Partial scalar	Scalar
Belgium	Pclose	0.994	1.000	1.000	0.001
	RMSEA	0.046	0.044	0.044	0.054
	CFI	0.953	0.953	0.948	0.919
	SRMR	0.027	0.028	0.030	0.043
France	Pclose	0.980	1.000	1.000	0.000
	RMSEA	0.044	0.044	0.045	0.065
	CFI	0.959	0.958	0.954	0.901
	SRMR	0.028	0.030	0.032	0.052
Germany	Pclose	0.986	1.000	1.000	00.00
	RMSEA	0.047	0.045	0.044	0.057
	CFI	0.958	0.958	0.955	0.926
	SRMR	0.031	0.032	0.032	0.042
Sweden	Pclose	0.410	0.906	0.909	0.000
	RMSEA	0.050	0.048	0.048	0.057
	CFI	0.953	0.953	0.948	0.927
	SRMR	0.033	0.035	0.036	0.044

Global fit measures (cut-off criteria in brackets).
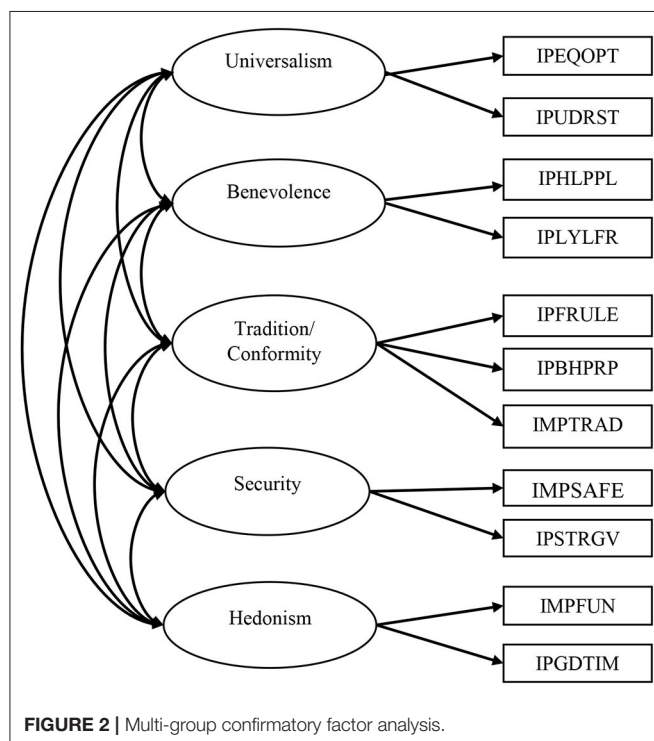Pclose = probability of close fit (≥0.05).
RMSEA = root mean square error of approximation (<0.06).
CFI = comparative fit index (>0.95).
SRMR = standardized root mean square residual (<0.08).
See West et al. (2012) for details on fit measures.

FIGURE 2 | Multi-group confirmatory factor analysis.

difficulties when working with the ESS human value scale, see Davidov, 2008, 2010).

For the statistical comparison of the value means between the (non-)religious groups, we need to make sure that the understanding of the ESS items is the same between those groups.

To empirically test this, we have to check for measurement invariance, which is a statistical method to ensure comparability of construct measurements between groups or points in time (Milfont and Fischer, 2010). A prerequisite for meaningful comparisons of latent means (in our case, values) between groups is scalar invariance. Scalar invariance means that the factor loadings of the constructs are invariant across groups (which would be metric invariance) and the intercepts of the indicators are invariant as well (Vandenberg and Lance, 2000). Without at least partial scalar invariance, it would not be possible to compare the different religious groups. This is because, in this case, we would measure different constructs/values in the different groups (Milfont and Fischer, 2010). Our analysis reveals that, fortunately, we establish partial scalar invariance across groups. The only item that is not invariant is *imptrad* ("*Tradition is important to him/her. He/she tries to follow the customs handed down by his/her religion or his/her family*). This item has to be estimated freely for non-religious natives, which is no surprise due to its item formulation. After all, "religion" is directly adressed in the question wording and therefore this item surely does not measure the same when asking religious vs. non-religious individuals. Following the criteria of Chen (2007), all other items are scalar invariant as can be seen in the model fit for different invariance levels in **Table 2**. Therefore, we can compare the latent means between the different (non-)religious groups.

As the only modification to our theoretically assumed model, we had to build one value that consists of the values *tradition* and *conformity* (similar to Davidov et al., 2019). One item of the *tradition/conformity* construct had to be excluded from the analysis due to cross-loadings. **Figure 2** shows our final model.

Our main interest lies in describing the total differences in human values between Muslim immigrants compared to

Christian natives as well as non-religious natives. However, we also run two additional models to account for differences in religiosity and socio-economic status between the three groups. That is, we control for the effects that religiosity and socio-economic status (age and education) have on each value in each country for each group. These "control" models are rather demanding for our data since they imply a plethora of additional parameters (one for each control variable on each value for each group within each country). This results in an exponential growth of the complexity of the models with each additional control variable. Hence, while these models can offer interesting insights, we want to emphasize that some fit metrics of these models do not meet the threshold that is usually seen as reliable (see below).

RESULTS

Descriptive Overview

Table 3 provides the means values for all our items in each of the four countries. This descriptive evidence already suggests that both religious groups, Muslim immigrants and Christian natives, agree stronger to the *conservation* related items *conformity*, *tradition,* and *security* compared to non-religious natives in all four countries, lending preliminary support for the *Conservation Hypothesis*. Contrary to our expectations, the same is also true for the *universalism* items, where the non-religious actually score lowest. This contradicts our *Universalism Hypothesis* (H3b), but is in line with the *Muslim Universalism Hypothesis* (H5). Differences are smaller but mostly in the expected direction for the *benevolence* items, lending some preliminary support to the *Benevolence Hypothesis*. Regarding *hedonism*, the picture is not clear. Christians indeed tend to disagree most to the *hedonism* items, which would support the *Hedonism Hypothesis*. Interestingly, however, Muslims hold similar scores in these items to non-religious natives, which is not in line with the *Hedonism Hypothesis*. We turn to our SEM models to test these differences more thoroughly.

Value Differences Between Groups

Generally, the results of the MGCFA are in line with the *Conservation Hypothesis* that Muslims and Christians score higher in the conservation values (*tradition/conformity* and *security)* compared to non-religious natives as **Table 4** shows. Non-religious people are clearly least associated with the *conservation* value, which is true throughout all four countries. However, there is also considerable difference between the two religious groups. Islam, in this respect, outperforms Christianity in encouraging *traditionalist* and *conformist* values, which is in line with prior research showing higher levels of traditionalism among Muslims compared to Christians in Europe (Connor, 2010; Koopmans, 2015). Second, Muslims seem to value a strong state, as indicated by the high level of agreement with *security*, which, besides being related to conservation of social and individual order, might also be the result of potentially living under threat in various European contexts. We, thus, also find support for our *Muslim Conservation Hypothesis*. While the reported differences are statistically significant in all four countries, the high level of agreement to the *conservation* values

among Muslims is particularly true for Sweden and somewhat less for France and Belgium.

Accounting for the different levels of religiosity, differences between Muslims and Christians in *tradition/conformity* remain statistically significant only in Sweden, where the effect parameter actually switches its direction (see **Table 5**). There is no clear pattern regarding security once we control for religiosity. Hence, the idea that the degree of religiosity mediates the association between religion and values only finds limited support in our model. However, one should treat the results of **Tables 5**, **7** with some caution, as the model is somewhat demanding for our data basis[7] (for more information on fit measures and cut-off criteria, see **Table 2**). What we do find, however, is that religiosity is consistently positively associated with higher levels of *tradition/conformity* as **Table 6**, which is based on the same model, shows[8]. This is true for all countries and all groups (even those not currently belonging to a religious denomination). Hence, religiosity has a stronger impact on *tradition/conformity* for some groups than for others. However, the size of this association is not consistent throughout countries: While religiosity has a slightly stronger effect on *tradition/conformity* for Christians in Belgium and France, its effect is much stronger for Muslims in Germany and Sweden. In contrast to religiosity, **Table 7**[9] shows that the group differences regarding *tradition/conformity* stay rather robust when controlling for age and education, with the exception of Sweden. Noticeably, this is true although age and education are correlated with *tradition/conformity* (age positively, education negatively).

Security, on the other hand, only positively correlates with religiosity for Christians in all four countries. For Muslims, there is no connection between religiosity and *security*, except for the case of Sweden. More importantly for our study, the higher levels of *security* among Muslim immigrants do not seem to be strongly connected to religiosity. Rather, group differences in *security* values are due to differences in socio-economic status, as controlling for socio-economic status renders most group differences in *security* statistically insignificant (see **Table 7**). This finding is not surprising as *security* has a strong positive correlation with age as well as a negative correlation with education.

There is only little empirical support for lower levels of *hedonism* among Muslims. In fact, we only find that Muslims

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[7]Fit measures [those below the threshold (see West et al., 2012) in italic]:

- Belgium: RMSEA = 0.048; PClose = 0.932; *CFI = 0.932*; SRMR = 0.032
- France: RMSEA = 0.052; PClose = 0.104; *CFI = 0.933*; SRMR = 0.035
- Germany: RMSEA = 0.050; PClose = 0.629; *CFI = 0.938*; SRMR = 0.034
- Sweden: RMSEA = 0.056; *PClose = 0.000*; *CFI = 0.923*; SRMR = 0.038.

[8]We refrain from showing a similar table regarding the effects of age and education on each value due to reasons of space and since we do not have a strong theoretical interest in these relationships. The results are available upon request.

[9]Fit measures [those below the threshold (see West et al., 2012) in italic]:

- Belgium: RMSEA = 0.047; PClose = 0.996; *CFI = 0.936*; SRMR = 0.031
- France: RMSEA = 0.048; PClose = 0.956; *CFI = 0.940*; SRMR = 0.032
- Germany: RMSEA = 0.049; PClose = 0.709; *CFI = 0.936*; SRMR = 0.033
- Sweden: RMSEA = 0.045; PClose = 1.000; *CFI = 0.942*; SRMR = 0.035.

TABLE 3 | Means for the value measuring items for Belgium, France, Germany, and Sweden.

Value	Item name	Question wording (response categories: 1 not like me at all−6 very much like me)	Item means for Belgium (BE), France (FR), Germany (GE), and Sweden (SW)		
		Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Tick the box to the right that shows how much the person in the description is like you	Muslims	Christians	Non-religious
Universalism	Ipeqopt	He/she thinks it is important that every person in the world be treated equally. He/she believes everyone should have equal opportunities in life	BE 5.14	4.97	4.93
			FR 5.35	5.07	5.17
			GE 5.17	4.92	4.92
			SW 5.53	4.99	4.95
	Ipudrst	It is important to him/her to listen to people who are different from him/her. Even when he/she disagrees with them, he/she still wants to understand them	BE 4.79	4.69	4.65
			FR 4.90	4.62	4.68
			GE 4.83	4.82	4.79
			SW 5.13	4.55	4.48
Benevolence	Iphlppl	It's very important to him/her to help the people around him/her. He/she wants to care for their well-being	BE 5.04	4.96	4.86
			FR 5.00	4.66	4.57
			GE 4.99	4.91	4.85
			SW 5.24	4.76	4.68
	Iplylfr	It is important to him/her to be loyal to his/her friends. He/she wants to devote herself to people close to him/her	BE 5.16	5.26	5.22
			FR 5.15	5.10	5.07
			GE 5.24	5.27	5.28
			SW 5.40	5.06	5.03
Conformity/ Tradition	Ipfrule	He/she believes that people should do what they're told. He/she thinks people should follow rules at all times, even when no-one is watching	BE 4.23	4.03	3.61
			FR 3.44	3.26	2.94
			GE 3.98	3.66	3.45
			SW 4.31	3.80	3.55
	Ipbhprp	It is important to him/her always to behave properly. He/she wants to avoid doing anything people would say is wrong	BE 4.69	4.64	4.32
			FR 4.50	4.45	4.16
			GE 4.51	4.16	3.97
			SW 4.43	3.96	3.79
	Imptrad	Tradition is important to him/her. He/she tries to follow the customs handed down by his/her religion or his/her family	BE 5.08	4.72	3.92
			FR 4.80	4.25	3.03
			GE 4.94	4.41	3.66
			SW 4.75	4.35	3.64
Security	Impsafe	It is important to him/her to live in secure surroundings. He/she avoids anything that might endanger his/her safety	BE 4.86	4.64	4.39
			FR 4.75	4.40	4.14
			GE 4.81	4.60	4.49
			SW 4.77	3.98	3.82
	Ipstrgv	It is important to him/her that the government insure his/her safety against all threats. He/she wants the state to be strong so it can defend its citizens	BE 4.70	4.56	4.37
			FR 4.77	4.61	4.23
			GE 4.84	4.65	4.62
			SW 5.03	3.95	3.89
Hedonism	Impfun	Having a good time is important to him/her. He/she likes to "spoil" him/herself	BE 4.33	4.30	4.51
			FR 3.92	3.67	3.98

(Continued)

TABLE 3 | Continued

Value	Item name	Question wording (response categories: 1 not like me at all−6 very much like me)	Item means for Belgium (BE), France (FR), Germany (GE), and Sweden (SW)		
		Here we briefly describe some people. Please read each description and think about how much each person is or is not like you. Tick the box to the right that shows how much the person in the description is like you		Muslims	Christians	Non-religious

Value	Item name	Question wording		Muslims	Christians	Non-religious
			GE	3.87	3.73	3.98
			SW	4.73	4.20	4.30
	Ipgdtim	He/she seeks every chance he/she can to have fun. It is important to him/her to do things that give him/her pleasure	BE	4.40	4.25	4.48
			FR	4.71	4.50	4.72
			GE	4.47	4.37	4.58
			SW	3.71	4.00	4.02

TABLE 4 | Comparison of latent means of values.

	Value	Muslims compared to Christians	Muslims compared to non-religious
Belgium	Universalism	+0.113***	+0.156***
	Benevolence	+0.026	+0.109**
	Tradition/Conf.	+0.106**	+0.448***
	Security	+0.183***	+0.387***
	Hedonism	+0.094*	−0.102*
France	Universalism	+0.222***	+0.164***
	Benevolence	+0.226***	+0.286***
	Tradition/Conf.	+0.079	+0.318***
	Security	+0.223***	+0.540***
	Hedonism	+0.202***	−0.021
Germany	Universalism	+0.107**	+0.126**
	Benevolence	+0.028	+0.056
	Tradition/Conf.	+0.326***	+0.520***
	Security	+0.201***	+0.275***
	Hedonism	+0.102*	−0.087
Sweden	Universalism	+0.495***	+0.544***
	Benevolence	+0.595***	+0.656***
	Tradition/Conf.	+0.490***	+0.701***
	Security	+0.932***	+1.040***
	Hedonism	+0.406***	+0.273**

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

TABLE 5 | Comparisons of latent means of values when controlling for religiosity.

	Value	Muslims compared to Christians	Muslims compared to non-religious
Belgium	Universalism	+0.108	−0.039
	Benevolence	+0.039	−0.103
	Tradition/Conf.	+0.081	+0.003
	Security	+0.462**	+0.328**
	Hedonism	+0.026	+0.028
France	Universalism	+0.435***	+0.272*
	Benevolence	+0.609***	+0.444**
	Tradition/Conf.	+0.109	+0.052
	Security	+0.371*	+0.477**
	Hedonism	+0.314	+0.168
Germany	Universalism	+0.417***	+0.297**
	Benevolence	+0.034	−0.133
	Tradition/Conf.	+0.116	−0.058
	Security	+0.105	+0.043
	Hedonism	−0.100	−0.109
Sweden	Universalism	+0.281**	+0.172
	Benevolence	+0.587***	+0.469***
	Tradition/Conf.	−0.265***	−0.164
	Security	+0.480**	+0.609***
	Hedonism	+0.924***	+0.767***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

are statistically significantly less hedonistic compared to non-religious people in Belgium. In contrast to our theoretical expectations, Muslims are even more hedonistic than the non-religious in Sweden. In the case of Germany and France, there are no significant differences between Muslims and non-religious individuals regarding *hedonism*. Moreover, our results suggest that Muslims are consistently more hedonistic compared to Christians in all four countries. However, these somewhat surprising findings can be understood by that fact that Muslims are significantly younger than the other two groups (see **Table 1**). Younger people are usually more hedonistic than older individuals are. Hence, accounting for differences in the age structure and education, all differences between Muslims and the two other groups are no longer statistically different from zero as **Table 7** shows.

Regarding *self-transcendence*, we expected that religious people, i.e., Muslim immigrants and Christian natives, agree more to the *benevolence* items but less to *universalism* items. However, as **Table 4** shows, Muslims actually score higher in both *benevolence* and *universalism*—and this is true compared to both Christians and non-religious people. The demarcation line for values related to *universalism*, thus, seems not to separate the religious and the non-religious, but rather immigrants and natives. While this is consistent with the *Benevolence Hypothesis,* it is in direct contrast with the *Religious Universalism Hypothesis* and rather supports our *Discrimination Universalism Hypothesis*. Above we show that Muslim immigrants in Europe tend to be more traditional. Yet, they are simultaneously in favor of equal opportunities for all. While this reasoning has to remain

TABLE 6 | Standardized effects of religiosity on values.

	Value	Muslims	Christians	Non-religious
Belgium	Universalism	+0.103	+0.139***	+0.042*
	Benevolence	+0.102*	+0.161***	+0.108***
	Tradition/Conf.	+0.298***	+0.314***	+0.203***
	Security	+0.054	+0.202***	+0.113***
	Hedonism	−0.048	−0.100***	−0.034*
France	Universalism	−0.056	+0.097***	+0.029
	Benevolence	−0.050	+0.148***	+0.053**
	Tradition/Conf.	+0.198**	+0.284***	+0.181***
	Security	+0.056	+0.170***	+0.126***
	Hedonism	−0.079	−0.058**	−0.052**
Germany	Universalism	−0.095	+0.139***	+0.078***
	Benevolence	+0.120	+0.151***	+0.041**
	Tradition/Conf.	+0.307***	+0.172***	−0.055***
	Security	+0.081	+0.044**	−0.092***
	Hedonism	+0.003	−0.091***	−0.016
Sweden	Universalism	+0.427***	+0.164***	+0.004
	Benevolence	+0.203*	+0.147***	+0.019
	Tradition/Conf.	+0.462***	+0.164***	+0.152***
	Security	+0.294**	+0.025	+0.077***
	Hedonism	−0.327**	−0.016	−0.054***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

TABLE 7 | Comparisons of latent means of values when controlling for age and education.

	Value	Muslims compared to Christians	Muslims compared to non–religious
Belgium	Universalism	+0.292**	+0.333**
	Benevolence	−0.051	−0.025
	Tradition/Conf.	+0.431***	+0.719***
	Security	−0.262*	−0.075
	Hedonism	−0.089	−0.200
France	Universalism	+0.340*	+0.439**
	Benevolence	−0.228	−0.140
	Tradition/Conf.	+0.317	+0.352*
	Security	−0.399	−0.201
	Hedonism	−0.320	−0.050
Germany	Universalism	+0.165	+0.294**
	Benevolence	−0.237*	−0.108
	Tradition/Conf.	+0.357**	+0.597***
	Security	−0.204	+0.051
	Hedonism	+0.007	−0.095
Sweden	Universalism	+0.829***	+0.977***
	Benevolence	+0.407*	+0.550**
	Tradition/Conf.	+0.161	+0.187
	Security	+0.663**	+0.614**
	Hedonism	+0.091	−0.004

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

speculative at this point, this might stem from own experiences of discrimination coming from being a religious minority in Europe. At least, higher levels of *universalism* among Muslims can more clearly be explained by discrimination experiences than by religion, as religious people usually score low in *universalism* (Saroglou et al., 2004; Roccas and Elster, 2013). The higher agreement of Muslims to *universalism* compared to the other two

groups is statistically significant in all four countries but, again, most pronounced in Sweden. With the exception of Belgium, this even holds when controlling for religiosity, as **Table 5** shows. The differences regarding *universalism* between the three groups are robust when controlling for socio-economic status even though there is a significant positive correlation between education and *universalism*.

The cross-national differences we find are largely in line with the idea that, first, a national tradition of diversity and experience with immigration (as in France and Belgium) is connected to fewer differences in values between groups. A longer tradition of immigration and cohabitation, hence, seems to facilitate the social and normative integration of immigrants. In contrast, differences are usually most pronounced in Sweden, where Muslim presence is a relatively new phenomenon (Bevelander and Otterbeck, 2010). However, the similar results for Germany might be somewhat surprising in this respect, since Germany long hesitated with being ethnically diverse (Ellermann, 2015). This might be explained by national differences in integration politics. Stricter politics, as they are implemented in Germany, are meant to incentivize assimilation and might, thus, lead to a convergence of values between minority groups and the native majority. Hence, a possible explanation is that Muslim immigrants in such contexts invest more into the social and cultural capital (Esser, 2010). Similarly, differences are smaller in France, where there is a relatively rigorous legal separation of church and state (Koopmans, 2013). Notably, France's *laïcité* did not result in larger value differences between religious and non-religious groups compared to the other countries. In contrast, value differences are strongest in Sweden, which has a multi-cultural integration policy, is generous regarding religious rights (Koopmans, 2013), and has a public that is characterized by relatively high levels of tolerance (Strabac and Listhaug, 2008; Helbling, 2014; Czymara, 2019), which might translate into fewer investments into social and cultural capital of immigrants (Esser, 2010). However, Belgium has a multi-cultural approach to immigrant integration as well (Koopmans, 2013), but shows significantly smaller differences between Muslim immigrants and natives compared to Sweden. Hence, an interplay between historical aspects and current politics might be the key when explaining existing value differences across countries.

CONCLUSION

Native (non-Muslim) Europeans tend to hold rather negative views of Muslims (Strabac and Listhaug, 2008; Savelkoul et al., 2012; Czymara, 2019). Part of anti-Muslim sentiments stems from general xenophobia (van der Noll and Saroglou, 2015). However, another driver of such views are concerns about religious fundamentalism (Helbling and Traunmüller, 2018). Tensions between Muslim and non-Muslim Europeans erupt in sad regularity, leading to violence against Muslims (Borell, 2015) as well as Islamist terror attacks in Europe (Jungkunz et al., 2018; Schmidt-Catran and Czymara, 2020). Knowing and understanding differences in values of Muslims and non-Muslims in Europe, hence, is crucial for peaceful coexistence.

The fact that Europe's Muslim population is predicted to grow in the next years and decades (Pew Research Center, 2017) boosts the importance of establishing social cohesion within European societies. For a more insightful comparison, we tested differences in basic human values of Muslim immigrants in Europe compared to, first, non-religious native Europeans and, second, Christian native Europeans.

There are indeed significant differences in the distribution of human values among the three investigated groups. In line with prior research on the general role of religiosity for human values (Saroglou et al., 2004; Roccas and Elster, 2013), we find that Muslim immigrants are more likely to hold *conservation* related values (*tradition/conformity* and *security*) as well as the value *benevolence* compared to non-religious natives. Our results show that religiosity is positively correlated with *tradition/conformity* (which is true for Muslims and Christians). Moreover, differences in *tradition/conformity* between Muslims and the other groups disappear when accounting for differences in religiosity.

Contrary to theoretical expectations, however, Muslim immigrants in our sample agreed more to *universalism* than non-religious or Christian natives did. One reason for this unexpected finding could be experiences of discrimination and marginalization of Muslim immigrants in Europe. If this argument is true, then the higher agreement of Muslim immigrants to *universalism* would be the outcome of living under threat and in discrimination. In this case, integration would mean a decrease in the agreement to such values, approaching the levels of non-Muslim natives. While this has to remain speculation for the present study, future research based on longitudinal or time series data could shed more light on potential trends in values.

Although we see that the differences in values exist in all of the four analyzed countries, they are not all equal in size. We find that, in terms of human values, Muslims differ most strongly from Christians and non-religious natives in Sweden, while these differences are considerably weaker in Belgium, Germany, and France. The cross-national variation in the extent to which human values differ among the three groups can be explained by differences in experiences with religious diversity and ethnic co-existence, and by differences in national integration politics. Belgium and France have the longest national experiences with ethnic and religious diversity, dating back to, at least, the end of their colonial empires. In the case of France, the colonial empire to a large part covered areas with predominantly Muslim populations in Africa and the Middle East, many of which migrated to France after its collapse (Croucher, 2013; Kuru, 2016). In Sweden, in contrast, Muslim presence is just a couple of decades old (Bevelander and Otterbeck, 2010). It seems reasonable to hypothesize that cross-national differences in value gaps between Muslim immigrants and non-Muslim natives are at least in part due to the historical differences in dealing with immigration. However, value gaps in Germany were largely similar to those in Belgium in France. For a long time, Germany did not understand itself as an "immigration country" and it has less experience with integrating ethnic minorities into its host society (Ellermann, 2015). Hence, a national history of ethnic diversity seems to benefit integration outcomes, as France and Belgium

demonstrate, but does not seem to be a necessary prerequisite, as Germany shows.

Integration politics that target stricter assimilation of ethnic and religious groups should encourage minorities to invest more into the social and cultural capital, ultimately leading values of immigrants to a converge to those of natives (Esser, 2010). Germany and France follow this approach more strongly (Koopmans, 2013). In contrast, Sweden has a very multi-cultural approach to integration, granting immigrants relatively easy access to equal rights and fewer incentives for assimilation efforts regarding cultural or social capital (ibid). This could also explain why human values of Muslim immigrants and natives differ more in Sweden compared to Germany and France. However, Belgium also follows a multi-cultural approach to immigrant integration (ibid). Yet, value gaps in Belgium are more similar to those in France or Germany than to those in Sweden. Such politics, thus, do not seem to be an obstacle *per se* according to our data. In sum, neither a national history of diversity nor a country's integration politics alone are able to perfectly explain differences in human values of Muslim immigrants compared to natives. Our results thus suggest that it is a combination of both aspects that is most likely to be successful.

An alternative mechanism our study does not capture relates to national differences in inter-group relations. For example, Koopmans (2015) concludes that variation in Muslim fundamentalism among countries is the result of the level of fundamentalism of native Christians in the respective host society (p. 47). Our data does not allow a direct test of this hypothesis. However, the fact that Christian natives hold values that often tend to be more similar to non-religious natives compared to Muslim immigrants throughout all analyzed countries does not seem to support this reasoning. To test cross-national differences more thoroughly, we would need more countries in our data. Currently, few European countries exhibit a share of Muslims that is large enough for meaningful quantitative analyses.

One limitation of our study concerns sample size, the representativeness of the Muslim population and related generalizability of findings. While the ESS is a very high quality data source, it is not tailored to analyze ethnic or religious minorities in particular. This is shown by the low number of Muslims in the data, ranging from 2.29 percent of our analyzed sample in Sweden to 4.97 percent in Belgium (see **Table 1**). While the numbers are still sufficient to test for differences in our SEM, it limits the potential complexity of the model. This is reflected by the imperfect goodness of fit measures of our more complex models that take into account potentially relevant third variables. We pointed to the fact that the results of these models should, thus, be treated with some caution. Nevertheless, deeper analyses of the interplay between human values, religion and other characteristics could surely lead to interesting new insights. Perhaps even more problematic is that it is not perfectly clear how well the sampled Muslim population captures each country's actual Muslim population. It is particularly unlikely that less integrated and more fundamentalist Muslims participated in the survey, which might lead to an underestimation of group differences in our study. Programs that oversample immigrants or that offer questionnaires in origin country languages would

be even more helpful in this respect. Unfortunately, we are not aware of such comparative data and especially none where the Schwartz values are included. The low number of Muslims in the sample also makes it impossible to differentiate between different generations (that is, being the son of immigrants or being an immigrant oneself). Surely, it would be interesting to see how values differ between the different generations of immigrants and if they become more similar to the host societies values with each generation (Drouhot and Nee, 2019).

Similarly, our analysis only includes four countries, which complicates a strict testing of any explanation for cross-national variation. The four countries we include differ in their immigration histories and their integration politics. Yet, many more countries would be needed to test these considerations more thoroughly. More observations on the country level would also allow examining alternative explanations, such as the importance of a country's pre-existing values. Sweden differs from the other countries also in its tradition of cultural liberalism and social democracy, making it particularly "WEIRD" (Schulz et al., 2019). This might be another reason why the contrast to Muslim immigrants, who come from less "WERID" countries, is most pronounced there. Unfortunately, the ESS does not include enough Muslim immigrants for most other countries for any quantitative analysis. Moreover, we would ideally need longitudinal data over decades to really make statements about over time developments, for instance regarding the importance of a country's past experiences. In these respects, we understand our study as a first step in understanding how social contexts shape values of ethnic and religious minorities in Europe—and why they may differ from those of natives.

Another issue is that being Muslim and being an immigrant (or, ultimately, an ethnic minority) is empirically strongly correlated in our data (see footnote 5). This does not come as a surprise given that none of the four countries under investigation has Islamic roots from a historical perspective. While some of the countries we examine have a longer Muslim tradition than others do, Muslim presence is still a relatively new phenomenon for all four countries, hardly exceeding two or three generations. This makes it hard to separate the impact of being Muslim from the impact of being a first or second generation immigrant. For an ideal comparison, we would need a group of Muslim natives in order to separate effects of being Muslim from effects of being immigrant. Unfortunately, such cases are really rare in our data. This may change in the future, when Muslim presence in Europe might be more established. Similarly, it would be highly interesting to examine the distribution of basic human values

in predominantly Muslim societies outside Europe. Alexander and Welzel (2011) show that "glacial emancipative trends" can undermine public support for patriarchal values in Islamic societies. Similar trends might be observable regarding macro-level shifts in human values. To the best of our knowledge, unfortunately, large-scale data measuring human values outside of Western countries are currently not available.

Finally, our comparison of groups within different host countries does not allow disentangling origin effects from destination effects or community effects. That is, strictly speaking, we cannot say whether values of Muslim immigrants are imported from their countries of origin, shaped by certain conditions in the host country or result from the relations between origins and destinations. An ideal design would compare multiple origins in multiple destinations (see van Tubergen et al., 2004 for such a design testing the economic integration of immigrants). While existing comparative evidence on public attitudes and social norms shows significant differences between Muslims and non-Muslims in Western countries (Alexander and Welzel, 2011; Jäckle and Wenzelburger, 2015), our findings that value differences also vary between European countries suggests that country characteristics shape the integration processes, too. More thoroughly decomposing which aspects play a role could be an important step in understanding the cultural integration of ethnic and religious minorities in Europe.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

CC: conceptualization, data preparation, and writing original draft. ME: method and statistical analysis. CC and ME: editing final version. All authors contributed to the article and approved the submitted version.

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Moving for Diversity or Moving for the Kids? The Micro-Dynamics of Residential Relocations During Family Formation of Immigrants and Natives

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Family formation is a crucial event in the life course and generates a major part of residential relocations. After family formation, neighborhoods become re-evaluated, now as contexts for children's development and socialization. We argue that the perceived or assumed quality of schools and neighborhoods is an important condition of choosing a destination. However, as the literature on "ethnic colonies" and immigrant-native residential segregation suggests, immigrants differ from natives in their neighborhood preferences and relocation patterns. If relocations of migrant and native families to particular destinations do indeed occur basically during family formation and family enhancement, and if they are at the same time outcomes of different preferences, the micro-dynamics of young families' adaptation of housing conditions might have a considerable impact on segregation. Results of our ordered Heckman probit and event history models show that on the one hand, immigrants and natives tend to different evaluations of characteristics in their neighborhoods. Particularly respondents of Turkish, Arabic or African origin highly appreciate living nearby a house of worship and also with many Non-Germans. On the other hand, our analysis of how these evaluations transform into residential relocations did not show any differences between immigrants and natives. Results thus suggest that evaluations or preferences during family formation do not trigger relocations which result in "ethnic colonies" at the macro level.

Keywords: residential relocation, family formation, ethnic colonies, event history analysis, local schools

INTRODUCTION

Residential segregation is often analyzed using aggregate data and descriptive measures, e.g., the Duncan Index or indices of exposure or isolation. However, trends of segregation at the level of cities or other spatial units result from micro-processes, namely from relocation decisions. This micro-foundation of segregation is taken for granted since Th. Schelling introduced his model of "micromotives and macrobehavior" (Schelling, 1978), but there are only few studies analyzing these micro-processes empirically in a longitudinal perspective (Crowder, 2000; Quillian, 2002; Lersch, 2013).

Following the early work of Rossi (1954), we assume that many residential relocations are adaptations to events of family formation and family extension during the life course. Such events

trigger a considerable part of residential relocations. Neighborhoods become re-evaluated after family formation, now as contexts for children's socialization and development. We argue that the perceived quality of schools and neighborhoods is an important condition of choosing a particular destination.

It is yet an open question whether relocations during family formation of migrant and native families are influenced by the same preferences and neighborhood evaluations. Following the literature on "ethnic colonies" and immigrant-native residential segregation, it can be concluded that immigrants differ from natives in their neighborhood preferences and relocation patterns (Lersch, 2013). If relocations of migrant and native families do indeed occur mainly during family formation and family enhancement (Rossi, 1954), and if relocations are at the same time outcomes of different preferences, the micro-dynamics of young families' adaptation of housing conditions might have a considerable impact on segregation.

To find out whether natives and migrants differ in their residential preferences, we analyse in a first step whether migrant families value indicators of social embeddedness and neighborhood diversity higher than non-migrant families do. Our neighborhood indicators are subjective evaluations of proximity to relatives, perceived diversity, proximity to religious institutions and proximity to a desired primary school.

Instead of primarily focusing on socio-economic factors, such as the mismatch of household income and housing prices, we test in a second step whether indicators of "ethnic social capital" do better explain residential moves of migrants during family formation than the proximity to the desired primary school. If the educational infrastructure in the neighborhood was more important than the local "ethnic social capital," immigrants' relocation patterns would be more in line with "moving for the kids" (Goyette et al., 2014) then "moving for diversity." Hence, the aim of our paper is to obtain a better understanding of relocation decisions of native and migrant families, which leads to a better understanding of the underlying "micromotives" (Schelling, 1978) of residential segregation.

In the empirical part of our paper, we use unique data from the "Moving for the Kids" project (funded by the DFG, German Research Foundation, grant no. 318053447), in which more than 6,000 parents of 2nd and 3rd grade kids in elementary schools where interviewed about neighborhood perception and past relocations in a self-administered survey. To test whether evaluations of neighborhoods differ between immigrants and natives, we use an ordered probit-regression, which controls for self-selection into a respective neighborhood-condition. Furthermore, we apply event history models to test whether the evaluation of neighborhood characteristics related to diversity and social embeddedness influence residential relocations, how relevant these factors are compared with the educational infrastructure and whether the effects differ between immigrant and non-immigrant families.

The structure of the paper is as follows: In section Theory and Research on Ethnic Residential Preferences, Relocations, and Segregation, we will start with a short overview on theory and research on residential segregation with particular reference to residential preferences of migrants. In the third part, we will give a short introduction into our measurements and statistical methods. Empirical results will be presented in section Result, which is divided into two parts: First, we analyse whether migrant families evaluate indicators of social embeddedness and neighborhood diversity higher than non-migrant families. Second, we test whether migrant families tend to different relocation decisions, given their evaluations. In the fifth and last section, we will summarize our findings and draw a conclusion regarding our research questions.

THEORY AND RESEARCH ON ETHNIC RESIDENTIAL PREFERENCES, RELOCATIONS AND SEGREGATION

According to Th. Schellings theoretical model (Schelling, 1978), the interdependence of preferences at the micro-level and inherent system dynamics at the macro-level tends to perfect segregation if (random) changes in ethnic neighborhood composition trigger cascades of relocations to neighborhoods where households can realize their preference of not being in a *small* local minority. As an unintended result of micro-level behavior (Boudon, 1981), the macro-level outcome of strong segregation can be regarded as a "perverse effect" (van Parijs, 1982), which means that the outcome is in sharp contrast to the rather inclusive "taste for diversity" (Dancygier and Laitin, 2014) in both groups.

In contrast to Schelling's "taste-for-diversity" assumption, early Chicago School sociologists explained segregation patterns with socio-economic inequalities, processes and practices of exclusion, but also with own-ethnic preferences. Ethnic communities can provide social support especially for newly arriving immigrants. Often, members of the ethnic community already assist in planning the emigration (Park et al., 1967). Since immigrants' "social capital" (Portes, 1998) usually emerges at the local level (Windzio and Trommer, 2019), they tend to spatial concentration. In the long run, growing ethnic communities reduce incentives to invest into receiving-context cultural and social capital also in the 2nd generation (Esser, 2010).

Concerns over potentially disintegrative effects of rigid ethnic-cultural boundaries crystallize in the terms "*ethnic colonies*" (Taeuber and Taeuber, 1964) or "*parallel societies*" (Heitmeyer, 1996), which highlight the separation of ethnic communities from the majority population and describe a situation similar to "institutional completeness" (Breton, 1964). Ethnic groups do not only tend to spatial clustering and dense strong-tie networks within their own communities, but they also create their own ethnic institutions and organizations, namely businesses, schools, or even legal institutions for different religious groups (Tibi, 2002, p. 46). Regarding this mode of ethnic integration, P. Collier's distinction between *emigrants* and *settlers* (Collier, 2013) challenges optimistic views about multiculturalism. While emigrants are willing to change group membership and adapt to norms of the receiving group (Taft, 1957), settlers bring their own institutions, norms and taken-for-granted knowledge and try to install their own "social model" in the acquired territory (Collier, 2013, p. 92). Social network ties within "settler" communities

create "bonding" instead of "bridging" social capital (Putnam, 2000), and thereby reinforce ethnic boundaries (Wimmer, 2013; Windzio, 2018). Within the liberal-democratic framework of most host countries, institutions of an ethnic colony develop a new self-understanding and perform many more functions than they would in the country of origin. For example, mosques are no longer just spiritual places, but become important places of self-help and socio-cultural exchange (Ceylan, 2006, p. 252).

Describing "ethnic colonies" in total as "parallel societies" is, according to Ceylan (2006, p. 256), inappropriate because of their different social segments with various including and excluding functions that satisfy the social, cultural and economic needs of the colony's inhabitants. Additionally, the taste for own culture and segregation assumed in the concept of "parallel societies' has been criticized for neglecting immigrants" disadvantages on housing markets, but also for normative reasons (Secchi and Herath, 2019, p. 3). If immigrants' residential choices were driven by preferences for own-group neighbors, they would likely end up in homogenous ethnic minority neighborhoods. Given that in Germany ethnically homogeneous residential areas are not common (Schönwalder and Söhn, 2009), in contrast to spatial patterns in the U.S., they might have at least some "taste for diversity" (Dancygier and Laitin, 2014, p. 58). Whether they are interested in own-ethnic cultural and social capital or not, they tend to live in ethnically diverse neighborhoods.

The spatial clustering of ethnic minorities can emerge for various reasons—even without immigrants' preference for embeddedness into local own-group networks, e.g., due to stratified housing markets and discriminatory practices in the provision of housing (Lersch, 2013; Horr et al., 2018). Inequality in the access to housing markets becomes also obvious by the fact that many immigrants cannot realize their preferences with respect to proximity to urban green spaces (Kabisch and Haase, 2014). Furthermore, ethnic residential segregation might be a result of "*white flight*" processes (Crowder, 2000; Quillian, 2002; Goyette et al., 2014), which is a self-reinforcing outflow of better educated higher-status families from neighborhoods with a high concentration of ethnic minorities. This form of selective mobility might drain off resources and social capital from the local community and thereby increase neighborhood disadvantage (Sampson and Raudenbush, 2004). Increasing disadvantage leads to a decrease in housing prices, which cause a selective inflow of poorer people, who are often migrants.

The "*ethnic colony*" hypothesis assumes that immigrants are particularly interested in local ethnic or religious social capital, and therefore prefer to live with their co-ethnics. Alternatively, immigrants could have such a preference, but are unable (or unwilling) to realize their preferences by residential relocations if "competing" benefits outweigh the utility of ethnic local capital. For instance, immigrants might prefer to live close to co-ethnics and relatives, but also prefer neighborhoods with good primary schools for their children—which they would often find in other neighborhoods. Especially for long-term residents or 2nd or 3rd generation migrants, processes of structural assimilation might also lead to spatial assimilation and therefore cause a demand for better housing conditions (Häußermann and Siebel, 2000, p. 207; Lersch, 2013). Accordingly, the longer migrants stay in

Germany, the more likely they will adapt their housing needs to the native population. Therefore, we assume that migrants' family formation changes the evaluation of the neighborhood to more child-related aspects, e.g., proximity to a desired primary school. Since we know from research that migrant parents have high educational aspirations for their children (Becker and Gresch, 2016), we expect that they, like native parents, also evaluate the spatial educational infrastructure when choosing a new dwelling.

Qualitative studies observe selective relocations of Turkish middle class families to neighborhoods with a lower share of ethnic minorities. For this group, moving to a new dwelling is motivated by the parents' desire to realize access to high-quality educational infrastructure. Concerns about the extent of school segregation and low achievement levels in adjacent schools motivate Turkish families to leave ethnic neighborhoods (Horr, 2008; Hanhoerster, 2015). Preferences for proximity to ethnic infrastructure, such as grocery stores or mosques, as well as to ethnic social networks, seem to be of secondary importance, especially for young parents (Horr, 2008, p. 190). Even if integration into the ethnic community and access to ethnic infrastructure were important factors for migrant families, this preference does not necessarily require physical proximity to ethnic neighborhoods in times of modern transportation and communication technologies (Zelinsky, 2001). "An ethnic grocer across town can easily be reached by bus once a week; friends or family members can be called every few days; and important community gatherings can be attended anywhere in the region on occasion" (Drever, 2004, p. 1,436).

Qualitative interviews conducted by Wiesemann (2008) with Turkish immigrants in Germany show that the ethnic character of a neighborhood plays an important role when choosing a location. However, ethnic preferences are in opposite directions: Whilst some households in his study preferred to live in areas with predominantly German natives, others chose to live in neighborhoods with large numbers of Turkish migrants, either because of the intra-ethnic contact opportunities or due to financial constraints. Taken together, these qualitative studies underscore that immigrants seem to have at least one important motive in common with natives, namely the preference for a "good" environment for their children, which is characterized by the absence of neighborhood disorder and the presence of high quality educational institutions. During family formation the evaluation of the neighborhood and the decision where to relocate might be similar compared with natives: in the end, it might be "moving for the kids," rather than "moving for diversity."

To test whether the local educational infrastructure is related to relocation behavior, we include the spatial proximity to a desired primary school in our analysis. Controlling for the evaluation of neighborhood characteristics, a strong effect of the absence of the desired primary school on residential moves would be an indicator of status attainment-motives. It is yet an empirical question whether patterns of residential relocations during family formation are either more in line with the "*ethnic colony*" hypothesis, or with spatial assimilation, motivated by better conditions for educational attainment for the children.

What other characteristics does the living environment have/had where you lived or still live with this child shortly before the pregnancy? How do you evaluate these?

				negative				positive

Near this apartment / house ...

- there are relatives living	□ No □ Yes	How do you evaluate that?	□	□	□	□	□
- there are many families who are not from Germany, approx. one quarter or more	□ No □ Yes	How do you evaluate that?	□	□	□	□	□
- there is a house of worship of my religion, for example a church or a mosque	□ No □ Yes	How do you evaluate that?	□	□	□	□	□

FIGURE 1 | Survey instrument measuring three context characteristics and their evaluation.

DATA AND METHODS

In our survey conducted in 2017 and 2018 in the federal states of Bremen, Lower Saxony, and North Rhine-Westphalia we asked mothers of children in 2nd and 3rd primary school grades about their residential biography, including their perceptions of neighborhood characteristics. Our window of observation begins with the date of moving into the dwelling where the female respondent became pregnant with the first child. Since respondents were required to recall neighborhood characteristics retrospectively, the survey instrument strongly benefitted from the idea of "cognitive anchors" (Loftus and Marburger, 1983). Even events that occurred rather distant in the past can be remembered if they relate to a significant other event, such as pregnancy or childbirth. To prevent distorted or erroneous memories, it is important that the interviewee has lived together with the child since birth, which is why we asked the biological mothers to complete the questionnaire. In 91.50% of cases this requirement was met, in 7.5% of cases the questionnaire was completed by the fathers, in 0.25 and 0.7% of cases by the stepmother/nursing mother and stepfather, respectively (Oeltjen and Windzio, 2019).

The survey question for the first residential episode of interest was the following: "First of all, please think back to the time shortly before the pregnancy with the oldest child, i.e., with the 1st child in your household. Where did you live at that time? Please tell us the name of the town or city, the district or part of the town or city, and the time when you moved there." For each dwelling the respondents were then asked to provide information on year and month they moved in, on characteristics of the living environment and to rate these characteristics on a five-point scale. **Figure 1** gives an example of how we measured the presence of specific neighborhood characteristics and their evaluation. Regarding the neighborhood characteristics, we included the perception of relatives and migrant families living nearby, the perception of having a house of worship of the respective religion nearby as well as the proximity to a desired primary school. Since we assume that both the evaluation of neighborhood characteristics and the relocation rate (see below) might depend on perceived neighborhood disorder, we built a scale of neighborhood disorder by using factor analysis based

on tetrachoric correlations among five binary items, which we show in **Table A2** in the **Appendix**. The higher the value, the higher is the level of perceived disorder. Detailed descriptive statistics for the independent variables are shown in **Table A3** in the **Appendix**.

Most studies lack information on the subjective assessment of neighborhood characteristics (Crowder, 2000; Schönwalder and Söhn, 2009; Lersch, 2013). Our procedure allows combining the (subjective) information of whether a characteristic existed in the respective neighborhood or not with the respondent's evaluation of this characteristic from her (or his) point of view. By doing so, we measure the subjective assessment of the neighborhood characteristics. For instance, respondents can live either with or without many immigrant neighbors and can evaluate the situation as it is. We rescaled the "positive" vs. "negative" continuum by centering each scale on its mean value. Mean-centering the scale does not change its interpretation: the higher the value, the more *positively* a respective characteristic is evaluated (**Figure 1**).

We distinguished two categories of migration background, namely "Turkish, Arabic and African" and "other migrants." If a respondent reported that she was not born in Germany, or does not communicate with the child predominantly in German language, or if she completed the questionnaire in Turkish or Arabic language, we assume a respective migration background. We are well aware that our classification is very simple and that the category "other migrants" suggests a homogeneity, which is in reality inexistent. By considering also the language predominantly spoken at home, however, we capture an important indicator of ethnic background, which is usually ignored by categorizations applied in official statistics (Will, 2019)[1]. Moreover, residential mobility is a rare event. Since the computation of the hazard rate (see below)

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[1] Additionally, we assume that for migrants and native families the same categories are relevant for neighborhood evaluations, regardless of whether they are rated positive or negative. Theoretically, it is possible that, the subjective neighborhood evaluation of migrants and native persons is formed by different categories and their respective perception. Since we had to define the categories for which we asked for an evaluation, we were not able to consider potential differences in evaluation categories.

results from the number of events divided by the "time-at-risk" for each response-pattern in the explanatory variables, applying a more fine-grained distinction of ethnic groups is not possible.

For the analysis of the evaluation of neighborhood characteristics we use an ordered probit Heckman model (Greene and Hensher, 2010). The ordinal outcome of this model is the evaluation of neighborhood characteristics which we estimate for the selective subsample of those respondents who *have* the respective characteristic nearby in their neighborhood. In other words, the Heckman model takes into account the respondent's selection into a particular neighborhood. This selection process precedes the evaluation of neighborhood characteristics. If the selection into certain neighborhoods is not taken into account, the positive evaluation of a given state would indicate the appreciation of either the presence *or* absence of a particular characteristic, which is uninformative. The Heckman model accounts for the selection by weighting the effects of

explanatory variables x_i on the positive evaluation by the process of selection into the respective state, which is influenced by the covariate vector z_i. While the ordered probit model estimates the probability of a particular value v_h on the ordinal scale, which is the probability that $x_j b + u_{1j}$ falls between the cutpoints defined by θ (upper panel in **Table 1**), the term s_j in the binary probit selection equation (lower panel in **Table 1**) equals 1 when the respective characteristic exists in the respondent's neighborhood, and zero otherwise.

$$\Pr(y_j = v_h) = \Pr(\theta_{k-1} < x_j b + u_{1j} < \theta_k) \qquad s_j = \mathbf{1}(z_j \gamma + u_{2j} > 0)$$

The two error terms (u_{1j}, u_{2j}) are assumed to have a bivariate normal distribution with zero mean, a variance of 1 and a covariance of ρ.

TABLE 1 | Positive evaluation of neighborhood characteristics, ordinal probit model with Heckman selection.

	(1)	(2)	(3)	(4)
	House of worship nearby	Many Non-Germans nearby	Relatives nearby	Desired school nearby
EVALUATION OF NEIGHBORHOOD (ORDINAL)				
Migrant, Turk., Arab., Afric.	0.812***	0.498***	−0.199	−0.062
Migrant, other	0.288*	0.171[+]	0.036	0.022
Resp.: university degree	0.043	0.326***	−0.042	−0.110*
Educ. aspiration: university–entrance diploma	0.079	0.055	0.138*	0.163**
Dwelling: property	0.121*	−0.115[+]	−0.125	−0.102[+]
SELECTION INTO NEIGHBORHOOD (BINARY)				
Bremen	−0.053	0.249**	−0.152[+]	0.184**
NRW	0.205***	0.121*	0.232***	0.111**
Resp.: male	0.169	0.115	0.044	0.087
Age at family formation	0.008	−0.007	−0.037***	0.004
Unemployment in household	−0.023	0.185**	−0.006	0.031
Migrant, Turk., Arab., Afric.	−0.181*	0.278**	0.085	0.254**
Migrant, other	−0.370***	0.203**	−0.210**	0.016
Resp.: university degree	0.051	0.140*	−0.415***	−0.084[+]
Educ. aspiration: university–entrance diploma	−0.085[+]	0.029	−0.113*	−0.009
Dwelling: property	0.225***	0.008	0.493***	0.516***
Dwelling: close to workplace	0.187***	−0.039	0.096*	0.257***
Perceived disorder	0.388	4.748***	−1.091[+]	0.927[+]
Perceived disorder^2	−0.033	−0.889***	0.280	−0.463*
Constant	−0.487	−5.257***	1.994***	−0.843*
Cut1	−1.915***	−0.985***	−2.305***	−2.801***
Cut2	−1.465***	−0.397***	−2.083***	−2.629***
Cut3	0.329[+]	1.080***	−1.366***	−1.667***
Cut4	0.934***	1.649***	−0.622*	−0.947***
Athan rho	0.278	0.222***	−0.190	−0.820***
Observations	8,612	8,785	8,856	8,623

[+]*p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001, corrected standard errors for clustering in respondents.*
Source: DFG–Project "Moving for the Kids," own calculations.

$$\begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix}$$

If ρ equals zero, standard ordered probit models will provide unbiased results, but if $\rho \neq 0$, the model corrects for selection bias. Unlike the classic Heckman selection model, however, ordered probit Heckman models do not compute a λ term. In the classic Heckman model, λ is an estimate of the selection process by computing the Inverse Mills ratio of $\mathbf{z}_j\gamma$, which is a hazard rate-like representation of non-selection into the observed sample. In contrast, the ordered probit Heckman model takes unobserved heterogeneity shared by both equations into account by controlling for the correlation of the error terms (Greene and Hensher, 2010, p. 308). The model is thus similar to the bi- or multivariate probit models. The strength of this correlation indicates the magnitude of the component of unobserved heterogeneity that is shared by both equations, namely the selection and the evaluation.

Having analyzed the evaluation of neighborhood characteristics conditional on the selection process, we investigate in a subsequent step the effects of these evaluations on residential relocations. Residential relocations are events occurring after some waiting-time, beginning with moving into a dwelling and ending with the event of moving out. Since the information on the residential biography has been collected on a monthly basis, the resulting time-to-event data allows to predict the transition from the initial state "not moved" into the destination state "moved". We thus apply event history analysis. Here, the hazard rate $r(t)$ is the outcome of interest, which is the (conditional and time-specific) relation of the number of events $f(t)$ in the nominator and time at risk (months) of those who have not yet experienced the event of relocation $G(t)$ in the denominator, formally $r(t) = f(t)/G(t)$. At each point in time t, right censored observations without an event contribute to the denominator of the (time-dependent) ratio of events to risk time (Windzio, 2013, p. 124). Since the event of interest is a residential relocation during the period of family formation, we will refer to "relocation rates." These relocation rates are the outcomes in the event history regression models. However, we are also interested in relocations triggered by particular motives, namely by improving the social context or for family reasons. Accounting for different motives of relocations is important in our study since we are interested in particular preferences of migrants and natives. We regard these different motives as competing risks. Accordingly, a relocation can be motivated either by improving the social context or by family reasons, and these two outcome-events "compete" against each other for occurrence. We defined relocations motivated by the "social context" by a set of items where respondents reported the reasons for a relocation. In order to identify the "improvement of social context" as a motive, we combined the following statements: the respondent wished to live "in a better social environment," "with lower cultural diversity" and "nearby the desired school." In addition, we enhanced this measurement with information from an open-ended category where respondents reported their motives in their own words, e.g., saying that they lived in an

"unsafe," "bad" or "noisy" neighborhood or with many "non-German citizens." We defined the destination state "relocation, family" by reasons related to marriage and divorce and added information from open-ended questions on e.g., "parents," "relatives," and "family." In a competing risk analyses we get different coefficient vectors for each competing risk (see **Table 3**).

Our observations are clustered in residential areas, namely in 585 different localities, that is, towns, cities, and villages. In order to account for the statistical non-independence of observations in these localities, we apply multilevel Weibull models of event history analysis, which enhances the standard Weibull model with a random intercept u_j. The term u_j is constant within the contexts, and varies between contexts.

$$r(t_{ij}) = r_0(t_{ij}) \bullet \exp(\mathbf{x}_{ij}\beta + u_j)$$

In the Weibull model (here in proportional hazards notation), the hazard rate $r(t_{ij})$ estimates hazard ratios relative to a baseline hazard $r_0(t_{ij})$. These hazard ratios might depend on unobserved characteristics of residential places (cities or villages), captured by the random effect u_j.

In the Heckman model and in the event history model we do not control for income, but for high education, unemployment and home ownership. It is hard to get reliable information on income in a self-administered survey. Moreover, respondents' cognitions and subjective perceptions correlate with education (Loftus and Marburger, 1983) rather than with income, which is why we do not necessarily need the income variable. We also include the squared value of perceived disorder into our models in order to allow for non-linear affects, e.g., declining effects at higher values of disorder.

RESULTS

In the first part of our empirical study we test whether immigrants and natives evaluate particular neighborhood characteristics differently. Subsequently, we analyse the effects of these evaluations on residential relocations. **Table 1** shows the two components of the Heckman model: the effects of the ordered probit model on the evaluation of neighborhood characteristics (upper panel) and the effects of the binary probit selection model (lower panel). The upper part of the model does not control for many confounders because we assume that economic factors (e.g., unemployment) do more account for the location in a respective neighborhood, rather than for the cognitive process of evaluating its characteristics (see section Data and Methods).

Results show that migrants of Turkish, Arabic or African origin tend to evaluate proximity to a *house of worship* of their religion more positively than the reference group of non-migrants. The same is true for the category "Migrant, other," albeit the effect is smaller in magnitude. We find a similar pattern in the evaluation of *living with many Non-Germans nearby*. While the effect of "Turkish, Arabic or African origin" is significant and positive, it is significant only at the 10% level for other migrants. Regarding the evaluation of living with *relatives nearby*,

FIGURE 2 | Average marginal effects of the immigrant categories, results from **Table 1**.
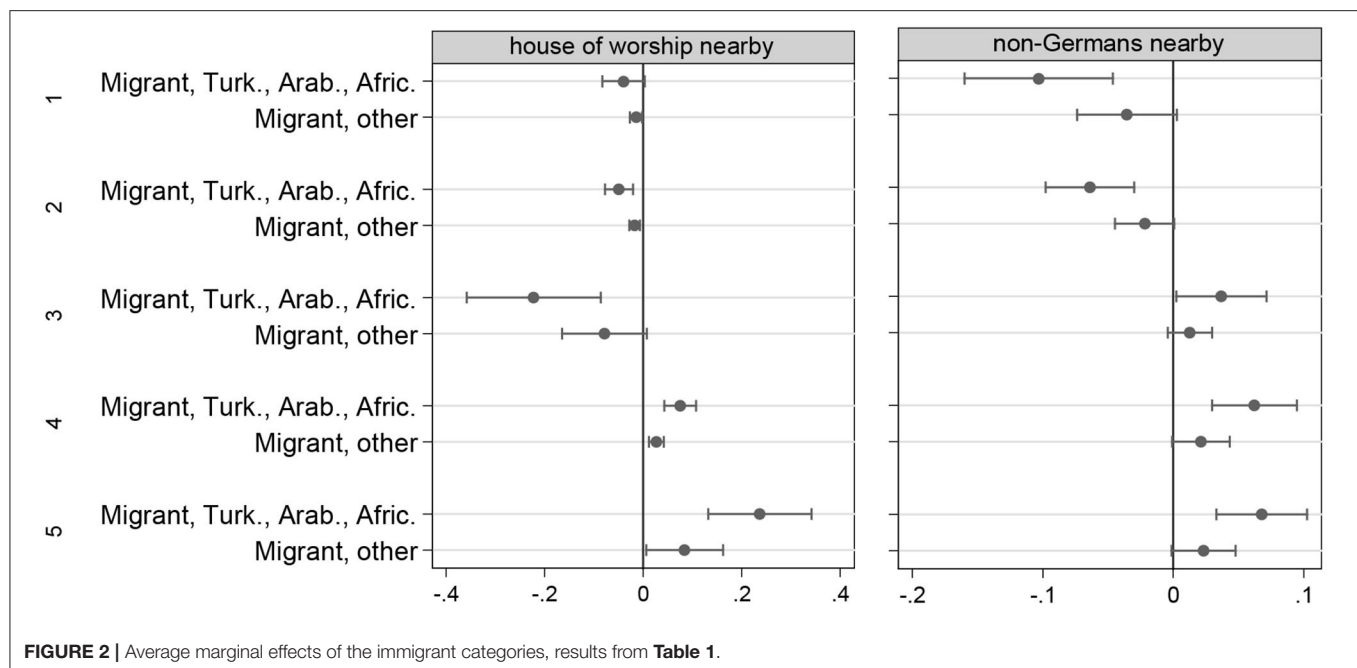
we do not find any difference between non-immigrants and immigrant groups: on average, proximity to relatives is evaluated similarly in all three groups. High educational aspiration, i.e., the expectation that the child will graduate from high school with the *Abitur*[2], increases the positive evaluation of *relatives nearby* and *desired school nearby*. Since our sample is biased with respect to educational attainment (Oeltjen and Windzio, 2019), we cannot rule out that this effect also results from dual-earner families with high educational aspirations, where employed parents appreciate the proximity to e.g., their children's grandparents who regularly care for their children. Overall, the basic pattern of covariate effects on positively evaluating the *desired school nearby* is more or less similar to the pattern found for *relatives nearby*: again, there is no significant difference between non-immigrants and our two immigrant groups.

Furthermore, while families living in residential property tend to appreciate a house of worship nearby, they tend to deprecate living with many Non-Germans in the neighborhood, but the latter effect is significant at the 10% level only. Similarly, living in residential property reduces the positive evaluation of having the desired school nearby. Although the effect is significant at the 10% level only, it is rather counterintuitive, since property has a robust positive effect of selection into such neighborhoods.

In the selection part of the model, results show that respondents in both immigrant categories tend to live significantly more often in neighborhoods where they perceive many Non-Germans nearby, so these effects reflect micro-level manifestations of immigrant residential segregation. The same is true for the positive effect of unemployment in the household on living with many Non-Germans, which

is in line with findings showing strong correlation of high shares of immigrants and socio-economic deprivation at the aggregate level of neighborhoods (Teltemann et al., 2015). This interpretation corresponds well with the very strong effect of perceived neighborhood disorder on the propensity to live with many Non-Germans nearby.

Due to the simultaneous inclusion of its squared value (*perceived disorder*[2]), the effect is positive in particular at lower values of disorder, but dampens at higher values. Interestingly, there is a significant positive effect of respondents' higher education (university degree) on living with *many Non-Germans nearby*, which possibly results from the fact that higher educated respondents tend more to live in urban areas, where the exposure to ethnic and cultural diversity in their neighborhoods is higher. Additionally, it is more unlikely for respondents with university degree to live nearby relatives. This is not surprising, since academics tend more to long-distance relocations for job reasons, which is often accompanied with a higher spatial distance to other family members.

Figure 2 shows average marginal effects (AMEs) of the immigrant categories on the positive evaluation of *living with many Non-Germans nearby* and on living nearby a *house of worship*. The vertical line represents the non-immigrant reference group (=0). For each category of the ordinal outcome variable, the error bar represents the AME of the respective immigrant category. Regarding living nearby a *house of worship*, migrants of Turkish, Arabic and African origin show a significantly reduced probability of categories 2 (−0.049**) and 3 (−0.222**) of the dependent variable, while the probabilities of categories 4 (0.075***) and 5 (0.236***) are significantly increased: they systematically tend to more positive evaluations of *having a house of worship nearby*. Similarly, the probability of category 1 for the evaluation of *living with many Non-Germans* nearby is reduced

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[2]The Abitur is the highest school leaving examination in Germany and qualifies for university entrance.

for migrants of Turkish, Arabic and African origin (-0.103***), also the probability of category 2 (-0.063***), whereas the probabilities of categories three and higher are increased (0.036*; 0,062***; 0.067***). Regarding the group of "other migrants," we also find a tendency toward a more positive evaluation of many Non-Germans in the neighborhood, but the effects differ less strongly from the reference group of native persons (the center line). Overall, first and later immigrant generations of Turkish, Arabic or African origin seems to have a positive attitude toward ethnic-religious cultural and social capital (Esser, 2010), and a preference for diversity rather than to spatial assimilation (Massey and Denton, 1985).

To sum up, we do find differences in the evaluation of neighborhood characteristics between immigrants and natives. However, these differences are limited to the evaluation of having a house of worship nearby and living with many Non-Germans nearby, whereas we do not find systematic group differences between the evaluation of living with relatives nearby and having the desired school nearby.

In the next step, we are interested in whether these differences in neighborhood evaluation influence residential relocations. In **Table 2**, the multilevel event history Model (1) shows the overall patterns, whereas the second Model (2) applies interaction terms to disentangle the effects of neighborhood evaluation between natives and immigrants. Both models show negative effects of *age at family formation* on the relocation rate (hazard ratio < 1). In line with common expectations, families who live in their residential property are much less mobile than families in the reference group (tenants).

In addition, both models indicate that respondents of our two immigrant categories tend to lower relocation rates. In contrast, respondents with higher education (university degree) and higher educational aspiration for their children are more inclined to relocate during family formation. Unsurprisingly, the effects of time-varying covariates "±6 months before and after giving birth of a subsequent child" and "± 3 months before and after starting a new job" affect relocation rates positive and are significant. In addition, the absence of the desired school in the neighborhood considerably increases the relocation rate. This finding provides clear evidence that the local educational infrastructure has an effect on relocation decisions.

Both models include three effects of neighborhood evaluation: having a house of worship nearby, living with many Non-Germans, and proximity to relatives. In Model (1) the main effect of a positive evaluation of proximity to relatives has a significantly negative effect on relocations, whereas the other two effects are insignificant. We find an interaction effect in Model (2) in opposite direction to the negative main effect (of the positive evaluation of relatives nearby) for immigrants of Turkish, Arabic and African origin. This is in contrast to our expectation: if this particular group were more interested in living close to their own ethnic relatives than natives are, this "bonding social capital" (Putnam, 2000) should have resulted in a negative interaction effect, so that these immigrants would have been even *more* immobile than natives when they appreciate proximity to relatives. Similarly, the interaction "eval. many

TABLE 2 | Effects of neighborhood evaluation on relocation rates, multilevel Weibull models, hazard ratios.

	(1) Relocation	(2) Relocation
n previous episodes	1.575***	1.569***
Bremen	1.283*	1.271*
NRW	0.929	0.930
Resp.: male	0.986	0.978
Age at family formation	0.981***	0.981***
Unemployment in household	1.106+	1.112+
Migrant, other	0.841**	0.879+
Migrant, Turk., Arab., Afric.	0.689***	0.597***
Resp.: university degree	1.282***	1.280***
Educ. aspiration: university-entrance diploma	1.125**	1.129**
Dwelling: property	0.254***	0.254***
Dwelling: close to workplace	0.979	0.977
6 months ± new child	2.662***	2.660***
3 months ± new job	1.528***	1.526***
Desired school *not* in neighborh.	1.812***	1.816***
Perc. neighborh. disorder	1.010	1.010
POSITIVE EVALUATION OF NEIGHBORH. CHARACTERISTICS		
Eval. house of worship	0.960	0.966
Eval. many Non-Germans	1.010	0.987
Eval. relatives	0.908***	0.896***
INTERACTION TERMS		
Eval. house of worship X Turk., Arab., Afric.	——	1.055
Eval. many Non-Germans X Turk., Arab., Afric.	——	0.952
Eval. relatives X Turk., Arab., Afric.	——	1.277*
Eval. house of worship X oth. migrant	——	0.915
Eval. many Non-Germans X oth. migrant	——	1.176+
Eval. relatives X oth. migrant	——	0.972
Constant	0.003***	0.003***
log(rho)	0.123***	0.123***
var(level 2: city)	0.037*	0.034*
N events	2,422	2,422
Observations	23,375	23,375

*Exponentiated coefficients +p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001.*
Source: DFG-Project "Moving for the Kids," own calculations.

Non-Germans X oth. Migrants" is positive, but significant just at the 10% level. In both cases it seems that the interaction effects result from relocations which are not in line with the assumption that immigrants were particularly interested in "bonding social capital" to their ethnic group or their family (Putnam, 2000).

Models in **Table 3** estimate effects of neighborhood evaluation on relocation rates in a competing risk perspective. Models (1) and (2) show effects on relocations aiming at *improving the social context*, Models (3) and (4) estimate determinants of relocations for *family reasons*. Overall, respondents of both immigrant

TABLE 3 | Effects of neighborhood evaluation on relocation rates, multilevel Weibull models, hazard ratios, by reason of relocation.

	(1) Relocation, social context	(2) Relocation, social context	(3) Relocation, family	(4) Relocation, family
Bremen	1.054	1.043	1.415+	1.423+
NRW	0.964	0.964	0.987	0.986
Resp.: male	0.934	0.915	0.856	0.854
Age at family formation	0.991	0.993	0.980*	0.981*
Unemployment in household	1.248*	1.283*	1.389**	1.406**
Migrant, other	0.760*	0.855	0.843	0.935
Migrant, Turk., Arab., Afric.	0.896	0.729	0.809	0.748
Resp.: university degree	0.886	0.895	1.127	1.120
Educ. aspiration: university-entrance diploma	1.192*	1.197*	1.072	1.076
Dwelling: property	0.396***	0.393***	0.373***	0.372***
Dwelling: close to workplace	0.838*	0.832*	1.062	1.054
6 months ± new child	3.471***	3.461***	4.478***	4.486***
3 months ± new job	1.414+	1.419+	1.815***	1.816***
Desired school *not* in neighborh.	2.969***	2.974***	1.910***	1.925***
Perc. neighborh. disorder	2.139***	2.098***	1.229+	1.241+
POSITIVE EVALUATION OF NEIGHBORH. CHARACTERISTICS				
Eval. house of worship positive	0.937	0.930	0.941	0.994
Eval. many Non-Germans positive	0.878*	0.795***	1.034	1.010
Eval. relatives positive	0.895*	0.870*	0.867**	0.858**
INTERACTION TERMS				
Eval. house of worship X Turk., Arab., Afric.	––	1.316	––	0.933
Eval. many Non-Germans X Turk., Arab., Afric.	––	1.119	––	0.895
Eval. relatives X Turk., Arab., Afric.	––	1.273	––	1.214
Eval. house of worship X oth. migrant	––	0.815	––	0.656*
Eval. many Non-Germans X oth. migrant	––	1.714***	––	1.372+
Eval. relatives X oth. migrant	––	1.084	––	0.973
Constant	0.001***	0.001***	0.002***	0.002***
log(rho)	0.055+	0.058+	0.003	0.003
var(level 2: city)	0.029	0.033	0.082**	0.078**
N events	672	672	700	700
Observations	17,056	17,056	17,056	17,056

Exponentiated coefficients +p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001.
Source: DFG-Project "Moving for the Kids," own calculations.

categories seem to be less mobile, which corroborates results from Model 1 in **Table 2**, but the hazard ratio is significantly < 1 only for other migrants aiming at improving the social context in Model (1) (0.760*). Similarly, a higher educational aspiration for the children increases the rate of relocations for improving the *social context* (1.192*), but not for *family reasons*, whereas the intervening events of giving birth to a new child and changing the job tend to positive effects in all four models. This also holds for perceived neighborhood disorder, even though the effects seem to be stronger and more robust for *improving the social context* than for *family reasons*. A similar pattern results for the absence of a desired primary school: in all four models we find a significant and positive effect on the relocation rate, whereby this influence is clearly stronger for relocations aiming at improving the social context.

Again, living in residential property has a consistently negative effect on all competing risks, whereas proximity to the workplace has a negative effect only on relocations motivated by relocations for improvement of the *social context*. Interestingly, the positive evaluation of many Non-Germans in the neighborhood points in the opposite direction for other migrants. While the effect is negative for non-immigrants (0.795), it is even positive for other migrants (0.795*1.714 = 1.362). In other words, even though other migrants appreciate the presence of many Non-Germans in the neighborhood, they show an increased tendency to relocate in order to change their neighborhood context. We find a similar pattern for relocations for family reasons, but the positive effect of "eval. many Non-Germans X oth. migrants" is only significant at the 10% level. At the same time, the insignificant main effect is close to 1, which means, there is no effect on the transition into the state "moved".
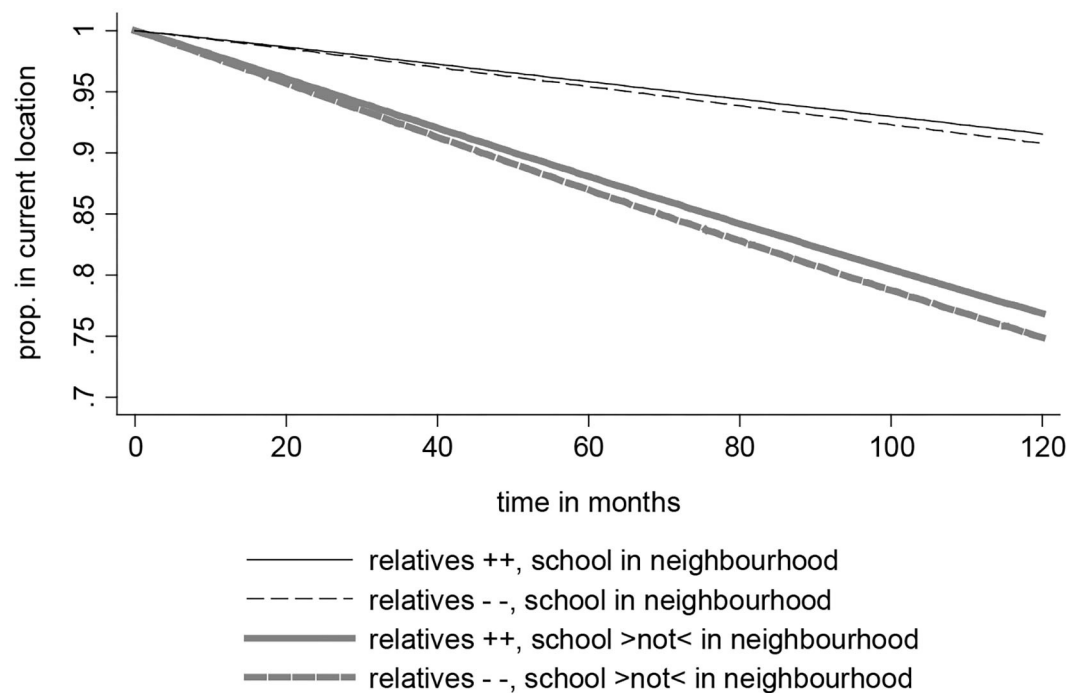
FIGURE 3 | Relative effect strength of "desired school not in neighborhood" vs. "positive evaluation of relatives living nearby" on relocations for improvement of social context, survivor functions.

The relocation rate decreases in all four models the more positive respondents evaluate the proximity to relatives. If they appreciate the presence of many Non-Germans, the relocation rate decreases when motivated by *improvement of the social context*, whereas the effect is insignificant with respect to relocations for *family reasons*. Accordingly, even though we found differences between immigrants and natives in the *evaluation of neighborhood characteristics*, we do *not* find corresponding *relocation patterns*. Although evaluations of neighborhood characteristics play a role for the decision to relocate, e.g., by a consistently negative effect of appreciating that relatives live nearby, effects of these evaluations on actual residential moves do not differ between immigrants and natives[3].

Moreover, being aware of the strong effect of the absence of a desired primary school, respondents might evaluate their neighborhood during family formation primarily with respect to the socialization of their children. It is thus interesting to compare the strength of these two effects on relocations motivated by improving the social context: first, the effect of appreciating relatives nearby, secondly, the effect of not having the desired school in the neighborhood. Which of these effects is stronger and thus more relevant (**Figure 3**)?

Figure 3 shows post-estimation results from the single level Weibull model (**Table A1**, **Appendix**) of relocations aiming to

improve the social context. Instead of focusing on significance, predicted survivor functions provide a clear insight into the relevance of the effects on interest. In **Figure 3**, the survivor functions $G(t)$ indicate for each month the share of episodes without an event of relocation ("in current location"). For the prediction we held all control variables constant at their mean values. Technically, the prediction results from the antilog of the negative accumulation of the hazard rate over time (Windzio, 2013, p. 120).

$$G(t) = \exp\left(-\int\limits_{0}^{t} r(\tau)d\tau\right)$$

In the predicted scenario the evaluation of relatives living nearby is either positive (++, mean evaluation +0.5 standard deviation) or negative (− −, mean evaluation −0.5 standard deviation). The visualization in **Figure 3** highlights that the effect of not having the desired school in the neighborhood is much stronger than the positive evaluation of living with relatives nearby (comparison between the small and the thick lines). The thin black lines represent the situation when the desired school is nearby, the bold gray lines a scenario where the desired school is absent.

When the desired school is nearby, after 120 months 91.5% still live in the current location when they appreciate the presence of relatives nearby, and 90.7% who do not appreciate relatives nearby. When the school is *not* nearby, in contrast, the overall share of stayers is considerably lower: 76.8% of those

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[3]If we enhance Model A1, **Appendix**, with the evaluation of having the desired school nearby and interaction terms with both immigrant categories (model not shown), we do not find any significant or notable difference between immigrants and natives.

who appreciate the presence of relatives nearby still live in the neighborhood after 120 months, and 74.8% of those who do not appreciate relatives in their neighborhood. Accordingly, the effect of the desired school is *very* strong, whereas the effect of social capital provided by family networks on relocations is comparatively small.

In summary, our results show that immigrants, particularly those of Turkish, Arabic or African origin, show a more positive evaluation of living nearby a house of worship of their religion and of living with many Non-Germans. Thus, regarding the evaluations there seems to be a preference for high diversity. However, during family formation these preferences do not transform into relocations conducted to realize these preferences: we found that preferences do indeed have an effect on actual rates of relocation, but the effects of these preferences do not differ between immigrants and natives in the way assumed according to the "ethnic colony" hypothesis. Following this hypothesis, a strong preference for ethnic or religious capital, such as houses of worship or ethnic and cultural diversity in the neighborhood, should decrease rates of residential relocations in particular for immigrants—which is empirically not the case. Surely, our results should be interpreted against the background of a considerable sampling bias toward respondents with higher education (Oeltjen and Windzio, 2019). Moreover, if residential segregation in combination with increasingly unequal housing markets were very strong, meaning that in general, relocations of immigrants across different types of neighborhoods rarely occur and immigrants mostly stay in highly diverse and often deprived neighborhoods before and after family formation, "ethnic colonies" would exist independently of the relocation dynamics we observe in our data.

SUMMARY AND CONCLUSION

Many studies describe patterns and trends of segregation at the aggregate level, although Th. Schelling's macro-micro-macro explanatory mechanism is based on individuals' or households' behavior. In our study, we followed Schelling's analytic shift toward the micro-level. First, we analyzed respondents' evaluations of particular neighborhood characteristics. Second, we analyzed the potential effects of these evaluations on actual residential relocations. Following to the classic work of P. H. Rossi, who identified family formation and family enhancement as crucial drivers of residential relocations between different neighborhoods (Rossi, 1954), we were interested to find out whether different residential preferences in the phase of family formation and extension account for different relocation decisions between native and migrant families.

In the theoretical part of our study, we discussed the emergence of "ethnic colonies" or "parallel societies," which assume that migrants had a preference for living close to other members of their ethnic community. Contrary to this theoretical argument our results show that during family formation immigrants' residential relocations do not indicate that "bonding social capital" within the own ethnic community or other immigrant groups is a basic driver of these relocations.

On the one hand, immigrants and natives tend to evaluate characteristics of their neighborhoods differently, as we have shown in the first part of our empirical analysis. We found that particularly respondents of Turkish, Arabic or African origin highly appreciate living nearby a house of worship and also living with many Non-Germans. On the other hand, our analysis of how these evaluations transform into residential relocations did not show any differences between immigrants and natives. Evaluations or preferences during family formation do not trigger relocations that result in "ethnic colonies" at the macro level. First and foremost, both migrants *and* non-migrants seem to be sensitive to the educational infrastructure in their neighborhood. Aside from preferences toward ethnic "bonding social capital," there are competing factors, for instance, whether the desired school exists in the neighborhood or not. From the immigrants' or the ethnic minorities' perspective, the issue of appreciating the educational infrastructure is related to investments into educational attainment and, into the process of intergenerational integration into the host society (Esser, 2010). As we could show by comparing effect sizes, absence of the desired school has a much stronger effect on relocations than the positive evaluation of proximity to relatives—a result which is indifferent toward immigrant origin. Relocations during family formation result from the same pattern of covariates in all three groups. According to an earlier study (Oeltjen and Windzio, 2019), residential segregation between immigrants and natives is also an outcome of different *destinations* where households relocate, that is, immigrants *and* natives are sensitive to neighborhood disorder and the absence of the desired school in the neighborhood and relocate, but immigrants end up again in neighborhoods where the situation is rather similar to the previous one.

Although we achieve robust and clear effects, we should also address the limitations of our study, which primarily result from the field access. Even though great importance was attached to the simplicity and clarity of the survey instrument, written surveys are particularly susceptible to measurement error due to the uncontrollability of the survey situation. In addition, retrospective information is not free from measurement error even if our instrument applies cognitive anchors.

Furthermore, despite knowing the individual place of residence, we didn't include any objective characteristics of the city or village, for example the population size. Even if we assume that subjective perceptions of the neighborhood are predominantly relevant for relocation decisions, we should keep in mind that these subjective perceptions are related to objective residential attributes. For example, the perception of neighborhood diversity or disorder is probably higher in urban areas compared with rural areas. In order to gain a better understanding of how subjective perceptions differ by regional contexts, objective information about the residential spaces should be included in the analysis.

To sum up, the most important result of our study is that immigrants seem to evaluate neighborhood characteristics related to "ethnic colonies" (living with relatives and with many Non-Germans nearby) differently from non-migrants, but they do not systematically translate these evaluations into specific

relocation patterns. Educational infrastructure and proximity to relatives is important for migrants *and* non-migrants. Results also show that the absence of the desired school nearby has a much stronger effect on relocations than the preference of living close to relatives.

Even though our micro-level analyses show clear differences between immigrants and natives in the evaluation of neighborhood characteristics, and also explain the overall process of relocation, they do not systematically explain patterns of residential segregation. Our results indicate that relocations during family formation do not entail "ethnic colonies" at the aggregate level. Nevertheless, there are considerable degrees of segregation at the macro-level, which is not just a result of socio-economic inequality between immigrants and natives (Teltemann et al., 2015). In addition, while the causes of moving out of a particular neighborhood do not overwhelmingly vary between immigrants and non-immigrants, recent results show that the quality of the *destination* seems to differ, whereby this quality is measured by indicators of neighborhood disorder (Oeltjen and Windzio, 2019).

Future research should investigate in detail the micro-mechanisms of residential segregation in Germany, including the migrant and the native perspective, especially since residential segregation is related to processes of social integration. Same ethnic preferences and ethnic homophily with respect to social support and friendship choice (Windzio, 2018) are indicators of ethnic boundaries (Wimmer, 2013). If these boundaries contribute to the reproduction of group differences over time, they will also reproduce group-differences in language, norms, taken-for-granted-knowledge, and culture in general. Presumably, cultural differences between groups will correspond with differences in status attainment if culture is utilized as "capital" (Bourdieu, 1986). If cultural capital matters for social mobility it will be rather unlikely that cultural diversity is unrelated to unequal chances of status attainment. In the end, differences in cultural capital can result in intergroup conflicts

(Windzio, 2016). In this regard, understanding ethnic residential segregation and segregation of social networks, as potential promoters for ethnic boundaries, will be important topics for future research.

DATA AVAILABILITY STATEMENT

The datasets generated for this study will not be made publicly available, due to data privacy legislation. The data collection involves schools and has been approved by the federal school authorities, conditional that the data is not accessible to 3rd persons. However, the data can be reanalyzed in our institute.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MO did the field work, contributed major parts to the manuscript, and joint the development/discussion of the research question. AB contributed to the manuscript. MW contributed major parts to the manuscript, joint the development/discussion of the research question, and did the computation. All authors contributed to the article and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsoc.2020.538946/full#supplementary-material

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Partnership Living Arrangements of Immigrants and Natives in Germany

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This paper compares the partnership arrangements of Turkish and Ethnic German immigrants (i.e., return migrants from Ethnic German communities from predominantly Eastern European countries), the two largest migrant groups in Germany, and native Germans. Most existing analyses of migrants' partnerships focus on intermarriage, marriage formation, or union dissolution. We know only a little, however, about the prevalence of non-marital living arrangements. Given that single person households and cohabitation are widespread phenomena mainly in post-materialist societies, analyzing whether immigrants engage in these behaviors sheds light on potential adaptation processes. The analyses are based on the German Microcensus of the years 2009 and 2013, with a focus on adults in the 18–40 age group. First, we present descriptive findings on the prevalence of partnership arrangements of immigrants and native Germans. Second, we estimate cross-sectional regressions with the partnership arrangement as the outcome variable in order to control for compositional differences between immigrant groups with respect to education. Our results show that while the vast majority of first-generation immigrants are married, the share of married natives is considerably smaller. Living in an independent household without a partner and cohabitation are rare phenomena among immigrants. By contrast, about one in seven natives is cohabiting and more than one quarter is living in an independent household without a partner. The most prevalent partnership living arrangement of the Turkish second generation is living in the parental household without a partner. These results are robust after controlling for education, age, and year in the multiple regression analysis.

Keywords: cohabitation, Turkish migrants, ethnic German migrants, integration, German microcensus, single, parental home

INTRODUCTION AND BACKGROUND

International migration is an event that affects every facet of a migrant's life. While many studies in Germany and European countries have focused on the socio-economic sphere, investigating migrants' educational success (Kristen, 2014; Kuhnt, 2017), labor market behaviors (Kogan, 2011), and social well-being (Kuhnt and Wengler, 2019), an increasing number of studies acknowledge the relevance of the family domain: e.g., migrants' fertility (Milewski, 2010; Krapf and Wolf, 2015; Kreyenfeld and Krapf, 2017; Kulu et al., 2017), marriage formation (González-Ferrer, 2006; Kalter and Schroedter, 2010; Weißmann and Maddox, 2016), cohabitation (Hannemann and Kulu, 2014; Hannemann et al., 2020), and divorce behavior (Milewski and Kulu, 2014). However, information about the prevalence of living without a partner or of cohabiting among immigrants

in Germany is rare (e.g., Naderi, 2008). This is surprising, as Germany is one of the countries with the highest proportions of migrants in Europe: The share of the population who did not acquire German citizenship by birth, or who have a parent who was not born a German citizen, was 25.5% (20.8 million individuals) in 2018 (Destatis, 2019b). Investigating the partnership patterns of migrants – not only for Germany— is relevant for two reasons. First, cohabitation (Noack et al., 2013) and single person households (Klinenberg, 2012; Eurostat, 2020) have been established as widespread phenomena mainly in Western societies. Analyzing whether migrants engage in these behaviors sheds light on adaptation processes—especially if the migrants come from countries with more traditional family values and behaviors. Second, family decisions, and especially the timing of these decisions, determine individual opportunities in life. For example, early marriage is often followed by early childbearing and lower levels of labor market participation among women (Pienta, 1999), and might thus increase social inequality.

This study aims to identify the partnership living arrangements of Turkish migrants, Ethnic German migrants (i.e., return migrants from predominantly Eastern European countries), and native Germans. In the first step, we compare the prevalence of partnership living arrangements (i.e., living without a partner in an independent household, living without a partner in the parental household, cohabitation, and marriage) across immigrant groups. Second, we examine whether compositional effects with regard to education exist. We chose to focus on Ethnic German migrants and Turkish migrants because they represent the two largest immigrant groups in Germany. Moreover, the partnership behaviors in Turkey and in the origin countries of Ethnic Germans differ significantly from those in Germany, and such differences enable us to identify potential adaptation processes. Unfortunately, to our knowledge, there is no longitudinal dataset that is large enough to analyse the partnership transitions of different immigrant groups in Germany[1]. Therefore, we provide a descriptive account of partnership arrangements by origin group based on the largest cross-sectional survey in Germany, the Microcensus. We focus on individuals aged 18–40 years because young adults have more dynamic partnerships (Manning, 2020), and differences in living arrangements decline with increasing age. While the first and second generations of Turkish immigrants are investigated separately, we analyse only first-generation Ethnic German immigrants. Since most Ethnic German immigrants arrived in Germany later than many Turkish immigrants, the number of second-generation Ethnic German immigrants in the relevant age group is still too small to be analyzed as a separate group.

[1]A data source that is frequently used to analyse immigrants' outcomes in Germany is the Socioeconomic Panel (SOEP). However, the number of partnership transitions of separate origin groups in this dataset is too small to allow for meaningful longitudinal analyses. This point is illustrated in a recent study of Turkish immigrants that is based on the SOEP data (Bettin et al., 2018). Among the first generation, the authors observed three partnership transitions (either marriage or transition to cohabitation), and among the second generation, the authors observed nine transitions [calculated from Bettin et al. (2018, p. 1,024)].

In the following, we provide a brief overview of the immigration context of Turkish and Ethnic German immigrants, and we discuss theoretical arguments and prior research about immigrants' partnership decisions. The rest of the paper is devoted to the empirical analyses.

Turkish and Ethnic German Immigrants in Germany

We focus our study on Turkish and Ethnic German migrants, as they represent the two largest groups of migrants in Germany, respectively making up 13.5% (2.8 million individuals) and 12.5% (2.6 million individuals) of the country's first- and second-generation immigrants (Destatis, 2019a, p. 128). The largest inflows of Turkish immigrants occurred in the 1960s and 1970s, and were triggered by the recruitment agreements signed between West Germany and Turkey in 1961 (Oltmer, 2018). The recruitment agreements in Germany came to a halt in 1973. Since then, family reunion has been the largest driver of Turkish immigration to Germany (Bundesamt für Migration und Flüchtlinge, 2016b, 2019a). With respect to partnership living arrangements in Turkey, marriage is the most common arrangement among people aged 18–29 (68.4%), followed by living without a partner in the household (30.7%; Inglehart et al., 2014). Cohabitation still seems to be unacceptable: only 0.8% of the respondents were living with a partner outside of marriage (period 2010–2014; Inglehart et al., 2014).

Ethnic German immigrants came to Germany from a number of countries, mainly Poland, Romania, and the Soviet Union (and its successor states Kazakhstan and Russia). In these countries, Ethnic German communities had existed for many decades. After the collapse of the Soviet Union in the 1990s, a massive wave of migration to Germany took place. Being recognized as an Ethnic German immigrant guarantees full German citizenship (Hensen, 2009; Worbs et al., 2013). The migration flows of Ethnic Germans have recently slowed and will eventually come to a complete halt, as by law Ethnic German migration is impossible for individuals born in 1992 or later (Bundesamt für Migration und Flüchtlinge, 2019b). Therefore, the timeframe for investigating the partnership behavior of first-generation Ethnic German immigrants is limited. Regarding the partnership arrangements in Russia and Poland, two important countries of origin of Ethnic Germans, marriage is the most common living arrangement among individuals aged 18–29, at 48.3% in Russia and 57.5% in Poland. Living without a partner is also common, at 44.5% in Russia and 37.4% in Poland. The least common partnership arrangement is cohabitation, at 6.5% in Russia and 4.5% in Poland (Inglehart et al., 2014).

Theoretical Considerations and Prior Research

Although we are unable to test specific hypotheses with our data, we embed our research report in several theoretical arguments. Partnership behaviors are largely the product of cultural and structural determinants (Glick, 2010). In terms of cultural determinants, two contradictory forces are at work that affect the attitudes and behaviors of immigrants from

traditional countries: (primary) socialization and adaptation. The *socialization hypothesis* explains why differences in partnership behaviors between immigrants and natives in the country of destination might persist. Individuals socialized in countries with more traditional family values than Germany—such as Turkey (Voicu, 2017) and to a lesser extent, the countries of origin of Ethnic German migrants (Gerber and Berman, 2010; Vereshchagina et al., 2015)—display partnership patterns that are in line with the traditional family values of their countries of origin, which is basically characterized by high acceptance of marriage and low acceptance of alternative partnership arrangements. These traditional patterns are transmitted to the next generation.

In contrast to the socialization hypothesis, the *adaptation hypothesis* explains why there might be a convergence in the partnership behaviors of immigrants and the population in the country of destination (Gordon, 1964; Alba and Nee, 1997). The argument stresses the significance of social interactions with the majority population in the country of destination. Thus, moving to a country with less traditional family values may also lead to the adoption of less traditional family-related norms within the migrant population. Given that first-generation immigrants from traditional countries often immigrated as a married couple or in order to get married, their partnership behaviors can hardly be adapted. However, this perspective can help to explain the second generation's partnership behavior (although the idea of a simple assimilation process has been challenged; cf. Portes and Zhou, 1993).

In the literature, *compositional effects* are also thought to explain differences in the behavior of migrants and natives (Bean and Tienda, 1987). Previous studies on marriage patterns have, for example, shown that individuals from lower socio-economic groups marry earlier than individuals from higher socio-economic groups (Oppenheimer, 1997). Although second-generation immigrants attend school longer than first-generation immigrants (Dustmann et al., 2012), the educational differences among native Germans and the second immigrant generation persist (Fick, 2011). Following the composition hypothesis, these educational differences account for differences in the partnership patterns of migrants and natives (Crul and Vermeulen, 2006; Heath et al., 2008).

In addition to socialization, adaptation, and composition, there might be other mechanisms at work that explain the partnership behavior of migrants. Kalmijn (1998) referred to the relevance of opportunity structures for union formation. These structures may be linked to migration in the sense that bringing a partner from abroad to Germany often requires migrants to marry. In Germany, a residence permit is hard to obtain through any means other than marriage, at least for non-EU migrants (Schroedter, 2011, p. 10).

Empirical research analyzing migrants' partnership living arrangements is scarce. Overall, the results of existing studies indicate that the partnership living arrangements of first-generation immigrants from traditional countries, which are characterized by traditional gender norms and a high level of religiosity, who migrated to less traditional countries have a lower incidence of cohabitation, and are more likely than natives to be married [Rahnu et al. (2015) for Russian immigrants in Estonia; Milewski and Hamel (2010) for Turkish immigrants in France; Naderi (2008) for Turkish immigrants in Germany; De Valk and Liefbroer (2007) for immigrants of Turkish and Moroccan origin in the Netherlands; Berrington (1994) for immigrants of South Asian origin in the UK]. These findings offer support for the socialization hypothesis. In addition, second-generation immigrants from traditional countries are more conservative than the native population: compared to natives, they are more likely to be married [Hamel et al. (2012) for Turkish migrants in Germany] have more restrictive attitudes toward cohabitation [Bernhardt et al. (2007) for Turkish migrants in Sweden], and are less likely to expect to cohabit in the future [Berrington (2018) for Black Africans, Indians, Pakistanis, and Bangladeshis in the UK].

DATA

Our analysis draws on German Microcensus data (Destatis, 2019c) from the years 2009 and 2013[2] (two cross-sections). The German Microcensus is a rotating panel in which respondents are interviewed once per year for four years in a row; i.e., we can pool the two survey years without any repeated observations. The data contain representative information on the social and economic situations of a 1% sample of all households in Germany. The Scientific Use Files that we use in our study contain a 70% subsample of the Microcensus. One of the main advantages of the data is that their large sample size allows us to analyse first-generation Ethnic German immigrants (self-appraisal as Ethnic German immigrant, born in a country other than Germany) and first-generation Turkish (born in Turkey) as well as second-generation Turkish immigrants (with both parents born in Turkey)[3] as separate groups. We categorize all individuals, who were born in Germany and whose parents are not immigrants, as native Germans. Another advantage of the Microcensus is that nonresponse is of minor relevance because participation is obligatory, and respondents are required by law to submit information. Our sample consists of 6,031 migrant women and 6,007 migrant men (compared to 73,417 native women and 74,814 native men). We focus on respondents between the ages of 18 and 40 because partnerships are most diverse in this age group. Because women tend to marry men who are, on average, two to three years older (Buss, 1989), we analyse men and women separately. Unfortunately, the Microcensus does not include partnership histories. Therefore, we are unable to analyse the transition into a specific partnership living arrangement. Our

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[2]In the Scientific Use File of the German Microcensus in the years 2009 and 2013, a number of items allowed us to correctly specify Ethnic Germans and second-generation migrants. In the other years, migrants can be identified only on the basis of citizenship and place of birth; i.e., we were unable to identify naturalized migrants and descendants of migrants who were born in Germany and who had German citizenship.

[3]Children of interethnic parents—i.e., those with one Turkish-born and one native German parent—differ in their integration outcomes from individuals with monoethnic parents (Platt, 2012; Kalmijn, 2015). Because this group was too small to allow for meaningful analyses (0.1% of the total sample), we excluded them from our sample.

analyses instead refer to the partnership status of respondents at the time of interview.

While our analysis compares first- and second-generation Turkish immigrants living in Germany, it should be noted that we do not compare migrant parents to their own children. As the German Microcensus is a household survey, we do not have information linking parents and children unless they live in the same household. Because we also want to investigate respondents who live in a household without a partner, we do not take a couple perspective, but rather analyse male and female individuals separately. We excluded respondents residing in the eastern part of the country (except Berlin) because eastern and western Germans still differ in their partnership behaviors (Klärner and Knabe, 2017), and because most immigrants of Turkish origin migrated to western Germany and Berlin and continue to live there (Destatis, 2019d).

We study respondents' partnership living arrangement as our outcome variable, which we categorize as follows: (1) living without a partner in an independent household (including individuals who live in a shared flat); (2) living without a partner in the parental household; (3) living with a partner in a shared household without being married (cohabiting); and (4) living as a married couple in a shared household (married). Categories 1 and 2 include singles, but also individuals in living apart together relationships, as the partnership status in the Microcensus does not refer to partners outside of the household. Categories 3 and 4 includes individuals that live with their partner in their parents' home.

METHODS

In a first step, we report the percentage of partnership arrangements in each immigrant group. In a second step, we estimate multinomial logistic regressions. This allows us to account for potential composition effects. The independent variables included in the multiple regression analysis are age (as a continuous covariate), education (enrolled in education, no degree, vocational degree, university degree), and a year dummy (2009 and 2013). **Table 1** reveals that a large share of first-generation Turkish immigrants have no degree. Moreover, the first-generation immigrants are, on average, older than both the natives and the second-generation Turkish migrants in our sample. While about half of the native respondents participated in 2009 and half in 2013, Ethnic Germans and first-generation Turkish immigrants are overrepresented in the 2009 data, and second-generation Turkish immigrants are overrepresented in the 2013 data. This discrepancy is related to the age structure in the immigrant samples. Because most first-generation immigrants arrived in Germany some decades ago, the number of such immigrants who are in the 18–40 age group is getting smaller over time. By contrast, most second-generation Turkish immigrants are still young, with more entering the 18–40 age group over time.

TABLE 1 | Descriptive statistics.

	Native Germans	1st gen. Ethnic Germans	1st gen. Turkish	2nd gen. Turkish
FEMALES				
Partnership status				
No partner, independent household	28.6	11.8	2.4	9.6
No partner, parental household	22.2	3.0	1.3	45.3
Cohabiting	15.5	4.1	0.4	1.7
Married	33.8	81.2	95.9	43.5
Education				
Enrolled in education	27.8	8.1	2.6	34.3
No degree	8.8	30.9	86.3	23.9
Vocational degree	50.3	52.4	9.3	37.0
University degree	13.2	8.6	1.9	4.8
Age (mean; standard deviation)	28.9	33.7	32.7	26.5
	(6.7)	(4.9)	(5.3)	(6.2)
Survey year				
2009	52.4	58.1	55.6	40.0
2013	47.7	41.9	44.4	60.0
Observations	73,417	2,035	1,515	2,481
MALES				
Partnership status				
No partner, independent household	30.3	12.2	5.4	11.2
No partner, parental household	31.3	7.5	1.3	54.8
Cohabiting	13.7	4.1	1.5	2.7
Married	24.8	76.2	91.8	31.4
Education				
Enrolled in education	29.3	6.1	3.2	34.5
No degree	9.1	30.6	64.1	27.1
Vocational degree	49.4	55.6	26.6	35.6
University degree	12.2	7.7	6.1	2.9
Age (mean; standard deviation)	28.9	33.9	33.6	26.6
	(6.7)	(4.7)	(4.8)	(6.4)
Survey year				
2009	51.9	57.9	57.8	39.6
2013	48.1	42.1	42.2	60.4
Observations	74,814	1,916	1,188	2,903

Column percent and means.
Percentages may not sum to 100 due to rounding.
Source: German Microcensus 2009 and 2013, respondents living in western Germany and Berlin. Respondents between 18 and 40 years old. "No partner" refers to individuals who do not share a household with a partner.

RESULTS

Our first research question refers to the prevalence of partnership arrangements by immigrant status. **Table 1** shows that marriage is the most prevalent living arrangement for Ethnic Germans (81.2% of females and 76.2% of males) and first-generation Turkish immigrants in the 18–40 age group (95.9% of females and 91.8% of males). The other forms of partnership arrangements are marginal in these two immigrant groups.

Among Ethnic Germans, the second-largest group is made up of individuals who are living in an independent household without a partner (11.8% of women and 12.2% of men). Among natives, the four partnership types are distributed more equally, with marriage being the most frequent arrangement among women (33.8%), and living in the parental household being the most frequent arrangement among men (31.3%). The most striking difference between the second-generation Turkish respondents and the other three groups is in the likelihood of living in the parental home. Cohabitation seems to be largely unacceptable in the three immigrant groups. It is also the least common living arrangement among natives: 15.5% of native women and 13.7% of native men in our sample are cohabiting. The differences in the prevalence of marriage and of living in the parental home might be associated with the age structure in the four groups, as the mean age of natives and second-generation Turkish in our sample is considerably lower than it is among Ethnic Germans and first-generation Turkish respondents. In Table 3 in **Supplementary Material**, we describe the partnership arrangements among those in the 18-30 and 31-40 age groups separately. The numbers imply that the differences across groups are related to a higher mean age (as well as a higher mean age at marriage), especially among natives and second-generation Turkish women. In the older age group, marriage is the most prevalent living arrangement among women in all four groups. This is also the case among men, although the share of married men is considerably lower among natives (49.2%) than it is among men in the other three groups. The share of individuals who live in an individual household without a partner is considerably larger among second-generation Turkish immigrants than it is among the first generation, especially in the older age group.

The second aim of our analysis is to assess whether the compositional differences account for variations in partnership arrangements across immigrant groups. In addition to age, education might be associated with partnership choices. We estimate multiple multinomial regressions for men and women. Because the interpretation of the parameters of a multinomial logit model is not straightforward, we present the average marginal effects (AME). The average marginal effect is the mean of the marginal effects for each combination of covariates in the dataset. It represents the average change in the probability of seeing a specific outcome when we alter the respective independent variable from the reference to a different category, based on our sample. The results displayed in **Table 2** confirm the patterns reported in our descriptive analyses: i.e., compared to natives, immigrants are more likely to be married, and less likely to be living in an independent household or to cohabit. These findings persist after controlling for education, age, and survey year. A comparison of the AME of immigrant status with and without education as a control (see Table 4 in **Supplementary Material**) shows that including education in our models only slightly reduces the effect sizes of immigrant status. This finding indicates that the variation in partnership arrangements between immigrant groups and native Germans can be attributed to educational differences to a very limited extent only. In order to determine whether the differences between first- and second-generation Turkish immigrants are

significant, we specified additional models with the first generation as the reference category (results not shown here). We found for both males and females that first-generation immigrants were significantly more likely to be married and less likely to be living without a partner in the parental household than second-generation Turkish immigrants.

For the control variables, the results are largely in line with the literature. Individuals who are enrolled in education are less likely to be married or cohabiting than individuals with a vocational degree. This is also the case for women with a university degree, whereas men with university education do not differ in their likelihood of being married from those with a vocational degree. Highly educated individuals are more likely to cohabit. The AME of having no degree shows an insignificant association with marriage for women, but a significantly negative association for men. For age, the strongest associations are found for marriage and living in the parental home: The older a person is, the more likely s/he is to be married, and the less likely s/he is to be living without a partner in the parental household. There seems to be a slight (but statistically significant) shift in partnership patterns over time, with the probability of living in a marital union being lower and the probability of living in an independent household without a partner being higher in 2013 than in 2009.

DISCUSSION

Partnership living arrangements are an integral part of the family formation process, and thus greatly affect the lives of adult migrants and natives alike. The findings of this research suggest that these arrangements differ substantially between migrant and native adults in Germany. Marriage is by far the most common partnership form among the Turkish first generation, as well as among Ethnic German immigrants in the 18–40 age group. Among second-generation Turkish immigrants, the most prevalent partnership arrangements are "no partner, living in the parental household" and "married". Cohabitation seems to be unacceptable in all three immigrant groups, whereas it is a common, albeit infrequent, arrangement among native Germans (15.5% of women, 13.7% of men). Our multiple regression results indicate that these patterns can be explained by differences in educational attainment between migrants and natives to a very small extent only.

Clearly, the higher prevalence of marriage among immigrants is associated with their lower mean age at marriage. The mean age at marriage in Germany is 32.1 years for women and 34.6 years for men (Destatis, 2020). The mean age at marriage among Turkish immigrants in Germany is 24 years, which is the earliest average age among the labor migrant groups in Germany (Schroedter, 2013, p. 205). Apart from a timing effect, it seems plausible to assume that the low prevalence of cohabitation among immigrants is related to traditional family values in the country of origin—which would be in line with the socialization hypothesis. Because of data limitations, we were unable to explicitly account for the role of such traditional values. However, existing research shows, for instance, that compared to respondents from 35 other countries, Turkish respondents express the highest support for marriage (Voicu, 2017). When

TABLE 2 | Multinomial logistic regression models.

	Females				Males			
	No partner, indep. household	No partner, parental household	Cohabiting	Married	No partner, indep. household	No partner, parental household	Cohabiting	Married
Immigrant status								
Native Germans	0	0	0	0	0	0	0	0
1st gen. Ethnic German	−0.097***	−0.069***	−0.089***	0.255***	−0.148***	−0.049***	−0.088***	0.285***
1st gen. Turkish	−0.220***	−0.121***	−0.144***	0.485***	−0.189***	−0.231***	−0.109***	0.529***
2nd gen. Turkish	−0.192***	0.125***	−0.137***	0.204***	−0.196***	0.111***	−0.108***	0.193***
Education								
Enrolled in education	0.195***	0.089***	−0.053***	−0.231***	0.152***	0.065***	−0.054***	−0.162***
No degree	0.035***	0.006	−0.031***	−0.010	0.077***	0.042***	−0.027***	−0.092***
Vocational degree	0	0	0	0	0	0	0	0
University degree	0.049***	−0.000	0.023***	−0.071***	0.036***	−0.062***	0.030***	−0.004
Age	0.004***	−0.029***	−0.003***	0.028***	0.006***	−0.031***	−0.000	0.026***
Survey year								
2009	0	0	0	0	0	0	0	0
2013	0.007*	−0.003	0.004	−0.008**	0.015***	−0.003	0.002	−0.014***
BIC		160,247.0				167,163.1		
McFadden's Pseudo R^2		0.25				0.23		
Observations		79,448				80,821		

Average marginal effects.

*p < 0.05; **p < 0.01; ***p < 0.001. Predicted probabilities of the reference individual (i.e., native German, vocational degree, 29 years old, survey year 2009): p̂(no partner, indep. household; females) = 0.32, p̂(no partner, parental household; females) = 0.08, p̂(cohabiting; females) = 0.22, p̂(married; females) = 0.38; p̂(no partner, indep. household; males) = 0.35, p̂(no partner, parental household; males) = 0.21, p̂(cohabiting; males) = 0.21, p̂(married; males) = 0.23.

Source: German Microcensus 2009 and 2013, respondents living in western Germany and Berlin, 18-40 age group. "No partner" refers to individuals who do not share a household with a partner.

the same study looked at attitudes in one of the sending countries of Ethnic German immigrants (Poland), respondents expressed more support for conservative family values than Germans. Similarly, a study on family values among adolescents showed that Russians are more traditional than Germans (Mayer et al., 2009). Our finding that almost half of the second-generation Turkish immigrants in our sample are still living with their parents is in line with prior research showing that 68% of Turkish respondents agreed with the statement that children should live with their parents until they get married (Von Gostomski, 2010, p. 208). Although the share of cohabiting individuals remains very low among Turkish second-generation immigrants, we found that they are considerably more likely than first-generation immigrants to be living in an independent household without a partner, especially if they are under age 30. This could be a first sign of the liberalization and adaptation of partnership arrangements in an ethnic group who strictly disapprove of cohabitation.

Another reason for the high prevalence of marriage among Turkish and Ethnic German immigrants is more practical. The immigration of individuals from outside the EU is legally restricted, but the availability of family reunification visas facilitates the migration of the spouses of EU residents, and allows married couples to live together in Germany (Schroedter, 2011). This applies in particular to the residence permits of migrants from Turkey and Russia, one of the most common origin countries of Ethnic German migrants in the last decade (Bundesamt für Migration und Flüchtlinge, 2016a, p. 25).

Based on official 2014 visa statistics of the Central Register of Foreigners, Turkey is the most common country of origin for migrant spouses, followed by Russia (Bundesamt für Migration und Flüchtlinge, 2016a, p. 25). This observation is of particular relevance for first-generation immigrants, but also for the relatively high share (32%) of second-generation immigrants of Turkish origin in Germany who have a partner from Turkey (Schroedter, 2011, p. 10).

The major weakness of the present research is related to the limits of the analyzed data, the German Microcensus. First, the information collected in the survey are very basic. In order to explain differences in partnership living arrangements between immigrant groups and generations, information about the partnership context at time of migration, religion, attitudes, and reasons for immigration is needed. The living arrangements of adults may also depend on factors such as the labor, housing market, and economic conditions; the decisions of peers; as well as norms and cultural expectations (Aassve et al., 2013)—none of which are surveyed in the German Microcensus. A second drawback is related to the cross-sectional nature of the data. In order to analyse the dynamic character of partnership formation, future research should use longitudinal data. Given the lack of an appropriate dataset to explain differences in partnership living arrangements by migration generation and origin in the German context, we encourage data collectors to oversample migrant groups and include more partnership- and migration-related items in the question programmes of future longitudinal data projects.

DATA AVAILABILITY STATEMENT

The datasets generated for this study will not be made publicly available because the German Microcensus is only accessible for registered users.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsoc.2020. 538977/full#supplementary-material

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Standardized Testing, Use of Assessment Data, and Low Reading Performance of Immigrant and Non-immigrant Students in OECD Countries

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This paper investigates the effects of standardized testing and publication of achievement data on low reading performance for immigrant and non-immigrant students in 30 OECD countries. The paper aims to test hypotheses derived from a principal-agent framework. According to this theoretical perspective, standardized assessments alone should not be associated with reading performance. Instead, the model proposes that the provision of the results to the principle (parents and education authorities) is associated with higher student performance, as this reduces the information asymmetry between principal (parents and educational authorities) and agent (teachers and schools). The results of our analyses of PISA 2009 and 2015 reading data from 422.172 students show that *first*, the use of standardized achievement tests alone was not associated with the risk of low performance. *Second*, making the results of standardized tests available to the public was associated with a decreased risk of low reading performance among all students, and, *third*, particularly among first generation immigrant students. These results were robust across various modeling approaches. In accordance with the predictions from the principal-agent framework, our findings suggest that the mere implementation of standardized assessments has no effects on low performance. Testing along with the public provision of the testing results, which decreases the information asymmetry between schools and teachers on the one hand and parents and education authorities on the other, was associated with a decreased risk of low performance, with the effect being stronger for immigrant students.

INTRODUCTION

Integrating growing immigrant populations is a challenge for receiving countries. Since education is a key resource in contemporary societies it is also a key to societal integration of immigrants and, in particular, their descendants. International large scale assessments such as the OECD PISA study have drawn attention to countries' education systems and how they may contribute to educational inequalities and differences in integration processes. As pressure for quality and equity in education increased, policy making in education has been under close monitoring during the

last years. A major focus of educational reform in many countries has been the implementation of educational standards and, in particular, their regular assessment through nationwide standardized testing (Scheerens, 2007; Meyer and Benavot, 2013). Standardized testing is supposed to aid the definition of clear educational goals and serves as a measure of accountability (i.e., the enforcement of responsibilities to attain these goals), which, in turn, are believed to affect incentives, restrictions, and opportunities of the actors involved in "producing" education. This rationale is drawn, in part, from principal-agent-models which are based in rational choice theories of individual action (Wößmann, 2005; Levačić, 2009). While principal-agent-models are often referred to in empirical research using large scale assessment data like PISA, their mechanisms are rarely put to a direct test. More often, these models are mentioned in order to explain a possible empirical association between standardized testing and educational outcomes.

In this paper, we add to the literature by, first, testing mechanisms drawn from a principal-agent model of education more directly. To do so, we investigate if the use of nationwide standardized testing affects student performance, and, more importantly, if reporting the results of such assessments to the public or educational authorities does. From the perspective of principal-agent models, we would expect that reporting of the results is particular important, since it reduces the information asymmetry between the agent (schools and teachers) and the principal (parents and educational authorities). Second, we take a closer look at immigrant students. The number of immigrants has increased substantially in most Western receiving countries during the last years. Third, because we focus on immigrant student, we do not examine average achievement as an outcome but the risk of low reading performance. This is defined as performance below the second proficiency level in reading in PISA. Reaching this level of reading proficiency is necessary to participate effectively in society and can thus be seen as a prerequisite for immigrant integration. Not reaching this level of proficiency is related to lower life chances: Follow-up studies based on PISA have shown that performance below this level is related to a lower chance of transition to post-secondary education and a higher risk of unemployment and income poverty (OECD, 2010; Shipley and Gluzynski, 2011). Fourth, we employ a longitudinal design at the country level by using data from the OECD Programme for International Student Assessment (PISA) 2009 and 2015 from 30 OECD countries. The longitudinal design allows us to control for (time constant) unobserved country characteristics, making the estimates less prone to bias.

The remainder of this paper is structured as follows: in the next section, we elaborate our theoretical arguments on the effects of standardized testing based on the principal-agent model. Thereafter, we summarize findings from previous studies on the impact of testing practices on educational outcomes. In section "Data and Methods" we describe our database and methods. After presenting the results in section "Results", we discuss implications and limitations of our study in the final section.

HOW STANDARDIZED TESTING CAN AFFECT PERFORMANCE—THEORY AND HYPOTHESES

From a rational choice perspective, institutions of the education system affect incentives, restrictions, and opportunities of the actors involved (i.e., students, parents, teachers, principals). Following this rationale, education policies aiming for quality education should be most effective if they have implemented institutional regulations which incentivize high effort of the actors involved (e.g., teachers). Rational choice models of education further assume that actors, in our case teachers, may not necessarily be interested in high performance and may aim to avoid extensive effort. Parents and the state, however, expect schools and teachers to invest effort in teaching in order to realize quality education. This is a classic principal-agent constellation (Laffont and Martimort, 2002): A principal, the parents and/or the administrative authorities, commissions an agent, the school, to do something on their behalf, i.e., to provide education to the students (Ferris, 1992; Wößmann, 2005; Levačić, 2009).

The principal-agent framework draws attention to three possible problems (Jensen and Meckling, 1976): First, the agents' and principals' preferences may not align. Second, there is an asymmetry in information—oftentimes the principal cannot observe the agent's behavior directly. Third, the principal has to be able to evaluate the agent's behavior, i.e., he needs to assess how much effort the agent puts into realizing the principal's goals. Therefore, for principal-agent constellations to work in the principal's interest, at least two conditions have to be met. First, the principal's goals have to be clearly defined in order to be realized. This is one of the justifications for the specification of national standards in education. They are supposed to clarify the goals of education and function as a frame of reference and orientation for the actors involved (Klieme et al., 2003). Second, it is not sufficient to simply spell out the educational standards, they also need regular assessment. Hence, a frequently used indicator of the standardization of an education system is the use of regular (nation-wide) standardized tests.

A main argument in the literature is that standardized tests improve overall performance (Wößmann et al., 2009; Bol et al., 2014). The theoretical mechanisms governing this effect are however often rather implicit; mostly, it is assumed that the mere existence of such tests can either cause a form of "gentle pressure" on schools and teachers and their way of teaching or increase the signaling value of educational credentials (for a notable exception and an explicit theoretical model, see Bishop, 1995)[1]. It is argued, for instance, that if teachers do not know which tasks are assessed in tests—because the tests are conceptualized by a central authority—they will be less likely to skip parts of the curriculum and the content taught will be more comprehensive (Wößmann et al., 2007, p. 25f.).

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[1]One might argue that the signaling mechanism that is often referred to in the literature is very specific (Bishop, 1995). However, we do not know of any study using large scale assessment data, like PISA, which explicitly tests the mechanism, that is investigating if students really attach more value or importance to their education in the presence of standardized exit exams.

However, from a theoretical point of view, this mechanism appears incomplete. The implementation of standardized testing itself is not sufficient to resolve the principal-agent problem, as it does not affect the information asymmetry between both parties. The principal needs to have information on the results of the standardized tests. The more information the principal has, e.g., achievement data of other schools or national averages, the better will the principal be able to evaluate the agent's behavior and sanction it, positively or negatively. Thus, only if the results of the standardized tests are available to the principal, will there be a relevant decrease in the asymmetric relation. From the logic of the principal-agent model, this form of accountability increases the agents' incentives to act according to the principals' preferences. Consequently, schools and teachers as agents are confronted with a higher pressure to improve their students' achievement. We therefore expect lower rates of low performing students in countries where assessment results are communicated to the public or administrative authorities (*Hypothesis 1*).

Furthermore, when it comes to the risk of low performance, different students have different risks. Immigrant students, for instance, are oftentimes in need of special individual (language) support. As their parents have less knowledge about the rules of the education system, teachers, and schools have to invest more time for consultation. The specific situation of immigrant students creates a higher demand for teachers and, from the perspective of the principal-agent model, a higher risk for opportunistic behavior (e.g., negligence of the specific needs of immigrant students). If, however, achievement data is available to the principals, this creates stronger incentives for schools to take care of every student, regardless of their background. The existence and publication of the results of standardized tests therefore should be advantageous for immigrants.

Further, we argue that it is rational for schools to concentrate efforts on those student groups who are in particular need for assistance (such as immigrant students) (Motiejunaite et al., 2014), as their performance may have a strong impact on a school's mean performance level. Findings from research on the effects of standardized assessments in the USA showed that for some tests and tasks, adaption of teaching strategies was more prevalent in schools with larger shares of ethnic minorities and low performing students (Mittleman and Jennings, 2018). Further, in some countries, standardized assessments are targeted toward minimum levels of education. As a consequence, teachers may particularly focus on students who are at risk of not reaching this level (Booher-Jennings, 2005), which often are immigrant or ethnic minority students. In the context of low educational performance, we thus expect immigrant students to profit more from standardized testing and a publication of assessment results than non-immigrant students (*Hypothesis 2*).

EFFECTS OF STANDARDIZED TESTING ON ACHIEVEMENT—PREVIOUS RESULTS

Since the publication of the first PISA round in 2000, a number of studies investigated how aspects of educational standardization are related to student achievement and inequality

in student achievement (Schütz et al., 2007; Horn, 2009; Chmielewski and Reardon, 2016; Bodovski et al., 2017). These studies often focused on standardized testing, which is seen as one aspect of an education system's degree of standardization (Bol and van de Werfhorst, 2013). It has to be noted, however, that standardized testing should not be used alone to evaluate the degree of standardization of a country's education system. To assess if an education system can be described as standardized, other dimensions of (de)standardization, such as curriculum standardization, school autonomy (in selecting teachers, allocating resources, etc.), and the modes of teacher education, have to be considered as well. Since our focus lies on standardized testing—and not standardization in general—we concentrate the literature review on studies that either focus on this dimension or on immigrant students.

Several previous studies looked at the effect of central school exit exams, which are a special type of a standardized assessment, and mostly found that they are associated with higher average test scores (Bishop, 1997; Carnoy and Loeb, 2002; Wößmann, 2003; Fuchs and Wößmann, 2007). Bergbauer et al. (2018) compared the effects of standardized external comparisons and standardized monitoring to effects of more internal developed testing procedures, using data from six different PISA studies (2000–2015). Their results show that standardized external comparisons as well as standardized monitoring are associated with higher levels of competence among students. Drawing on data from TIMSS 1995, Jürges et al. (2005) analyzed the effect of central exit exams on achievement scores in lower secondary education in Germany. They found that students in federal states with central exit examinations outperform students in states without central school leaving assessments.

A small number of studies addresses the effects of testing on immigrant achievement and, to the best of our knowledge, there are no existing studies that focus on assessments and on the educational inclusion of immigrant students in terms of performance below a certain threshold. Schneeweis (2011) found significant (positive) effects of external student assessments on immigrants educational achievement only for OECD countries. Cobb-Clark et al. (2012) found insignificant effects of external examinations on test score gaps between immigrants and natives, only for one of eight assessed groups they estimated a significant negative effect. Teltemann (2015) found smaller achievement gaps in countries where accountability measures were implemented. Wößmann (2005) reported positive effects of central exams for low achieving students, suggesting that central exams bring an advantage for immigrant student and students from less-educated backgrounds.

DATA AND METHODS

We draw on data from the 2009 and 2015 OECD Programme for International Student Assessment (PISA, OECD, 2016). Both PISA rounds contain information on testing procedures and the publication of the testing results. Since its first survey in 2000, PISA is the most regular and wide-ranging competence assessment of secondary school students. In 2015,

more than 540,000 students in 72 countries have been tested. PISA assesses curriculum-independent competences in reading, mathematics and science. In addition, PISA collects a broad range of background information by administering context questionnaires to students, parents, and principals. The sampling design is targeted at a representative sample of the 15-years old school population in a country, independent of the respective grade they are attending. PISA is conducted every 3 years and the PISA datasets are publicly available via download from the OECD's website[2]. Since we pooled the data from 2009 and 2015, we created a data structure with four levels: students, schools, country-years, and countries (see the section on Modeling below). All analyses were carried out using Stata 16.1. Code for reproducing the analysis have been archived on the Open Science Framework (https://osf.io/3ezxs/).

Dependent Variable

With regard to immigrant integration, the definition of competences in PISA, which does not target national curricula but seeks to measure "viability" in globalized economies, proves useful. The PISA competence scores "measure how far students approaching the end of compulsory education have acquired some of the knowledge and skills essential for full participation in the knowledge society" (OECD, 2009b, p. 12). Thus, assessing differences between immigrant and non-immigrant students with PISA data can give insight not only into educational integration but also into future societal integration. Competences in PISA are measured on a continuous scale which is standardized to an OECD mean of 500 points. In addition, PISA distinguishes so-called proficiency levels, which correspond to actual abilities. For reading, proficiency level 2 is defined as a baseline level of competences, "at which students begin to demonstrate the reading skills that will enable them to participate effectively and productively in life" (OECD, 2016, p. 164). Performance below this baseline level thus indicates the risk of failed societal integration for immigrant students, as has been shown by PISA follow-up studies (OECD, 2010; Shipley and Gluzynski, 2011). PISA provides several (five up to 2012 and ten since 2015) plausible competence scores per student (see OECD, 2009a for details). We used the (first) five plausible values and created dummy variables that indicate performance below proficiency level 2 (a score below 408 points, see OECD, 2009a, p. 117ff.). Consequently, the final coefficients represent the average over five models (Macdonald, 2019).

Main Independent Variable and Controls at the Student Level

In PISA, immigrant status is assigned according to the country of birth of a student and its parents. Students who indicated that they and their parents were born abroad are categorized as first generation students. Second-generation students were born in the country of test with both parents born abroad. Since PISA does not collect comparable or complete information on students' or parents' countries of origin—the way this is inquired differs between the participating countries—we cannot

distinguish different immigrant groups. This is a major drawback, since the composition of immigrant groups may covary with the receiving countries' contextual conditions, including their educational institutions. To alleviate this problem partially, we control for language use at home with a dummy variable indicating whether students reported to mainly speak a foreign language and not the test language at home. Furthermore, because migration into OECD countries may be selective on socioeconomic status, we also control for several measures of parental socioeconomic background. This includes parental education (measured through the ISCED scale), family wealth possessions (measured through the "wealth" index in PISA), cultural possessions (measured through the "cultposs" index in PISA), and home educational resources (measured through the "hedres" index in PISA) (see OECD, 2017, p. 339 for details). Lastly, we control for student gender (1 = female).

Main Independent Variables and Controls at the Country-Year Level

Following the approach described by the OECD (OECD, 2013, p. 28, 66, 166), we have aggregated school data within countries for 2009 and 2015 to describe the system level. This is possible since PISA draws a representative sample of schools and the schools' principals have been interviewed about organizational aspects of their school. For each year we constructed three variables according to this procedure: first, the proportion of students in a country attending schools that regularly administer mandatory standardized tests. Second, the proportion of students attending schools that post aggregated achievement data publicly and, third, provide aggregated achievement data to educational authorities[3].

A country's institutional arrangements are not independent of other country characteristics that might also affect student achievement. Since we are employing a longitudinal approach at the country level and include country fixed effects (see Modeling below), all time-constant country differences are accounted for. However, effect estimates may still be biased by time-varying differences between countries that covary with standardized testing and student performance. We therefore control country characteristics that may simultaneously affect (immigrant) student performance and are related to the country's institutional arrangements. In order to control for a general effect of resources devoted to the educational system, we include annual educational expenditure as a percentage of a country's Gross National Income in our models. Likewise, we control for effects of economic development of a country by including the annual growth of a country's GDP (in percent). The overall number of immigrants in a country may be related to institutions, such as integration policies, which might have an impact on educational performance of immigrants. We therefore control

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[2]https://www.oecd.org/pisa/data/

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[3]As the sampling design of PISA targets the student population, not the schools in a country, computation of country level variables by aggregation has to be done with the (weighted) student level data. Since the sampling frames in PISA aim to provide representative information on all eligible students within a country, the resulting variables measure the proportion of students in a country attending schools with a respective feature (e.g., schools that make assessment data publicly available).

for the international migrant stock as a percentage of the overall population. Additionally, immigrant performance may be impacted by their labor market outlooks. Hence, we control for the annual unemployment rate among foreign born persons in each country. Data for these annual country-year control variables comes from the World Bank and the OECD (Fontenay, 2018). An overview on the distribution of these characteristics among the countries in our sample can be found in the Appendix (**Table A1**) as well as their pairwise correlations (**Table A3**).

Analyses Sample

We restricted our analyses to OECD countries in order to increase comparability across countries. We excluded countries for which (country-level) information was unavailable and those with <40 immigrant students (either first or second generation) in the sample—this applied to Japan, Korea, Poland, and Turkey. Students were excluded if they had missing values on any variable (listwise deletion). Our final sample consists of 422.172 students in 12.255 schools in 54 country-years in 30 countries. **Table 1** gives an overview over unweighted sample statistics.

Modeling

As our dependent variable is binary and our data structure is clustered hierarchically, we estimated four level linear probability models (LPM). The individual students (level 1) are clustered in schools (level 2), which are clustered in country-years (triennial country observations) (level 3), which are again clustered in countries (level 4). The standard approach to this data structure is a four-level random effects model

$$
\begin{aligned}
y_{ijkl} = {} & \beta_0 + \beta_1 x_{ijkl} + \beta_2 c_{kl} + \beta_3 x_{ijkl} \times c_{kl} + t + w_l + v_{kl} \\
& + u_{jkl} + \varepsilon_{ijkl}
\end{aligned}
\tag{1}
$$

where the dependent variable y_{ijkl} is the probability of an individual student i in school j in country-year k in country l to fall below PISA reading level 2. w_l represents the country-level error, v_{kl} the country-year error, u_{jkl} the school, and ε_{ijkl} the student-level error. x_{ijkl} exemplifies the individual-level variables (i.e., migration background, gender, language ability, and parental socio-economic status) and t represents joint period (wave) effects. The effects of interest are those associated with the country-year–specific variables (β_2) and their interaction with immigration status (β_3).

Although we focus on OECD countries, the country sample is still heterogenous with respect to immigration histories, institutional arrangements, educational policies, and economic conditions, all of which may be correlated with aspects of the education system and, in particular, testing and accountability. Thus, the problem of unobserved heterogeneity at the country level is pressing and the probability of misspecifying the model is high. The standard strategy to avoid misspecification is to control for the relevant confounders. However, the ability to include relevant confounders is restricted for two reasons. First, with 30 countries (and 54 country-years), the degrees of freedom are limited. Second, many important confounders, e.g., which describe a country's immigration history, are not

TABLE 1 | Sample statistics (unweighted).

	Mean	Sd	Min	Max
Student level variables				
Below reading level 2 (pv1)	0.18		0.00	1.00
Below reading level 2 (pv2)	0.19		0.00	1.00
Below reading level 2 (pv3)	0.18		0.00	1.00
Below reading level 2 (pv4)	0.18		0.00	1.00
Below reading level 2 (pv5)	0.18		0.00	1.00
Native	0.89		0.00	1.00
First generation	0.05		0.00	1.00
Second generation	0.06		0.00	1.00
Gender [1 = female]	0.51		0.00	1.00
Language of test spoken at home	0.88		0.00	1.00
Parental education				
None	0.01		0.00	1.00
ISCED 1	0.03		0.00	1.00
ISCED 2	0.10		0.00	1.00
ISCED 3b,c	0.08		0.00	1.00
ISCED 3a,4	0.24		0.00	1.00
ISCED 5b	0.17		0.00	1.00
ISCED 5a,6	0.37		0.00	1.00
Index of family wealth possessions	−0.01	1.05	−7.44	4.44
Index of cultural possessions	−0.02	0.98	−1.92	2.63
Index of home educational resources	−0.05	1.00	−4.45	1.99
Country level variables (source WB)				
International migrant stock (% of population)	12.79	8.14	0.82	43.96
Adjusted savings: education expenditure (% of GNI)	5.03	0.93	3.10	8.34
GDP growth (annual, %)	−1.23	4.74	−14.43	25.16
Unemployment (%) among foreign born	11.63	6.18	4.30	32.00
Proportion of students attending schools that (PISA aggr.)				
Regularly use mandatory stand. tests	0.73	0.21	0.24	1.00
Post achievement data publicly	0.39	0.24	0.02	0.92
Provide adm. authority with achievement data	0.69	0.22	0.26	0.99
PISA round				
PISA 2009	0.58			
PISA 2015	0.42			
N	422,172			

Source: PISA 2009, 2015, World Bank.

readily measured and available. Therefore, we estimated (1) as a first difference (i.e., fixed effects) model (Wooldridge, 2010), including fixed effects for countries and years. The advantage of the fixed effects approach is that we do not have to make any assumptions about possible confounders at the country level. The model thus produces unbiased estimates even if there are unobserved confounders at the country level—that is, $E\left(w_l|x_{ijkl}, c_{kl}\right) \neq 0$. Therefore, the effects of the country-year level variables are estimated solely by relying on within-country (co)variation.

The coefficients in the LPM are estimators of the absolute difference in the probability of low reading achievement associated with a unit increase in the value of the corresponding

predictor variable. We have chosen a linear probability model over a logistic model for the following reasons. First, the available non-linear four level models in the statistical program used for the analyses (Stata) do not accept weights. Weighting the data, however, is necessary in view of the complex and nationally diverging sampling procedures in PISA (OECD, 2009a; Lopez-Agudo et al., 2017). Second, non-linear models are notoriously hard to interpret, in particular when dealing with interactions. One needs to estimate average marginal effects in order to understand the joint effect of main- and interaction effect (Brambor et al., 2006; Berry et al., 2012). While other statistical software packages (e.g., MLwiN) are able to estimate weighted four level logit models, they are unable to provide average marginal effects. Third, an important argument against the LPM is that it may provide predicted probabilities >1 or <0 (Long, 1997). However, in many situations, the LPM is applicable (Hellevik, 2009) and, as the graphical illustration of the interaction effects below (**Figures 2**, **3**) show, predictions outside the range of 0 and 1 do not appear to be an issue here. Fourth, another argument against the LPM is that heteroscedasticity is almost inevitably present. For this reason and to account for the sampling (see below), we estimate robust standard errors. Nonetheless, to scrutinize the robustness of our analyses, we have additionally estimated standard logit models with cluster robust standard errors applying the same weights as for the LPMs (see **Table A4** in the Appendix).

Clustering, Standard Errors, and Weighting

PISA usually recommends to use balanced repeated replications (BRR) to estimate a coefficient's variance to take into account its complex sampling (OECD, 2009a; Lopez-Agudo et al., 2017). The particular variant used is known as Fay's method (Rust and Rao, 1996; Wolter, 2007). BRR breaks up the sample into subsamples ("replicates") and the estimate of interest is first estimated for the full sample and then for each of the subsamples (Teltemann and Schunck, 2016). The estimator's variance is then estimated as the differences between the estimate from the full sample and each of the subsamples. We refrain from using BRR in this paper, because applying BRR may lead to a serious underestimation of the standard errors of country-level variables. Due to the resampling procedure, there will be no differences between the estimates for a country level variable in the full sample and the subsamples, because all students from one country have the same values for their country level variables.

Since the data is hierarchically structured with three clusters, it is necessary to account for the three-way clustering to estimate correct standard errors. Thus, we estimate cluster robust standard errors that account for the clustering at the country, the country-year, and the school level (Correia, 2017). Cluster-robust standard errors have shown to provide similar results for the lower level estimates when compared to BRR (Lopez-Agudo et al., 2017). To account for the complex sampling of PISA and the national differences in sampling, all analyses have been weighted by normalized student weights. In contrast to the final student weight, which is recommended for within-country analyses, applying these weights ensures that each country contributes equally to the analysis regardless of its actual size or student population.

RESULTS

Figure 1 shows the unadjusted risks for low performance among the different groups across the 30 countries in our sample averaged across 2009 and 2015. We see that first generation immigrants have a higher risk of performing below the baseline level of reading proficiency than non-immigrant students in most countries of our sample.

First generation immigrant students also have a higher risk of not reaching the baseline reading competence than second-generation immigrants in all countries except three (Chile, Czech Republic, New Zeeland). Second generation students generally still have higher risks of low performance compared to non-immigrants students with five exceptions (Australia, Canada, Israel, Hungary, Portugal), in which they show similar or lower risks than their fellow non-immigrant students.

Table 2 gives the results of our multivariate analyses. Model 1 includes only immigrant status and the country-level controls. It shows that first generation immigrants have a 16.1 percentage points higher probability of performing below the baseline level of proficiency than non-immigrants. Second generation immigrants have a 8.5 percentage points higher probability of low-performance than non-immigrants. After controlling for the individual-level characteristics (Model 2), the relatively higher risk for immigrants is reduced: Second generation immigrants only have about two percentage points higher risk of performing below the baseline level than non-immigrants, first generation immigrants still have about 9 percentage points higher risk. Model 3 includes the time-varying measure for the proportion of students attending schools that regularly employ standardized tests. While the estimated association is negative, statistical uncertainty is too high—the effect is not statistically significant. We also do not find statistically significant associations between the use of regular standardized tests and students' migration background (Model 4).

In Models 5 and 7, accountability in terms of the provision of aggregated achievement data of schools to the general public (Model 5) or to administrative authorities (Model 7) is tested. Making achievement data available to the public is associated with a reduced probability of low reading performance among all students (b = −0.158, s.e. = 0.067, Model 5), while providing achievement data to administrative authorities is not associated with low reading performance (b = 0.029, s.e. = 0.101, Model 7). These findings thus only partly confirm the first hypothesis derived from the principal-agent framework.

Models 6 and 8 test the second hypothesis, which states that the communication of test results is expected to be associated with a reduced risk of low performance particularly among immigrant students. To facilitate interpretation, the **Figures 2**, **3** graphically display the interaction effects. The left y-axis shows the predicted probability of low performance based on the respective regression model. The scale of the left y-axis for each figure runs from 0.0 to 0.5; the figures thus cover a range
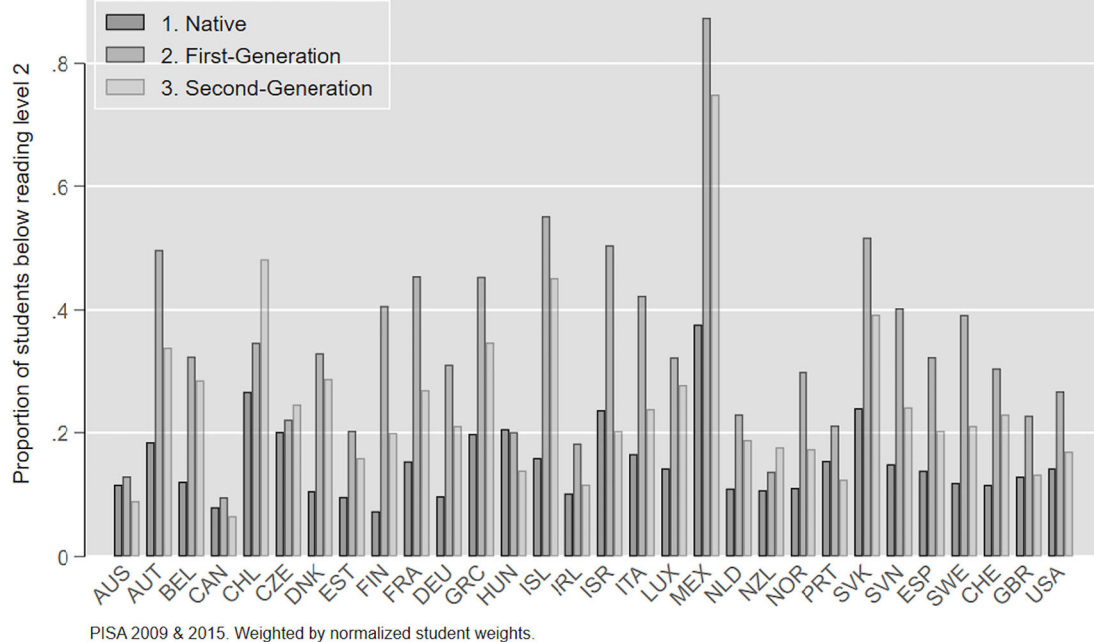
FIGURE 1 | Proportion of students below baseline level in reading, PISA, 2009 and 2015.

of 50% points. The x-axis displays the proportion of students attending schools within a country which provide achievement data to the general public (or an administrative authority). The background of each figure additionally shows a histogram of the empirical distribution of the country-year level variable, that is the proportion of students that attend schools which provide information about achievement data to the respective recipient; this relates to the right y-axis. We limited the predicted values to an empirically reasonable range on the x-axis, i.e., for which we have observations in the data.

Figures 2, 3 show a similar pattern: The more prevalent accountability is in a country, the lower is the risk of low performance among immigrant students. **Figure 2** shows a negative association between the public provision of aggregated achievement data and the risk of low reading performance for all students. The association is strongest for first generation immigrant students, reducing the risk of low performance by about 20 percentage points across the range of x. **Figure 3** displays the estimated associations between the provision of aggregated achievement data to administrative authorities and the risk of low reading performance. There is a comparatively small effect for first generation immigrant students, about 9 percentage points across the range of x. While the association is also negative for second generation immigrant students, statistical uncertainty is high, as indicated by the large confidence intervals. The association for non-immigrant students appears slightly positive, but is far from statistical significance. Thus, the results are mostly compatible with our second hypothesis.

Robustness Check

To see if the results of the analyses are sensitive to the modeling approach, we have estimated two sets of additional models. First, we have re-estimated all models as logit models with country and wave fixed effects and cluster robust standard errors, using the same weights as in the LPMs (see **Table A4** in the Appendix). The results of the logit models support the conclusions drawn from the LPMs, with regard to the direction of the relevant coefficients and their statistical uncertainty. The logit models, too, estimate statistically significant, negative interaction effects, indicating that the provision of aggregated achievement data to the general public or to administrative authorities is associated with a reduced probability of low reading achievement among immigrant, in particular first generation, students. As in the LPMs, standardized testing alone is not statistically significantly associated with the risk of low reading performance—neither for immigrant nor for non-immigrant students. Second, we have re-estimated the models with the cross-level interaction as random effect models (with time fixed effect) and included random slopes for the interaction term. This may be necessary as leaving out a random slope for a cross-level interaction may cause the standard errors to be biased downwards (Heisig and Schaeffer, 2019). The results (see **Table A5** in the Appendix) also support the conclusions drawn from the LPM. The provision of aggregated achievement data to the public or to administrative authorities is associated with lower probability of low reading achievement for immigrant students. However, statistical uncertainty for the latter association is too high, i.e., the interaction effects are not statistically significant.

TABLE 2 | Four level linear probability models predicting not reaching reading level 2.

	1	2	3	4	5	6	7	8
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Student level								
Native	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
First generation	0.161***	0.089***	0.089***	0.153***	0.089***	0.154***	0.089***	0.212***
	(0.021)	(0.017)	(0.017)	(0.037)	(0.017)	(0.019)	(0.017)	(0.039)
Second generation	0.085***	0.020	0.020	0.060	0.020	0.071***	0.020	0.107**
	(0.015)	(0.014)	(0.014)	(0.035)	(0.014)	(0.017)	(0.014)	(0.034)
Gender [1 = female]		−0.092***	−0.092***	−0.092***	−0.092***	−0.092***	−0.092***	−0.092***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Language of test spoken at home		−0.094***	−0.094***	−0.093***	−0.093***	−0.095***	−0.094***	−0.094***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.013)	(0.012)
Parental education								
None		0.056**	0.055**	0.055**	0.058**	0.058**	0.055**	0.055**
		(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)	(0.021)
ISCED 1		ref.	ref.	ref.	ref.	ref.	ref.	ref.
ISCED 2		−0.038	−0.039	−0.040	−0.038	−0.039	−0.040	−0.040
		(0.023)	(0.023)	(0.023)	(0.024)	(0.023)	(0.023)	(0.023)
ISCED 3b,c		−0.111***	−0.112***	−0.113***	−0.110***	−0.111***	−0.113***	−0.112***
		(0.025)	(0.025)	(0.025)	(0.026)	(0.025)	(0.025)	(0.025)
ISCED 3a,4		−0.152***	−0.153***	−0.154***	−0.151***	−0.152***	−0.153***	−0.153***
		(0.023)	(0.023)	(0.023)	(0.024)	(0.024)	(0.023)	(0.023)
ISCED 5b		−0.161***	−0.162***	−0.163***	−0.159***	−0.160***	−0.162***	−0.161***
		(0.023)	(0.023)	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)
ISCED 5a,6		−0.176***	−0.177***	−0.177***	−0.175***	−0.175***	−0.177***	−0.176***
		(0.023)	(0.023)	(0.023)	(0.024)	(0.024)	(0.023)	(0.023)
Index of family wealth possessions		0.001	0.002	0.002	0.001	0.001	0.002	0.002
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Index of cultural possessions		−0.040***	−0.040***	−0.040***	−0.040***	−0.040***	−0.040***	−0.040***
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Index of home educational resources		−0.042***	−0.042***	−0.042***	−0.042***	−0.042***	−0.042***	−0.042***
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Country-year level								
GDP growth (annual, %)	−0.000	−0.001	−0.001	−0.001	−0.002	−0.002	−0.001	−0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Education expenditure (% of GNI)	0.016	−0.008	−0.009	−0.009	−0.017	−0.016	−0.005	−0.003
	(0.015)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.019)	(0.019)
Migrant stock (% of population)	0.000	0.003	0.003	0.003	0.002	0.001	0.003	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Unemployment (%) among foreign born	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Proportion of student attending schools that			ref.	ref.	ref.	ref.	ref.	ref.
Regularly use mandatory stand. tests			−0.038	−0.033	−0.040	−0.041	−0.036	−0.036
			(0.036)	(0.035)	(0.033)	(0.034)	(0.035)	(0.035)
Prop. of schools X first gen.				−0.085				
				(0.056)				
Prop. of schools X second gen.				−0.053				
				(0.055)				
Post achievement data publicly					−0.158*	−0.144*		
					(0.067)	(0.069)		
Achievement data publicly X first gen.						−0.160***		
						(0.036)		
Achievement data publicly X second gen.						−0.124***		
						(0.029)		

(Continued)

TABLE 2 | Continued

	1	2	3	4	5	6	7	8
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Provide adm. authority with achievement data							0.029	0.051
							(0.101)	(0.099)
Achievement data adm. authority X first gen.								−0.179**
								(0.055)
Achievement data adm. authority X second gen.								−0.125*
								(0.049)
Country and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.065	0.453***	0.488***	0.481***	0.600***	0.593***	0.443*	0.437*
	(0.067)	(0.070)	(0.081)	(0.081)	(0.087)	(0.088)	(0.174)	(0.172)
N countries	30	30	30	30	30	30	30	30
N country–years	54	54	54	54	54	54	54	54
N schools	12,255	12,255	12,255	12,255	12,255	12,255	12,255	12,255
N students	422,172	422,172	422,172	422,172	422,172	422,172	422,172	422,172

Source: PISA 2009, 2015, World Bank. Standard errors in parentheses, adjusted for clustering in countries, country-years, and schools. Weighted by normalized student weights. Estimates averaged over five plausible values. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.
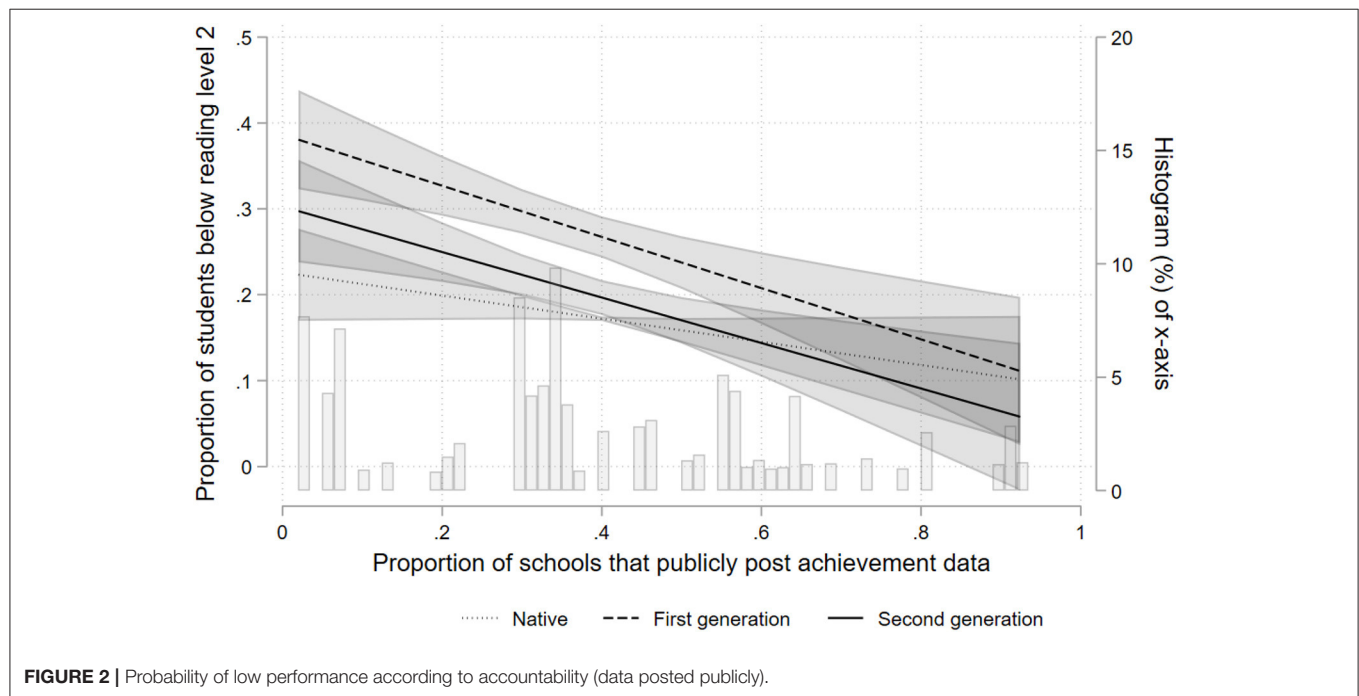

FIGURE 2 | Probability of low performance according to accountability (data posted publicly).

DISCUSSION AND OUTLOOK

In this paper, we examined the effects of standardized testing and the publication of school achievement data on low reading performance for immigrant and non-immigrant students in 30 OECD countries using a longitudinal design at the country level by combining OECD PISA data from 2009 and 2015. We conceptualized low performance as the risk of performing below the so-called baseline level of reading proficiency in the PISA study (OECD, 2016, p. 164). With respect to immigrant students and their prospects for societal integration, performance above this baseline level is crucial, as it measures one's ability

to fully participate in a society (OECD, 2009b, p. 2). We aimed at providing a more direct test for arguments drawn from the principal-agent models (William and Michael, 1976; Ferris, 1992; Laffont and Martimort, 2002), which are often mentioned in research on standardized testing and educational performance (Wößmann, 2005) but rarely directly tested.

Drawing on arguments from said principal-agent models, we hypothesized that standardized testing itself should not be sufficient to prevent low performance of students. We argued that an effect would only emerge if the principal, i.e., the administrative authorities or parents, had access to results of such testing. This would alleviate the information asymmetry

FIGURE 3 | Probability of low performance according to accountability (data provided to administrative authorities).
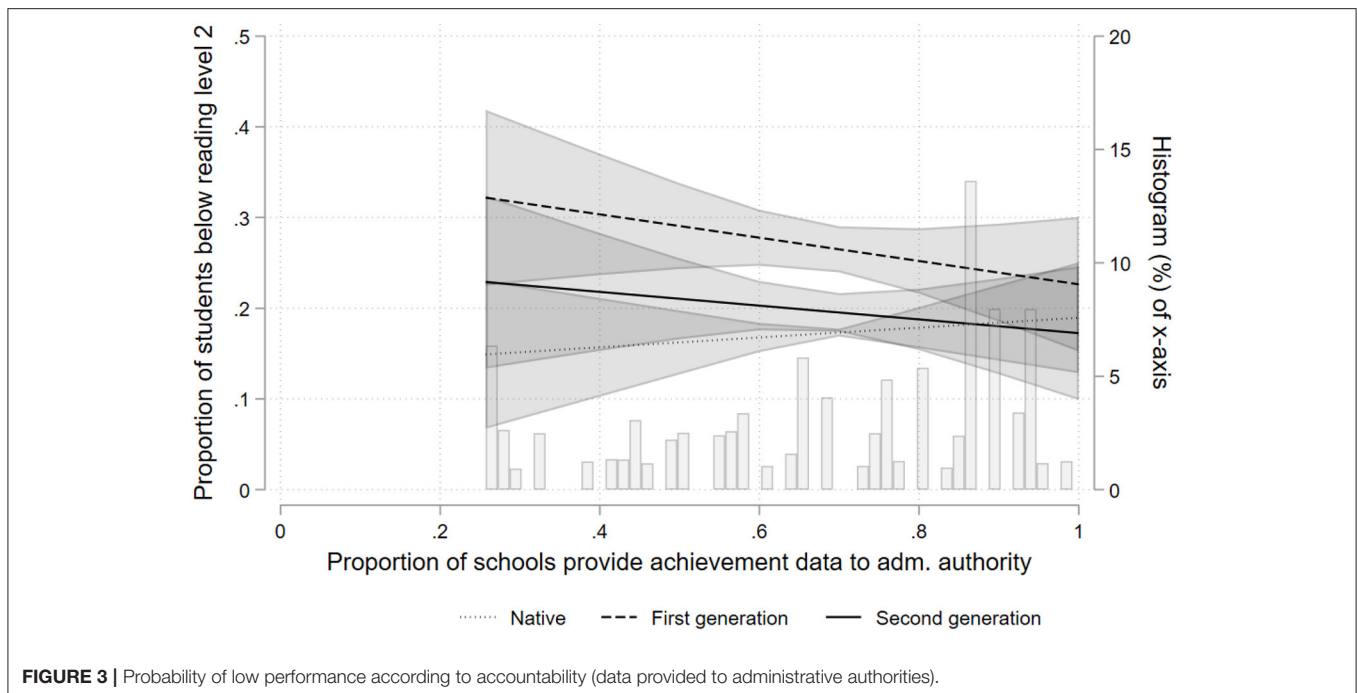
between principal and agent, creating incentives for the agent (i.e., the school or the student) to prevent low performance. We furthermore expected immigrant students to profit more from this form of accountability than non-immigrant students, as they are often in need of special support.

The results of our analyses of PISA 2009 and 2015 reading data show that *first*, the use of standardized achievement tests alone was not associated with the risk of low performance. *Second*, making the results of standardized tests available to the public was associated with a decreased risk of low reading performance among all students, and *third*, particularly among first generation immigrant students. While the analyses also tended to confirm this relationship if the testing results were made available to an administrative authority, the estimated associations were smaller and not as robust. In a nutshell, the higher the share of schools that provide achievement data to the public, the lower is the risk for students, in particular for first generation immigrant students, to perform below reading level 2. These results were robust across the three modeling approaches we used: linear probability multilevel models with country and year effects and adjusted standard errors for multiple clustering (Wooldridge, 2010; Correia, 2017), linear probability models with year fixed effects and random slopes for the cross-level interactions (Heisig and Schaeffer, 2019) and cluster robust standard errors, as well as logit models with country and year fixed effects and cluster robust standard errors.

Overall, the results supported the hypotheses drawn from the principal-agent-model, as they showed that the mere existence of regular assessments is not sufficient to mitigate the information asymmetry between principal and agent if information from these assessments is not accessible. Assessments thus have to be combined with adequate measures of accountability in order to incentivize the actors to align their efforts with the principal's goals. The effects of assessments and accountability

become especially apparent in the context of low performance and in particular for a specific group: immigrant students. We argued that assessments, which are often geared toward ensuring minimal levels of education, increase the incentives to support students at risk. As sufficient education is key for immigrant integration, education policies which lower the risk of low performance gain in importance.

Limitations

Our study has several limitations that should be considered. First, the strength of international comparisons as we conducted it, is the variation in institutional characteristics. However, although all countries belong to the OECD, they are still heterogenous not the least with respect to their immigration history, which may be confounded with both educational institutions and (immigrant) student performance. We tried to approach this problem with a longitudinal approach at the country level, effectively controlling for all time-constant differences between countries, by focusing only on changes in the institutional arrangements within countries over time. Nonetheless, we only have two measurements over time. What is more, although we have tried to include the most relevant time-varying confounders at the country-year level, the estimated results are still prone to bias due to unobserved heterogeneity. Larger time-spans and additional meaningful controls at the country-year level would strengthen the analytical design. Second, it is unfortunate that PISA does not allow for a systematic and comparable differentiation of immigrant origin. We have attempted to alleviate this problem partially by controlling for different aspects of parental socio-economic status and language use at home. Still, we have to expect that the overall effect that we observed will vary across different countries of origin. However, the association is clearly present, even if the effect may be heterogenous across immigrant groups. Third, we have chosen

a four-level linear probability model to analyze the data for the reasons outlined in the Data and Methods section, since the potentially better suited model (four level logit) could not be used. Nevertheless, comparisons of the LPMs' results with other modeling approaches (single level logit models and random intercept random slope models) showed very similar results. This increases our confidence that the results are not artifacts of the modeling approach. Fourth, the main proportion of variance in educational performance, including the risk of low performance, lies at the individual level. If we inspect empty random effect models, the intra-class correlations for the country and the country-year level are estimated to being only around 0.03. This has to be taken into consideration, when evaluating the results. The low intra-class correlation could be seen as an argument against investigating characteristics at the country(-year) level. Clearly, individual factors are responsible for the larger share of variation in educational performance. Nonetheless, we think that it is still relevant to analyze the role of institutional characteristics. From a policy perspective, institutional regulations are easier to adjust than students' characteristics. In a short term perspective, the latter has to be seen given. Profound knowledge about the effects—albeit small— of institutional characteristics of education system is crucial if one is interested in shaping institutions which facilitate sustainable development and system integration of contemporary societies. Fifth, although we tried to put the propositions of the principal-agent framework to a direct test, we still face a black-box. With the data at hand, we do not know for certain if the mechanisms that create the association between (immigrant) student achievement and the public provision of assessment data correspond to those outlined in the principal agent framework. Further research could attempt to out even more specific hypotheses to the test. Our analyses fail to falsify predictions from the model, but should not be seen as a proof that the model is correct.

In summary, our results show that the mere implementation of standardized assessments has no effects on low reading performance, neither for immigrant nor for non-immigrant students. In line with the predications from a principal-agent framework, we do find a general association between provision of assessment data to the public and the risk for low reading performance. First generation immigrant students in particular have a reduced probability for low reading performance in countries that make assessment data available publicly.

DATA AVAILABILITY STATEMENT

Publicly available datasets were analyzed in this study. This data can be found at: https://www.oecd.org/pisa/data/2015database/; https://databank.worldbank.org/home.aspx.

AUTHOR CONTRIBUTIONS

JT and RS have jointly conceptualized and drafted the manuscript, approved it for publication, conceptualized the research question, and the theoretical approach. JT has conducted the literature review. RS conducted the empirical analyses. All authors contributed to the article and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsoc.2020.544628/full#supplementary-material

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Closing a Backdoor to Dual Citizenship: The German Citizenship Law Reform of 2000 and the Abolishment of the "Domestic Clause"

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The German citizenship law underwent a paradigmatic amendment in 2000. One often overlooked change of this reform was the abolishment of the domestic clause ("Inlandsklausel") that implied a substantial restriction to de facto dual citizenship acceptance. Combining data from the German Socio-Economic Panel Study (waves 1993–2006) with original data on origin country policies on dual citizenship and citizenship reacquisition, we analyse the impact of the abolishment of the domestic clause on naturalization rates. We apply a difference-in-difference design to investigate the causal impact of this element of the reform which has remained under-studied. We do not find an impact of the abolishment of the domestic clause on naturalization rates, neither among the general migrant population, nor among Turkish migrants who are alleged to be targeted specifically by this reform. These results suggest that a more restrictive approach to dual citizenship did not dissuade migrants from acquiring German citizenship after 2000.

Keywords: naturalization, immigrants, Germany, dual citizenship, difference-in-differences analysis

INTRODUCTION

Over the last decades immigrants' naturalization propensity has been of growing interest to academics as well as politicians. Citizenship acquisition of immigrants is increasingly viewed as a key element to foster immigrant integration. Studies on citizenship have traditionally identified several individual and origin-country factors which determine the propensity to naturalize (Jasso and Rosenzweig, 1986; Yang, 1994; Bueker, 2005; Chiswick and Miller, 2009). Research concerning origin-country factors has looked at the relevance of institutional context, such as dual citizenship regulations at the origin-country level (e.g., Jones-Correa, 2001) as well as general accessibility of citizenship (Dronkers and Vink, 2012; Vink et al., 2013).

One of the most complex reforms of recent times is the reform of German citizenship law that came into force on 1 January 2000. Now nearly two decades ago, there are contrasting interpretations as to how and why the 2000 reform—which is generally viewed as a paradigmatic liberalization—has affected immigrant naturalization rates. Whereas, some have observed the surprising puzzle of Germany's low post-reform naturalization rates (Hochman, 2011, p. 1404; Howard, 2008, pp. 55–57; Street, 2014, p. 264) and have even concluded "that the 2000 law

has been a disappointment in quantitative terms" (Green, 2012, p. 182), others have concluded that especially the reduced waiting period has increased naturalization propensity after 2000 substantially (Gathmann and Keller, 2018, p. 17).

The reform of German citizenship law in 2000 comprised of various elements. On the one hand, the reform included a major liberalizing element as it reduced the residency requirement from 15 to 8 years. Additionally, it facilitated dual citizenship for some groups. At the same time, the reform included other changes that could have negatively affected naturalization propensities. The reform introduced the birthright principle (ius soli), which grants children born in Germany automatic German citizenship at birth, irrespective of the citizenship of the parents, provided that at least one of the parents has resided in Germany for at least 7 years. If intergenerational motives drive naturalization, the introduction of ius soli would make it unnecessary for immigrant parent to naturalize to ensure that their children are citizens (Street, 2014).

While the reduction of the residency requirement (Gathmann and Keller, 2018) and the introduction of ius soli (Street, 2014) have been empirically investigated, one element of the 2000 reform has been overlooked: the abolishment of the "domestic clause." This clause exempted German citizens, voluntarily acquiring another citizenship, from the automatic loss of German citizenship if they continued living in Germany (Hailbronner and Farahat, 2015). This clause previously enabled migrants to circumvent the effects of the German requirement to renounce one's other citizenship before naturalizing, by reapplying for their origin country citizenship after acquiring German citizenship. While the abolishment of the domestic clause has been observed by legal commentators (Hailbronner and Farahat, 2015, p. 18) and in media reports (see e.g., even recently, Middle East Monitor, 2020), it has been overlooked in all studies we are aware of that refer to aggregate naturalization statistics (Howard, 2008; Green, 2012) or analyse micro-level statistics on naturalization propensity (Hochman, 2011; Street, 2014; Gathmann and Keller, 2018)[1].

We combine data from the German-Socio-Economic Panel Study with a unique data set on the citizenship reacquisition policies in the origin countries to investigate the impact of the abolishment of the domestic clause on naturalization rates in Germany between 1993 and 2006. Employing a difference-in-difference (DiD) strategy we, contrasting to the assumption of legal commentators, do not find an impact of the abolishment of the domestic clause naturalization rates, neither among the general migrant population, nor among Turkish migrants in particular.

The remainder of the paper is organized as follows: the next section provides a general outline of the German naturalization law reform of 2000. In the third section we provide a detailed outline of the implications of the abolishment of the domestic clause as well as an overview on existing research on naturalization propensities in Germany. This is followed by a description of the data sets used in the paper and the DiD model with which we estimate the impact of the abolishment

of the domestic clause on naturalization propensities. In section Analysis, we are discussing the main results and robustness checks and provide results for an alternative specification where we focus on the effect for Turkish migrants. We end the paper with conclusions in section Conclusion.

THE GERMAN CITIZENSHIP LAW REFORM OF 2000

For a long time, Germany was seen as a paradigmatic example of community of descent that typically was exclusive toward resident non-nationals while being inclusive toward non-resident co-ethnics (Brubaker, 1990; Green, 2012). For much of the 20th century the acquisition and loss of Germany citizenship was regulated by the Nationality Law of 1913. Since 1991 naturalization was facilitated if certain conditions were met and in 1993 this facilitation was formalized. Naturalization requirements differed depending on the age of the person in question. All immigrants had to renounce their previous nationality and show no criminal record. If between 16 and 23, immigrants were able to naturalize after residing in Germany for at least 8 years and having attended a German school for at least 6 years. Immigrants older than 23 could naturalize after 15 years given that they were able to earn a living.

After national elections in 1998, the Social Democrats (SPD) and the Green party formed the so-called Red-Green coalition, and quickly announced that one of its first legislative acts would be a reform of the citizenship law, including a paradigmatic introduction of ius soli in the German citizenship law (Howard, 2008). Following strong contestation of dual citizenship early 1999 (Green, 2005), the final proposal of the reform of the Nationality Act included some moderating elements regarding dual citizenship, which we will discuss below. Citizenship acquisition in Germany is regulated by the Nationality Act which came into force on 1 January 2000 (Hailbronner and Farahat, 2015). The new Nationality Act implied several changes regarding the conditions under which Germany citizenship could be acquired and lost. First, the residency requirement was reduced from 15 to 8 years for immigrants above 23[2]. Accordingly, the previous differentiation by age group regarding residency requirement was abolished.

Another element of the reform was the introduction of the birthright principle (ius soli), which meant that children of non-naturalized immigrants would receive German citizenship at birth if one of the parents resided in Germany for at least 8 years. Ius soli was thereby introduced as an option model. At the age of 18, children with dual nationality had to renounce either their German or foreign citizenship. This part of the reform included a transition period. Parents whose children were born

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[1]Studies by Diehl and Blohm (2003, p. 144) and Zimmermann et al. (2009, p. 74) do not take into account the consequences of the 2000 reform due to data selection.

[2]In Germany naturalization can be acquired in three ways; with authority's discretions (Ermesseneinbürgerung), marriage to a German national, or legal entitlement (Anspruchseinbürgerung) (Green, 2012). The most common way to naturalize is through legal entitlement (Worbs, 2008). Spouses or under-aged children of Germans and naturalized immigrants can acquire German citizenship after a shorter period of residency. Refugees face a shortened residency requirement of 6 years.

between 1990 and 1999 could apply for German citizenship for their children under the birthright principle given they applied throughout 2000. However, this transition period was not used by many parents (Felfe and Saurer, 2014). Since 2014, the optional model has been modified and requirements have been relaxed. Children of immigrant parents who are born in Germany can now keep both citizenships if they lived in Germany for more than 8 years and acquired formal education in Germany, or alternatively went to a German school for at least 6 years.

Regulations on dual citizenship changed with the reform of 2000 concerning different aspects. Acceptance for dual citizenship increased as EU citizens and Swiss citizens were allowed to keep their EU citizenship under the condition of reciprocity of treatment (i.e., immigrants could keep their EU citizenship if the respective EU country also allows dual citizenship for a German in the same situation naturalizing). In 2007, the reciprocity of treatment condition was abolished, and dual citizenship was generally accepted for citizens from an EU country and Switzerland. Non-EU immigrants in principle must renounce their citizenship after 2000. However, some exceptions were included. Immigrants do not have to give up their foreign citizenship if this is not possible from the origin country, the conditions are deplorable, or the immigrant is a recognized refugee.

Since 2000, the German Nationality Act was subject to further changes and revisions. The Immigration Act of 2004, which came into force on 1 January 2005, introduced integration requirements. The residency requirement could be reduced from 8 to 7 years if the immigrant participated in an integration course including a language course as well as basic facts on German history and the political system. The 2007 Act, which came into force on 1 January 2008, added the passing of a naturalization test as an additional naturalization requirement. Additionally, the language requirements were formalized to language level B1. Immigrants with higher capabilities (e.g., B2) can naturalize already after 6 years.

Figure 1 shows the absolute numbers of naturalizations in Germany excluding ethnic Germans since 1994[3]. Many scholars have observed the overall decreasing number of naturalizations after the reform of 2000 (in **Figure 1**: Total). Given the major liberalization of the reforms by reducing the residency requirement this decrease has been viewed as puzzling (Howard, 2008; Green, 2012; Street, 2014). However, the problem with such framing is that overall trends in the changing number of naturalizations ignore changes in the population that is eligible to naturalize, which are affected both by growth of the number of foreign residents as well as by the reduced residence requirement for selected groups since 1993 and generalized from 2000 onwards (as detailed above). As can be seen from **Figure 1**, the number of naturalizations increased since the mid-1990s, initially pushed especially by the acquisition of German citizenship

FIGURE 1 | Absolute numbers of naturalisations in Germany, 1994–2017. Source: calculations by authors based on Destatis (2018). Numbers exclude ethnic Germans.
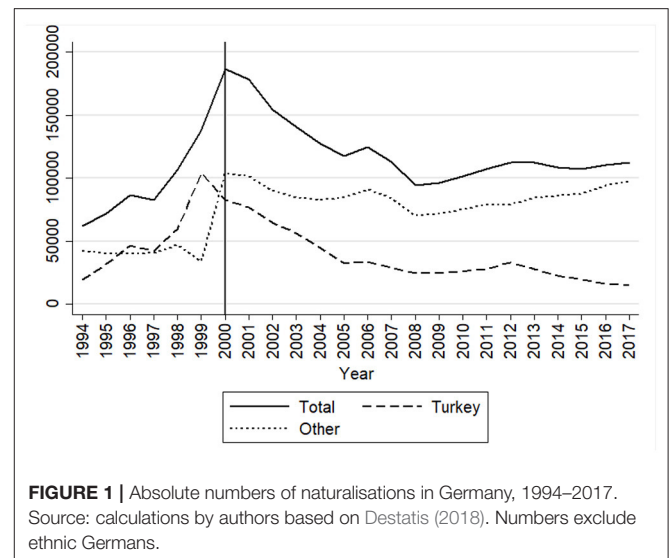
by Turkish nationals (with a peak of 100,000 naturalizations in 1999) and from 2000 onwards largely driven by the non-Turkish immigrant population. In order to assess the effect of changes in the citizenship law, other than changing eligibility requirements, and net of changes in the migrant population, it is crucial to assess the rate of naturalization relative to the eligible foreign population in Germany. Unfortunately, administrative statistics on naturalization rates among the eligible population are only available since 2000 (Destatis, 2018). For this reason, analyses of the effect of the changing citizenship law in 2000, typically rely on survey data in order to estimate changes in naturalization propensity at the micro-level among migrants eligible to naturalize (e.g., Gathmann and Keller, 2018).

ABOLISHMENT OF THE DOMESTIC CLAUSE

Despite the paradigmatic nature of the case of the 2000 German citizenship law reform, the impact on naturalization rates in Germany remains curiously understudied. In this paper we focus on one particular element of the reform that has remained under-studied so far, namely the abolishment of the so-called "domestic clause," which concerned the closing of a previous legal loophole to circumvent Germany's overall restrictive dual citizenship policy. While this policy change has been observed by some, predominantly, legal commentators (Hailbronner and Farahat, p.18), especially in the context of the relevance of dual citizenship, no studies so far have aimed to quantify the effect of this restriction. In the next section, we introduce the context of this policy change and formulate our theoretical expectations based on the literature.

According to German law, the voluntary acquisition of another citizenship implies the automatic loss of citizenship (§ 25 StAG). Until 1 January 2000, the "domestic clause" (Inlandsklausel) allowed German citizens residing in Germany to acquire a foreign citizenship without losing the German

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[3]Since 2000, citizenship acquisition of ethnic Germans is no longer counted as naturalization and ethnic Germans are therefore no longer in the naturalization statistics. Before 2000, we proxy the number of naturalizations of ethnic Germans by excluding naturalizations via legal entitlement that are not according to par. 85 and 68 Abs.1 AuslG.

citizenship. In practice this meant that immigrants could naturalize in Germany, give up their foreign citizenship in order to fulfill the renunciation requirement for German naturalization and re-acquire this foreign citizenship at a later stage. This practice was of particular relevance in the case of Turkish migrants who, encouraged by their home country government, made use of this circumvention of the German dual citizenship restriction at large scale (Anil, 2007; Hailbronner and Farahat, 2015). After the abolishment of the domestic clause by the reform of 2000 dual citizenship through reacquisition of the origin citizenship was no longer possible. The abolishment of the so-called "domestic clause" implied a substantial restriction to de facto dual citizenship acceptance.

First, the impact of the abolishment of the domestic clause on naturalization rates has not been investigated. This change has been addressed in legal reports (Hailbronner and Farahat, 2015), but not in those that have analyzed naturalization rates before and after 2000. The studies on the impact of the reduced residency requirement (Gathmann and Keller, 2018) and the introduction of ius soli (Street, 2014) do not explicitly account for changing dual citizenship regulations and therefore do not provide a comprehensive assessment of the various elements of the reform.

Second, there are some studies that discuss the politics of the reform, yet they refer to aggregate level statistics to formulate claims about the individual-level effects of the citizenship reform (Howard, 2008; Green, 2012; see also Anil, 2007 who provides more detailed, but still aggregate-level statistics on the naturalization practices of Turks in Germany). Other studies on naturalization propensity in Germany provide statistical analyses in a de-contextualized manner by not taking into account the effect of institutional rules in either the destination country (i.e., citizenship policy changes in Germany) or origin country (i.e., dual citizenship policies) (Diehl and Blohm, 2003; Zimmermann et al., 2009).

In the previous section, we have identified the different institutional changes due to the reform of German citizenship law in 2000. In order to carve out the effect of the abolishment of the domestic clause, it is important to identify the effect of the various changes, namely the change in residency requirement and introduction on ius soli, on the naturalization propensity of migrants.

Studies on citizenship have identified several individual and origin-country factors which determine the propensity to naturalize (Jasso and Rosenzweig, 1986; Yang, 1994; Bueker, 2005; Chiswick and Miller, 2009). These factors matter especially in terms of perceived benefits. The benefit of naturalizing depends on the relative "value" of the origin country citizenship as well as the perceived future regarding the destination country and family situation (e.g., Yang, 1994; Helgertz and Bevelander, 2017). In addition, scholars have increasingly looked at the relevance of the institutional context. The institutional context is of high importance as it shapes the naturalization process as well as the eligibility conditions. Research on this aspect has looked at the relevance of institutional context, such as dual citizenship regulations at the origin-country level (e.g., Jones-Correa, 2001) as well as general accessibility of citizenship (Dronkers and

Vink, 2012). Studies including the institutional context show that restrictive policies in the destination country decrease naturalization, while more liberal policies increase naturalization (Bloemraad, 2002; Bauböck et al., 2013; Vink et al., 2013; Peters et al., 2016).

Whether or not an immigrant is eligible to naturalize is crucial when studying naturalization propensities as only then an immigrant can make the decision to naturalize. The residency requirement determines the timing of naturalization. This is important as naturalization is a life course project (Peters and Vink, 2016), and for citizenship acquisition to be part of the life planning it needs to be within a foreseeable time horizon. Thus, we expect that naturalization rates increase for all migrants after 2000 in light of the reduced residency requirement. This is supported by the results by Gathmann and Keller (2018) who do find an increased likelihood to naturalize due to the reduced residency requirement.

Migrants do not only naturalize to obtain the destination country citizenship for themselves but also for their children (Street, 2014). These intergenerational motives suggest that migrant's motivation to naturalize includes the benefits this has for their children (Street, 2014). Hence, migrants with minor children may be more likely to naturalize. This may also mean that if children can automatically acquire citizenship at birth (i.e., ius soli) migrants do not need to naturalize due to an intergenerational motive as their children will already be citizens. Thus, we expect that naturalization rates for migrants with children decreases after 2000. This decreased naturalization rates among parents has been found by Street (2014).

Naturalization propensities do not only depend on the benefits of acquisition, such as voting rights or secured residency status but also on the costs of acquisition. These costs may be monetary costs of acquiring citizenship (e.g., fees in the naturalization process) but also non-monetary costs if the origin country citizenship cannot be maintained after naturalizing. The loss of citizenship in the country of origin may affect the ability to work, hold property or invest in the origin country and can lead to a loss of rights to its public services and social benefits (Bloemraad, 2004). A general finding in the literature is that dual citizenship influences naturalization propensity (Dronkers and Vink, 2012; Peters et al., 2016)[4]. The option of dual citizenship depends on the constellation of policies in the origin (loss provision) and the destination country (renunciation requirement).

The domestic clause in Germany before 2000 implied that migrants could circumvent destination country dual citizenship restrictions by first renouncing their origin country citizenship and, subsequently, reacquiring that citizenship. Based on the costs of giving up the origin country citizenship this means that those migrants should be more likely to naturalize than their counterparts that either cannot reacquire their origin country citizenship or would subsequently lose again their destination country citizenship. Thus, we expect that naturalization rates decrease after 2000.

In the context of Germany and the domestic clause, it is known that Turkish migrants most prominently made use of

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[4]See Helgertz and Bevelander (2017) for contrasting findings.

the domestic clause (Hailbronner and Farahat, 2015). In German parliamentary debates regarding the abolishment of the domestic clause, this was regularly emphasized, and the abolishment was referred to as "Lex Turka" (see e.g., Deutscher Bundestag, 2005, 2008). At the same time, Turkey facilitated the use of the domestic clause by making it easy to reacquire Turkish citizenship while living in Germany (McFadden, 2019). Therefore, the abolishment of this legal loophole may have affected Turkish migrants in particular (Anil, 2007). Accordingly, naturalization rates may especially decrease for Turkish migrants after 2000.

MATERIAL AND METHODOLOGY

Data

In order to analyse the impact of the abolishment of the domestic clause on naturalization propensities, we use information obtained from the 1993 to 2006 waves of the GSOEP[5]. The GSOEP is a longitudinal household survey, which interviews around 30,000 respondents each year. The GSOEP is the longest running longitudinal survey in Germany which enable the analysis of question on migration and integration processes (Liebau and Tucci, 2015). The survey strives to include a representative sample of migrants. Since immigrants show lower respondent rates than natives the GSOEP oversamples certain groups of immigrants—such as Turkish, Greek, Spanish, Italian, and former Yugoslavian immigrants in earlier waves (Liebau and Tucci, 2015). The GSOEP sample has been widely used to study questions of migration and integration (see on migration e.g., Diehl and Schnell, 2006; Davidov and Weick, 2011; Kóczán, 2016; and on naturalization Von Haaren-Giebel and Sandner, 2016). The GSOEP is suitable to study naturalization propensities as the questionnaire, since the beginning of the survey in 1984, includes questions about both citizenship status and country of birth.

As we are studying the effect of the abolishment of the domestic clause, we combine the GSOEP data with data sets on policies in the origin country. To test the effect of the abolishment of the domestic clause, we need to identify the group of migrants that were affected by it. This group regards migrants who are from an origin country that allows dual citizenship and provides reacquisition of citizenship without residency requirement. For information on origin country dual citizenship policies we draw on data from the MACIMIDE Expatriate Dual Citizenship Dataset (Vink et al., 2015). The information in this dataset indicates whether origin countries have policies that imply the automatic loss of citizenship upon the voluntary acquisition of another citizenship. For information on the reacquisition of citizenship, we created a new dataset— the *Reacquisition of Citizenship Dataset*—with yearly information on the possibility of citizenship reacquisition from 1960 to 2017.

For the purpose of this study, we make use of a variable that differentiates between citizenship laws that (1) do not provide for the reacquisition of citizenship, (2) provide for reacquisition but with residency requirements, or (3) provides for reacquisition without residency requirement[6].

We use the waves from 1993 as since then naturalization became formally an entitlement of individuals who fulfill the requirements (Hailbronner and Farahat, 2015, p. 4–5). Restricting the analysis to waves until 2006 enables us to have a balanced panel with 7 observation years before and from 2000. Furthermore, the selection of these survey waves allows us to exclude the impact of changes to the German citizenship law after 2006, instituting new language requirements and integration tests. The analysis focuses on first generation (i.e., foreign-born) immigrants who arrived in Germany before 1998 as they still have the possibility to naturalize within the observation period. In order to focus on the explicit decision to naturalize we restrict the analysis to immigrants who are 15 or older at the moment of migration and exclude ethnic Germans. Immigrants younger than 15 at the moment of migration can make use of different eligibility requirements as they can naturalize after having completed a minimum number of years of schooling. Furthermore, immigrants younger than 16 cannot apply for citizenship themselves but their parents apply in their name. Ethnic Germans, coming from the successor states of the former Soviet Union and from other Eastern European states are excluded as they are exempted from the standard naturalization requirements and are naturalized upon or shortly after arrival in Germany[7]. We furthermore exclude immigrant who have German citizenship at arrival[8].

To study the impact of the abolishment of the domestic clause on naturalization rates, we restrict the sample to migrants who are eligible to naturalize. We define eligibility according to the residency requirement that an individual migrant likely faces and it lies between 3 and 15 years depending on the martial status and year of migration. Migrants who are married to a German citizen can naturalize after 3 years according to administrative practice (Hailbronner and Farahat, 2015). All other migrants face a residency requirement of 8–15 years which is determined based on their year of migration. Migrants who arrived after 2000, become eligible to naturalize after 8 years of residency. Migrants who migrated until 1985 become eligible after 15 years of residency. Migrants who arrived between 1986 and 1999 originally faced the 15 years residency requirement but given that this changes to 8 years in 2000 it was shortened to 9–14 years depending on the year of migration.

We furthermore restrict the sample to migrants who are from countries that do not automatically lose their citizenship upon naturalization in Germany but who can renounce it. The rationale for this restriction is that only migrants from

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[5]Another data set that has been used to study questions on migration and integration in Germany is the Microcensus which is an annual survey of 1% of the population in Germany. While it entails a larger sample of foreigners as the GSOEP it is not suitable for our analysis as foreign-born and naturalized individuals can only be identified since 2005. Information on the year of migration and the year of naturalization could be used retrospectively but most other individual control variables cannot be recreated as this information is only available for the survey year.

[6]The dataset is publicly available at: https://doi.org/10.7910/DVN/L3DPE4. The information to construct this dataset is collected from GLOBALCIT (2017).

[7]We identify ethnic Germans by their legal status upon arrival (being ethnic German) or if the country is one of the successor states of the Soviet Union or another Eastern European state and they naturalize within 2 years after arrival.

[8]Due to small numbers of observations and data availability we exclude immigrants who report to be stateless or of Palestinian origin.

countries with those dual citizenship provisions were, given the citizenship renunciation regulations in the origin country, potentially able to make use of the domestic clause. In other words, we ensure comparability between control and treatment group by restricting our sample to migrants from those origin countries with the same dual citizenship provisions. This group represents the majority of immigrants in Germany and therefore 83% of immigrants in our sample[9].

These restrictions result in a sample of 12,147 person-year observations. As pointed out above, the GSOEP is a survey that strives to include a representative sample of migrants. The descriptive statistics of our final sample support this notion. In our sample, 39% of migrants are from Turkey, 20% from Italy and 13% from Greece. Given the sample comprises of 83% of the migrant population, these percentages are somewhat higher but corresponding with official numbers on migrant populations. For example, in 2000, the German statistical office reported that 34% of (non-naturalized) migrants in Germany were from Turkey, 10% from Italy, and 6% from Greece (Destatis, 2003).

Estimation Strategy

We employ a difference-in-difference framework following Yasenov et al. (2019) to identify the effect of the abolishment of the domestic clause. We therefore compare naturalization rates for immigrants who were affected by the abolishment of the domestic clause (treatment) and those who were not (control) before and after 2000.

Our estimation strategy can be formalized as follows:

$$Y_{icft} = \propto + \beta_1 Treatment_{icft} + \beta_2 Post_{icft} + \beta_3 Treatment_{icft}$$
$$* Post2000_t + \beta_4 X_{icft} + \beta_5 O_{ct} + \gamma_t + \delta_f + \varepsilon_{icft}$$

Where Y_{icft} indicates where an immigrant i from origin country c residing in federal state f is naturalized in year t. $Treatment_{icft}$ indicates the treatment group and $Post_{icft}$ indicates the years 2000 and later. X_{icft} comprises individual controls (gender, age, age-squared, years since migration, ysm-squared, years of education, marital status, citizenship spouse, child below 18, working, household income) and O_{ct} origin country controls (EU). Furthermore, the equation includes year fixed effects (γ_t) to account for year-specific effects (e.g., changes in political or economic situation) as well as federal state fixed effects (δ_f). $\propto$ denotes the intercept and ε_{icft} the error term[10]. We account for potential heteroskedasticity by calculating robust standard errors clustered at the individual level.

β_3 is our difference-in-difference estimator of interest that identifies the average difference in the naturalization rate between those affected by the abolishment of the domestic clause (treatment group) and those who were not (control group) after controlling for several individual and origin country controls.

In order to identify our treatment and control group and thus who were and who were not affected by the abolishment of the

FIGURE 2 | Identification of the effect of the abolishment of the domestic clause in German citizenship law.
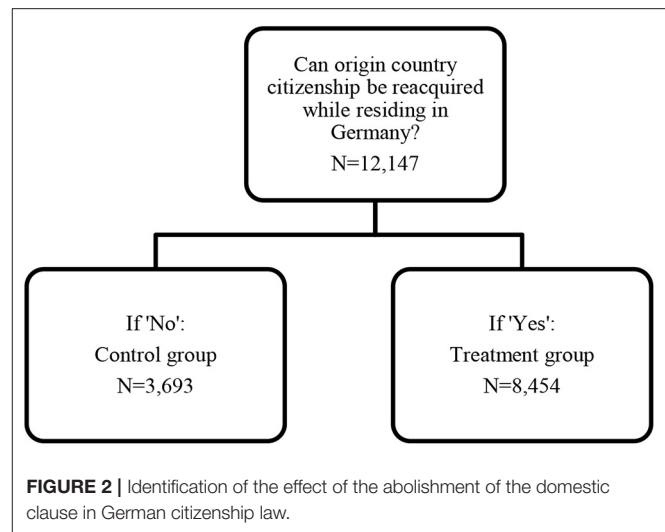
domestic clause, we make use of the origin country citizenship policies and define the groups accordingly:

Treatment group: *Migrants who can reacquire their origin citizenship without residing in the origin country.*
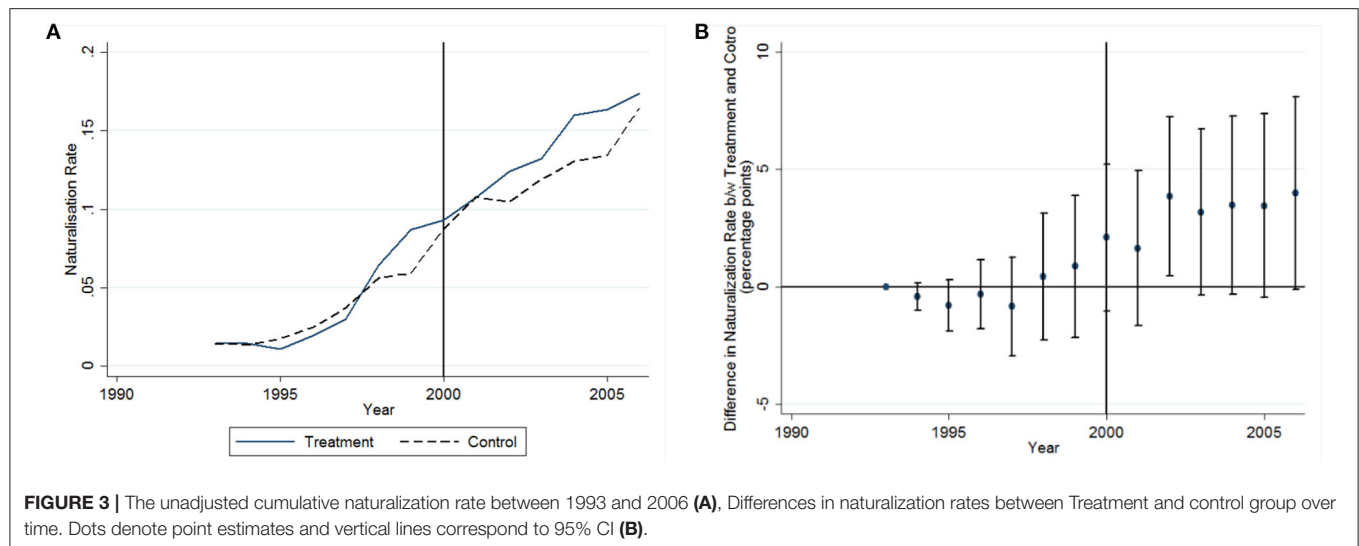Control group: *Migrants who cannot reacquire their origin citizenship without residing in the origin country.*

The treatment identification is visually represented in **Figure 2**. Amongst migrants who are required to renounce their other citizenship, we identify whether this person would be able to reacquire this citizenship, after having renounced it, while residing in Germany. If it is possible to reacquire citizenship in the origin country without residency requirement, the migrant is in the treatment group. Otherwise, he or she is in the control group.

When analyzing the treatment effect of the domestic clause abolishment, it is important to take into account simultaneous changes that were part of the 2000 reform. As discussed in section The German Citizenship Law Reform of 2000, the reform of 2000 not only included the abolishment of the domestic clause but simultaneously reduced the residency requirement, introduced ius soli and facilitated dual citizenship for EU citizens under the condition of reciprocity of treatment. The changing residency requirement led, on the one hand to a change in the moment of eligibility but may also have affected naturalization propensities in general. Given that we restrict our analysis to eligible migrants and there are no differences in the composition between control and treatment group as well as before and after 2000 (see **Supplementary Table 1**), the potentially positive impact of the increased residency requirement is not affecting the results for the difference-in-difference estimator but would be reflected in general increased naturalization propensities after 2000. The ius soli introduction, which may reduce naturalization propensity of parents, does not affect our difference-in-difference estimator as the share of parents in both treatment and control group are very similar. With the reform in 2000, EU citizens and Swiss citizens were exempted from the renunciation

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[9]The context according to which we identify which migrants do not automatically lose their citizenship upon naturalization in Germany, but who can renounce it, is laid out in section A1 in the **Supplementary Material**.
[10]The theoretical motivation and operationalization of the control variables is laid out in section A2 of the **Supplementary Material**.

FIGURE 3 | The unadjusted cumulative naturalization rate between 1993 and 2006 **(A)**, Differences in naturalization rates between Treatment and control group over time. Dots denote point estimates and vertical lines correspond to 95% CI **(B)**.

requirement under the condition of reciprocity of treatment (i.e., immigrants could keep their EU citizenship if the respective EU country also allows dual citizenship for a German in the same situation naturalization)[11]. As a result, migrants who could keep their EU citizenship under the condition of reciprocity of treatment were not affected by the abolishment of the domestic clause. To make sure that our analysis is not biased by the inclusion of migrants from this group, we exclude migrants from these countries from the analysis in a robustness check[12].

ANALYSIS

Abolishment of the Domestic Clause

Figure 3A shows the unadjusted cumulative naturalization rates for our sample between 1993 to 2006. This naturalization rate refers to the number of migrants who are German citizens relative to the migrant residents in Germany who are eligible to naturalize[13].

We observe continuous increasing naturalization rates within our observation window which suggests a positive effect of the formalization of the naturalization facilitation in 1993 as well as an overall positive impact of the German citizenship law reform of 2000. This suggests that there is an overall effect of the reform, but we do not observe an indication that there may be differences

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[11]In 2007, the reciprocity of treatment condition was abolished and dual citizenship was generally accepted for citizens from an EU country and Switzerland.

[12]Origin countries where migrants were able to be dual citizens based on the regulations regarding EU citizenship under the condition of reciprocity of treatment are states without a generalized requirement for naturalizing persons to renounce their previous citizenship. This applies for (1) Belgium, France, Greece, Ireland, Italy, Portugal, Switzerland, and United Kingdom since 2000; (2) Sweden since 2001; (3) Finland since 2003, and (4) Cyprus, Hungary, Malta and Slovakia as new EU member states since 2004 (Vink and De Groot, 2016).

[13]Note that this naturalization rate cannot be directly compared to naturalization rates officially reported by statistical offices (such as DESTATIS and Eurostat) as these naturalization rates are calculated as the share of people acquiring citizenship in a given year relative to the foreign non-naturalization migrant population in that year.

between control and treatment group. However, this figure is based on the raw data and in order to test for the effect of the abolishment of the domestic clause, we need to control for individual characteristics and compositional changes over time, across origin regions, and federal states within Germany.

The underlying identification assumption of the difference-in-difference design employed here is that, in absence of the abolishment of the domestic clause in 2000, naturalizations across our treatment and control groups would have followed parallel trends. **Figure 3B** provides evidence that the parallel trend assumption holds for our analysis. The figure presents the interaction terms of the treatment group and year indicators[14]. In order for the parallel trend assumption to hold, there should be no statistically significant difference in naturalization rates between treatment and control group before the reform of 2000. As **Figure 3** shows, this is the case for our sample. However, also in the years after 2000, there is no statistically significant difference between treatment and control group indicating that the abolishment of the domestic clause may have not impacted the naturalization behavior of the treatment group.

Table 1 shows the difference-in-difference estimate of the effect of the abolishment of the domestic clause for four separate observation windows around 2000. We shorten the observation windows stepwise from 1993–2006 to 1996–2003 to do a sensitivity test of our analysis. The insignificant results of the difference-in-difference estimator in **Table 1** indicate that there has been no general effect on immigrant naturalization rates of the abolishment of the domestic clause for the treatment group[15].

Robustness Checks

In our analyses, the control group consists of migrants who can reacquire their origin country citizenship without residing in the

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[14]The underlying regression analysis controls for gender, age, age-squared, ysm, ysm-squared, years of education, married, married to German citizen, child below 18, working, household income, EU, year FE, federal state FE, region of origin FE. Standard errors are clustered by individuals (in parentheses).

[15]Section A4 in the **Supplementary Materials** provides the full **Supplementary Table 2** as well as a discussion of the results for the control variables.

TABLE 1 | The impact of the abolishment of the domestic clause in 2000 on naturalization rates.

	(1) 1993–2006	(2) 1994–2005	(3) 1995–2004	(4) 1996–2003
Difference-	0.0235	0.0242	0.0230	0.0171
in-differences	(0.0156)	(0.0152)	(0.0147)	(0.0140)
N	12,147	10,453	8,732	6,972

For all coefficients, $p > 0.05$.
The outcome variables indicate whether someone is a German citizen. Results include controls for gender, age, age-squared, ysm, ysm-squared, years of education, married, married to German citizen, child below 18, working, household income, EU, year FE, federal state FE, region of origin FE. Standard errors are clustered by individuals (in parentheses).

TABLE 2 | The impact of the abolishment of the domestic clause in 2000 on naturalization rates, excluding EU citizens that can be dual citizens after 2000 based on reciprocity.

	(1) 1993–2006	(2) 1994–2005	(3) 1995–2004	(4) 1996–2003
Difference-in-	0.0277	0.0345	0.0395	0.0347
differences	(0.0368)	(0.0364)	(0.0358)	(0.0365)
N	7,599	6,550	5,482	4,371

For all coefficients, $p > 0.05$.
The outcome variables indicate whether someone is a German citizen. Results include controls for gender, age, age-squared, ysm, ysm-squared, years of education, married, married to German citizen, child below 18, working, household income, EU, year FE, federal state FE, region of origin FE. Standard errors are clustered by individuals (in parentheses).

origin country. Thus, it consists of migrants who were affected by the abolishment of the domestic clause as, before 2000, they could be dual citizens, and afterwards not anymore. For migrants in the control group it was not possible to be dual citizens in the entire observation period. As outlined in section The German Citizenship Law Reform of 2000, the reform of 2000 included increased acceptance for dual citizenship for EU citizens and Swiss citizens under the condition of reciprocity of treatment.

Accordingly, migrants from EU countries where German immigrants could keep their citizenship, were able to be dual citizens after 2000. As this may cancel out the effect of the abolishment of the domestic clause, we exclude those countries from our analysis as a robustness check. The excluded countries are therefore: Belgium, France, Greece, Ireland, Italy, Portugal, Switzerland, UK, Sweden, Finland, Cyprus, Malta, and Slovakia. This sample is de facto a non-EU sample. In the widest window (column 1), 145 EU migrants are included who are from Romania, Poland, Hungary and Slovenia.

Table 2 shows the results for the difference-in-difference estimator for the restricted sample. Excluding migrants from our sample that can be dual citizens after 2000, does not change the results for the difference-in-difference estimator. The coefficient remains insignificant suggesting that the abolishment of the domestic clause did not affect naturalization rates among the treatment group.

Lex Turka: The Effect for Turkish Migrants

Previous results indicate that there is no generalizable effect of the abolishment of the domestic clause. Given that Turkish migrants, encouraged by their home country government, made use of this circumvention of the German dual citizenship restriction at large scale (Anil, 2007; Hailbronner and Farahat, 2015), we want to see whether, instead of a generalizable effect, we find a particular effect among migrants from Turkey. We therefore adjust the difference-in-difference set-up comparing naturalization behavior of migrants from Turkey (treated) to migrants from other origin countries (control).

Figure 4A shows the unadjusted naturalization rates for Turkish and other migrants between 1993 to 2006. As in Figure 3, we observe increasing naturalization rates for both groups. However, the growth rate of naturalization among Turkish migrants slows down after 2000. Figure 4B shows that also for this operationalization of the difference-in-difference design the parallel trend assumption holds, meaning that there is no significant difference between treatment and control group prior to 2000.

Table 3 shows the results for the difference-in-difference estimator for Turkish migrants. The insignificant coefficient in all four observation windows suggests that there is no specific "Lex Turka" effect for Turkish migrants. Thus, the abolishment of the domestic clause did not cause decreased naturalizations among Turkish migrants.

Hence we do not find an impact of the abolishment of the domestic clause on naturalization rates, neither among the general migrant population, nor among Turkish migrants in particular. This result is robust to samples excluding migrants who can be dual citizens based on reciprocity (Supplementary Table 3) and when comparing Turkish migrants to other migrants who were initially in the control group, thus excluding other migrants that could have been affected by the abolishment of the domestic clause (Supplementary Table 4).

How to interpret these findings? Does this mean that the pre-2000 relevance of the domestic clause has been overstated? Or, by contrast, that the possibility to circumvent dual citizenship restrictions within the context of the law of the destination country may facilitate naturalization where origin country legislation facilitates this, but once this option is off the table migrants make a new calculation. Unfortunately, our data do not allow to tease out what drives this null finding and existing research on the Turkish case points to contrasting explanations.

One the one hand, qualitative evidence from Anil (2007) suggests that dual citizenship was not the predominant issue in the naturalization decision of Turkish migrants after "the pink card system introduced by the Turkish government in 1995 removed some of the disincentives for Turkish nationals to apply for German citizenship." (Anil, 2007, p. 1372)[16]. Others, however, question the relevance of the pink card and doubt it removed the interests of Turkish migrants to retain their Turkish citizenship:

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[16]The pink card system was introduced by the Turkish government in 1995 which enables former Turkish citizens to keep all their rights in Turkey (except the right to vote, run for public office, and work in government jobs) (Anil, 2007).
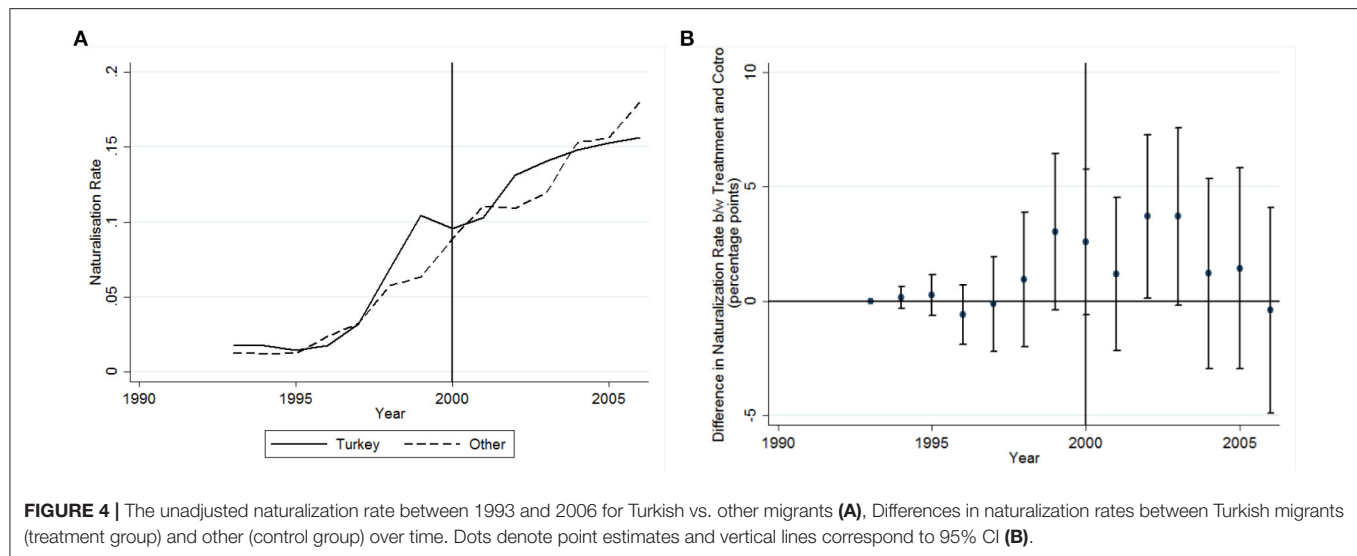
FIGURE 4 | The unadjusted naturalization rate between 1993 and 2006 for Turkish vs. other migrants **(A)**, Differences in naturalization rates between Turkish migrants (treatment group) and other (control group) over time. Dots denote point estimates and vertical lines correspond to 95% CI **(B)**.

TABLE 3 | The impact of the abolishment of the domestic clause in 2000 for Turkish migrants.

| | (1) | (2) | (3) | (4) |
	1993–2006	1994–2005	1995–2004	1996–2003
Difference-in-differences	0.0180 (0.0149)	0.0195 (0.0143)	0.0211 (0.0137)	0.0243 (0.0131)
N	12,147	10,453	8,732	6,972

For all coefficients, p > 0.05.
The outcome variables indicate whether someone is a German citizen. Results include controls for gender, age, age-squared, ysm, ysm-squared, years of education, married, married to German citizen, child below 18, working, household income, EU, year FE, federal state FE. Standard errors are clustered by individuals (in parentheses).

In practice, the pink/blue card has not been as helpful as expected. Users complain that the Turkish bureaucracy was not instructed about the existence of this privileged status and so the promised advantages never materialized. In addition, this status does not protect those who might own or inherit property in military security areas, ownership remains restricted to Turkish citizens. Turks have also expressed a lack of trust in the Turkish government to continue to offer the pink/blue card. For these and other reasons, Turks who naturalized in Germany will have preferred their own particular workaround: Renunciation of Turkish citizenship, then naturalization in Germany, followed by reacquisition of Turkish citizenship and preservation of German citizenship due to the domestic exemption (McFadden, 2019, p. 78).

On the other hand, the relevance of the abolishment of the domestic clause in restricting dual citizenship is supported by a sharp decline in the number of Turks who first renounce and subsequently reacquired the Turkish citizenship from 2002 onwards. Whereas, in 2000 and 2001 on average 20,000 people reacquired Turkish citizenship per year (with a peak of 27,000 in 2001), by 2003 and 2004 the number of reacquisitions of Turkish citizenship had diminished to around 2,500 per

year (Kadirbeyoglu, 2012, p. 15, **Table 1**). These numbers correspond with the ∼48,000 Turks who have lost their German citizenship by reacquiring Turkish citizenship after 1 January 2000 (McFadden, 2019, p. 81). Such observations underline the relevance of dual citizenship for Turks in Germany, even when the abolishment of the domestic clause did not lower naturalization rates.

CONCLUSION

Germany has experienced one of the most complex reforms of citizenship law in recent time with the reform of its Nationality Act in 2000. While other aspects of the reform—such as the reduced residency requirement or the introduction of ius soli—have been empirically investigated, one element has been overlooked: the abolishment of the domestic clause ("Inlandsklausel"). This paper we set out to study the impact of the abolishment of the domestic clause on naturalization rates. By doing so we aim to fill a gap between legal reports that have addressed the abolishment of the domestic clause and empirical studies on the reform of 2000 that focus on other changes.

Dual citizenship plays an important role in the naturalization decision and its option depends on the constellation of policies in the origin and destination country. The abolishment of the domestic clause implied a substantial restriction to de facto dual citizenship acceptance. The domestic clause in Germany before 2000 implied that migrants could be dual citizens by first renouncing their origin country citizenship and, subsequently, reacquire that citizenship. Thus, the abolishment may lead to a decrease in naturalization rates for migrants who, based on the origin country policies, are affected by this change. As Turkish migrants most prominently made use of the domestic clause, they may have been affected in particular.

Combining GSOEP data with data on dual citizenship and citizenship reacquisition origin country policies, we are able to study the impact of the abolishment of the domestic clause on

naturalization rates of first-generation immigrants in Germany in a longitudinal manner. In this way, we follow recent studies on naturalization propensities (see e.g., Peters et al., 2016 for the Netherlands; and Helgertz and Bevelander, 2017 for Sweden), which aim to overcome shortcomings of existing cross-sectional analyses in order to identify the effect of changing institutional conditions in the destination country. In order to identify the causal impact of the abolishment of the domestic clause we employ a difference-in-difference design where we compare naturalization propensities of those migrants affected by the abolishment of the domestic clause (treatment group) to those who were not (control group).

We do not find an impact of the abolishment of the domestic clause on naturalization rates, neither among the general migrant population, nor among Turkish migrants in particular. We conclude that the abolishment of the domestic clause may have implied the closing of a backdoor to dual citizenship, by imposing a potentially severe legal consequence on the reacquisition of the citizenship of the origin country after having renounced this during the naturalization procedure, but that this apparently did not dissuade immigrants from acquiring German citizenship.

To our knowledge, we are the first to quantify the effect of this element of the 2000 citizenship law. Since, unfortunately, our data do not allow us to further probe the considerations of migrants in Germany, we invite scholars to explore the mechanisms behind these results. While there are some contrasting findings, evidence from secondary sources on balance suggest that even when the abolishment of the domestic clause did not lower naturalization rates, this does not rule out the relevance of dual citizenship for migrants in Germany.

Looking at the reform of German citizenship law in 2000, while previous research found an impact of the reduced residency requirement and the introduction of ius soli, our results indicate that a more restrictive approach to dual citizenship did not dissuade migrants from acquiring German citizenship after 2000. We thus strongly support the claim by Bloemraad (2018) that "attention to law and timing is important" when studying immigrant naturalization. States have an incentive to increase the share of naturalized immigrants, as a high share of non-nationals is a question of democratic inclusion. This is of particular relevance in Germany which shows the highest share of non-nationals (Green, 2005). The non-national population amounted to 10.6 million in 2017, of whom almost half lived in Germany for more than 15 years (Destatis, 2018). While naturalization propensity has been studied widely in other countries, research on the determinants of immigrant naturalization in Germany is still more limited than one might have expected.

Analyzing the impact of the abolishment of the domestic clause as part of the 2000 reform in Germany, has in our view, implications beyond the German case. Our paper demonstrates that it is crucial to analyse the role of dual citizenship as a constellation of origin and destination country policies.

The difference-in-difference design employed in our paper provides a robust approach to test the impact of a particular policy change, also within the context of a more complex reform including several changes as is the case with the citizenship law reform in Germany in 2000. This approach can be applied in future studies on naturalization policies in German, such as the dual citizenship liberalisations for EU citizens, or other countries.

DATA AVAILABILITY STATEMENT

The analyses in this paper are based on data from the German Socio-Economic Panel. Data access is covered by a data use agreement that does not allow us to disclose the individual-level data. Information about the data and how to access the data is available here: https://www.diw.de/en/soep. Replication material to reproduce the analyses in this paper is available at: doi: 10.7910/DVN/L3DPE4.

ETHICS STATEMENT

Ethical review and approval was not required for the study in accordance with the local legislation and institutional requirements.

AUTHOR CONTRIBUTIONS

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fsoc.2020.536940/full#supplementary-material

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Immigrant Naturalisation, Employment and Occupational Status in Western Europe

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Does citizenship facilitate access to employment and higher status jobs? Existing studies have produced mixed results across mostly single case studies in Europe and North America. To investigate whether this heterogeneity depends on varying institutional and socio-economic conditions, in this paper we analyse the labour market outcomes of immigrants who have naturalised in 13 West European countries. Our empirical analysis draws on data from the 2014 European Labour Force Survey *Ad Hoc* Module on immigrants. In order to cope with the selective nature of the naturalisation process, we employ a bivariate probit model that accounts for unobserved characteristics of naturalising immigrants. Our main results show a positive relationship across these destination countries between citizenship and the probability of employment, as well as between citizenship and occupational status, but only for immigrant men from developing countries. For women and for migrants from developed countries, we observe no significant differences between citizens and non-citizens. Liberalising the access to citizenship does not diminish the positive returns on employment from naturalisation. For immigrant men from developing countries there is evidence of a trade-off between easier access to citizenship and the returns on occupational status.

Keywords: citizenship, employment, occupational status, Western Europe, citizenship policy

INTRODUCTION

Citizenship acquisition is often viewed as a vehicle for the labour market integration of migrants. Acquisition of citizenship is mainly associated with better employment chances, higher earnings and higher occupational positions (Liebig and Von Haaren, 2011; Hainmueller et al., 2019). Over the past 15 years, various studies have been published drawing on data from surveys, census and population registers in Europe and North America (e.g., Bratsberg et al., 2002; DeVoretz and Pivnenko, 2005; Scott, 2008; Fougère and Safi, 2009; Rallu, 2011; Bevelander and Pendakur, 2012; Steinhardt, 2012; Helgertz et al., 2014).

Yet it is hard to draw general conclusions from these studies, given that there is considerable variation in terms of national context, the dependent variable and the type of data available (for overviews, see Steinhardt, 2012, p. 815, 816; Helgertz et al., 2014, p. 343). While the variability of the effect of citizenship acquisition on labour market outcomes has often been noted (e.g., Liebig and Von Haaren, 2011, p. 17, 18), there has been surprisingly little systematic attention to the question to what extent this heterogeneity is due to differences in contexts of study. This lack of attention

for the relevance of contextual factors is particularly striking, given that the citizenship policy of the destination country is a strong predictor of the likelihood of immigrants, especially from less developed parts of the world, to acquire the citizenship of a developed destination country (Vink et al., 2013).

In this paper we propose a comparative approach to the analysis of the so-called "citizenship premium" in the labour market. We aim to answer the following two questions: first, to what extent do the often-observed positive associations between citizenship and, respectively, employment and occupational status hold across a larger set of destination countries in Western Europe?; and, second, to what extent does the citizenship policy of the destination country, condition these relationships by facilitating or restricting the access to citizenship?

Given the selective nature of the naturalisation process, where an effect of citizenship can be identified, it may well be caused by characteristics inherent in the group of migrants that naturalises rather than in the status of citizenship itself (for an early discussion, see Chiswick, 1978). In order to cope with the selective nature of the naturalisation process, we employ in this paper a recursive bivariate probit model and the treatment effect method that account for unobserved characteristics of naturalising immigrants. By doing so, we provide more robust comparative evidence on the association between citizenship, on the one hand, and employment and occupational status, on the other, compared to previous studies that do not take into account this selectivity (in particular, Zwysen, 2018).

We analyse this question by means of the 2014 *Ad Hoc* Module of the European Labour Force Survey on the labour market situation of migrants and their immediate descendants, which offers cross-national comparative information on citizenship status, labour market status, and a range of other characteristics of foreign-born residents in Europe. We focus exclusively on foreign-born residents in 13 West European countries and look at the probability of having paid employment and having a higher-status job.

This paper is organised as follows. In section State of the Art we outline the theoretical framework of our paper, by first (section Migrant Disadvantage in the Labour Market and the Citizenship Premium) discussing existing theories on the effect of citizenship on labour market outcomes ("the citizenship premium") and, subsequently, discussing theoretical arguments for why the effect of citizenship may be conditioned by citizenship policies, i.e., by the relative facilitated or restricted access to citizenship. Section Data and Methodology describes the data and methodology employed in the analysis. The key findings are presented in section Results and some conclusive remarks are presented in section Conclusion.

STATE OF THE ART

Migrant Disadvantage in the Labour Market and the Citizenship Premium

There is substantial evidence that employment levels, occupational status and wages significantly differ between first—and even second—generation migrants and natives in all of the western economies (Borjas, 1994; Kogan, 2006; Heath and Cheung, 2007; Fleischmann and Dronkers, 2010; Yann et al., 2010; Lancee, 2012). The current literature identifies a number of reasons why first-generation migrants face disadvantages in the labour markets of the developed countries to which they have immigrated. In the first place, migrants are often endowed with lower levels and different kinds of human capital than those that are necessary to fare successfully in western labour markets (Heath and Cheung, 2007). This is especially the case of migrants from less developed countries who have grown up in challenging socio-economic circumstances with limited educational opportunities. In the second place, the majority of first-generation migrants in Western Europe lack mastery of the language of the country of destination (Van Tubergen and Kalmijn, 2005; Heath and Cheung, 2007). This lack of knowledge reduces their potential productivity and consequent employability in many segments of the labour market. Thirdly, migrants' educational credentials obtained in their country of origin may not have the same value in the labour markets in their countries of destination, as employers are often unable to evaluate foreign qualifications and therefore prefer domestic qualifications with known interpretations in terms of skills and productivity. Additionally, various restrictive practices and regulations exclude first generation migrants from performing certain types of jobs; a notable example of such a restriction is the requirement of citizenship for public sector job entry. Finally, labour market experience obtained in the country of origin is not easily transferable, nor equally valuable in the labour market in the country of destination (Heath and Cheung, 2007; Chiswick and Miller, 2009). While lack of human capital embodied in skills and labour market experience is seen as the major cause of the labour market disadvantage among the first generation of ethnic minorities in Europe, migrants are also affected by prejudice and discrimination (André et al., 2009). A lack of knowledge of, or familiarity with, migrants' socio-economic background makes employers reluctant to hire them for both rational and irrational reasons. While it is indeed difficult to objectively judge migrants' potential productivity (rational discrimination), some employers often prefer one ethnic group over another even if the expected productivity of the two groups is the same (irrational discrimination) (Fougère and Safi, 2009).

In this context of migrant disadvantage in labour markets, access to citizenship is seen as one of the focal points of public policy aimed at promoting migrant integration. Generally, literature has reached a consensus on the positive effect of citizenship on employment (Fougère and Safi, 2009; Corluy et al., 2011; Bevelander and Pendakur, 2012; Engdahl, 2014; Gathmann and Keller, 2018), though some studies observe no effect (Bevelander and DeVoretz, 2008) or even a negative effect (Scott, 2008). Three main mechanisms behind the assumed link between citizenship and successful labour market integration are identified (Liebig and Von Haaren, 2011; Hainmueller et al., 2019; Peters et al., 2020). First, citizenship eliminates barriers to public sector jobs and to a range of regulated high-skill professions or self-employment (Gathmann and Keller, 2018 in the case of Germany). Moreover, naturalisation eliminates barriers to some other jobs that require unrestricted mobility of

their employees without any bureaucratic hurdles. This aspect is particularly relevant for non-EU immigrants who need a visa to travel inside and outside of Europe (Steinhardt, 2012; Poeschel, 2016)[1]. More generally, it will be more attractive for employers to hire naturalised migrants as the administrative costs of hiring and retaining foreign-born workers will be lower in the case of those who hold destination citizenship.

Second, it has been argued that the acquisition of citizenship increases the employability of first-generation migrants by signalling successful integration to employers (the signalling argument). As outlined above, it is often difficult for employers to judge the potential productivity of foreign workers due to their unfamiliarity with the "standard" indicators of productivity, such as educational qualifications and work experience, but also their general commitment to a job. For this reason it has been argued that citizenship might serve as a device signalling "good" integration, leading employers to assume that those migrants who acquire citizenship have higher levels of productive skills, and also a commitment to invest in the country-specific human and social capital. Consequently, the signal of long-term commitment may induce employers to lower barriers to training (von Haaren-Giebel and Sandner, 2016) or to career mobility of immigrants within the firm. Previous research suggests that the citizenship premium is stronger for migrants who face the highest structural barriers in the labour market, especially those from economically less developed parts of the world (Bratsberg et al., 2002, p. 590; Fougère and Safi, 2009, p. 138; Peters et al., 2020).

Third, naturalisation may encourage long-term commitment to the destination country labour market and hence induce migrants' human capital development (Bratsberg et al., 2002, p. 572), for example by investment in mastery of the native language or obtaining country-specific diplomas (or going through often arduous processes of diploma recognition) that provide access to regulated professions. This human capital perspective relates to sociological literature in which a realistic perspective on naturalisation leads migrants to view naturalisation as a logical step in their trajectory of building up a life in the host country (Aptekar, 2015, p. 65). Crucially, such a view implies that labour market effects may be observed not just *after* the moment of acquiring citizenship (as would be the case in the "signalling" argument), but also *before* naturalisation, as employment propensity and wages are likely to increase in conjunction with human capital acquisition (Bratsberg et al., 2002; Peters et al., 2018, 2020).

While the citizenship premium in terms of access to employment is relatively well investigated by the literature, few studies exist on the relationship between citizenship and upward occupational mobility. Bratsberg et al. (2002) show that white-collar and public-sector employment rates are higher for those who naturalise in the U.S than for those who do not. They argue that this effect was not due to the increased human capital investment before naturalisation but mainly because

naturalisation increases access to preferred jobs. According to Jarreau (2015), naturalisation enhances job mobility, both the change of occupations and employers, and reduces job mismatching. Euwals et al. (2010) on Turkish immigrants in Germany and Netherlands find a positive effect of citizenship on occupation status, whereas Kogan (2003) finds a negative effect of citizenship on ex-Yugoslav immigrants in Austria and a not significant effect in Sweden. Finally, using the EU-LFS (2008) *ad hoc* module, Zwysen (2018) studies whether the acquisition of citizenship—intended as a proxy for host country human capital—affects the labour market integration of immigrants. This study finds a slightly positive association of naturalisation with job quality but not with employment. However, this study does not take into account the selection of immigrants into citizenship.

The Citizenship Premium Across National Contexts

Given the heterogeneity in findings observed in the literature with respect to the citizenship premium in the labour market, not just with regard to migrant groups but also with regard to the context of study in various publications, the question arises to what extent migrants experience higher employment probability and have access to higher status jobs after naturalisation across various national contexts. We argue in this paper that at least one important contextual aspect—citizenship policies—could be expected to condition the relationship between naturalisation, on the one hand, and employment and occupational status, on the other.

Citizenship policies in Europe differ substantially, reflecting not only the fact that this is one of the last bastions of sovereignty, but also historically rooted approaches to membership and belonging (Vink and de Groot, 2010). Naturalisation requirements in particular vary greatly, with for example 5 years of residence required in countries such as France, the Netherlands, Sweden and the United Kingdom and 8–10 years in others, such as Austria, Germany and Italy. As a consequence, we see large differences in citizenship take-up rates, with around 80 percent of the foreign-born population naturalised after at least 10 years of residence in the Netherlands and Sweden, but only around 35 percent of a comparable group in Germany and Switzerland (Liebig and Von Haaren, 2011).

There are contrasting theoretical arguments on how easier/faster access to citizenship might influence the citizenship premium. One perspective builds on the assumption that the extent to which citizenship functions as a signal of integration and commitment to the host society is largely determined by the way society in general, and employers in particular, perceive the value and meaning of citizenship. From this perspective, liberal citizenship policies might "devalue" citizenship in the eyes of employers and, thus, be less useful as a selection device between migrants, because the acquisition of citizenship is relatively easy in terms of naturalisation conditions and procedure (see, notably, Koopmans, 2010). In other words, if it is perceived to be "normal" to have citizenship (i.e., the majority of the foreign-born population has citizenship of the country of destination),

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[1]Highly skilled workers (managers, technicians, consultants) of multinational enterprises, travelling between affiliates and headquarters are likely to be in this category. Visa costs and reduced flexibility may prevent firms from employing or assigning non-EU immigrants to these positions.

then having citizenship might not be perceived as a signal of integration, but merely a direct consequence of liberal policies. Peters et al. (2020, p. 532) in a study on the labour market effects of naturalisation in the Netherlands observe in this context, that the signalling effect of the host country citizenship is stronger when access to the status is more exclusive. In this case, we do not expect employers to regard migrants with citizenship as being better integrated than those without. In line with our previous argument that citizenship is of most importance to those migrants who face the highest structural barriers in the labour market, this should particularly affect those immigrants from less developed parts of the world.

An alternative perspective on the relationship between citizenship policy and the citizenship premium argues that if citizenship is easily accessible in a country and consequently observed as such by employers, then the implicit expectation is that long-term resident immigrants should have citizenship. In this case, employers could assume that immigrants who have resided in a country for a number of years, but have not naturalised, hold unobservable negative characteristics. For example, employers could assume that those who have not naturalised do not have the necessary language skills to pass a citizenship test or that they are not committed to staying and integrating in the country of destination. Hence, in countries with liberal policies this would be "negative signalling." If this is the case, then migrants without citizenship will be negatively selected in countries with liberal citizenship policies.

In contrast, easier/faster access to citizenship might incentivise immigrants to invest in education and in country-specific human capital in order to reap the benefits of naturalisation for a longer period (Gathmann and Keller, 2018). This is mostly true when citizenship gives access to a category of jobs that require specific skills and training and in contexts where severe labour market segregation of immigrants exist. Moreover, Hainmueller et al. (2016) also point to a psychological component according to which a faster naturalisation process makes immigrants feel more welcome and have them identify with the culture of the destination country. This could be a catalyst for a faster integration in the labour market and society. According to these arguments, in countries with liberal citizenship policies the positive effect of citizenship on the labour market outcomes of immigrants will be higher.

In sum, given the contrasting findings in the literature, the way citizenship policy may condition the citizenship premium becomes an empirical question that we will try to answer in this paper.

DATA AND METHODOLOGY

Data

For our empirical analysis, we use a special version of the European Labour Force Survey (EU-LFS), namely the EU-LFS *ad hoc* module (AHM) for 2014 on the labour market situation of migrants and their immediate descendants. The EU-LFS provides standardised cross-sectional data on labour market status and core demographic and migration information. The AHM 2014 provides additional information on the possible explanatory

factors of migrant integration in Europe, such as country of birth of both parents, reason for migration, timing of naturalisation and an evaluation of migrants' qualifications. From the 27 countries covered by the EU-LFS AHM 2014, we included in the analysis 13 Western European countries having information on crucial variables used in the analysis[2].

Our analysis focuses on foreign-born individuals between 22 and 64 years old residing in private households. We focus on "first generation" migrants because in this paper we aim to theorize and measure the link between the explicit decision to naturalise and the labour market outcomes of immigrants. As shown elsewhere, the questions of the acquisition of citizenship by the immediate descendants of migrants and that of their socio-economic integration are essentially different (Dronkers and Vink, 2012; Vink et al., 2013). In order to exclude as much as possible migrants who may have acquired destination country citizenship by descent, we only include individuals who themselves *and* both of whose parents were born outside the survey country. In addition, to exclude cases where migrants arrive at a young age and acquire destination country citizenship by extension of the act of naturalisation of their parents (rather than as an individual decision), we only include individuals who were at least 22 years old on arrival. Finally, we consider in our baseline analysis only those individuals who are eligible to naturalise, based on the years they have spent at destination at the time of the survey and the residence requirement for ordinary naturalisation in a country. We are not able to identify those immigrants who are married with citizens and may have facilitated access to citizenship through a shorter residency requirement. This means that for those immigrants who are married to a native citizen the effect of naturalisation on labour market outcomes may be confounded by the effect of interethnic marriage. Due to data limitations we cannot disentangle these effects in this study (see e.g., Peters et al., 2020 for an approach based on register data that allows greater precision in identifying eligibility, though only in a single country study). **Supplementary Tables 4**, **5** present some descriptive statistics of the sample we use for the empirical analysis by gender and the distribution of immigrants by country of destination, respectively.

Estimation Strategy

The literature points out that the effect of naturalisation on labour market outcomes could be biased because unobserved individual characteristics, such as inherent ability or commitment, may affect both naturalisation choice and the labour market outcomes[3]. Consequently, it is difficult to disentangle the effect of naturalisation from pre-existing differences in these characteristics. To attenuate this typology of bias we estimate simultaneously a system of 2 equations; each outcome equation (the probability of having employment and the occupational status) with the probability of being naturalised

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[2]Austria, Belgium, Finland, France, Greece, Italy, Luxembourg, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.
[3]Reverse causality is another source of endogeneity. We deal with this issue in **Appendix B**.

equation (Equation 1 below, selection equation henceforth) (Fougère and Safi, 2009). We use the recursive bivariate probit method for the employment equation (Equation 2 below) and the treatment effect method (Maddala, 1983) for the occupational status equation (Equation 3 below)[4]. These methods allow the binary dependent choice (citizenship) in Equation (1) to be an endogenous regressor in Equations (2, 3). In our specification, we assume that identification of the parameters is possible without using an exclusion restriction and can be achieved by the functional form. Wilde (2000) argues that identification by the functional form is possible provided there is sufficient variability on the exogenous regressors. Other literature points out that the use of an exclusion restriction is a first best solution to address a possible failure of identification (Jones, 2007; Mourifié and Méango, 2014). In our case, an exclusion restriction is absent as employment outcomes and naturalisation are determined by the same variables. This is one of the methodological limits of our study.

$$
\begin{aligned}
Citizenship_i &= \beta_0 + \beta_1 Z_i + \beta_2 AreaOrigin_j \\
&\quad + \beta_3 MigReason_i + \phi_c + \varepsilon_i \quad (1)
\end{aligned}
$$

$$
\begin{aligned}
Employed_i &= \theta_0 + \theta_1 Citizenship_i + \theta_2 Z_i \\
&\quad + \theta_3 AreaOrigin_j + \theta_4 MigReason_i \\
&\quad + \phi_c + \varepsilon_i \quad (2)
\end{aligned}
$$

$$
\begin{aligned}
OccupationalStatus_i &= \delta_0 + \delta_1 Citizenship_i + \delta_2 Z_i \\
&\quad + \delta_3 AreaOrigin_j + \delta_4 MigReason_i \\
&\quad + \phi_c + \varepsilon_i \quad (3)
\end{aligned}
$$

The dependent variable in selection Equation (1) is citizenship status, equal to 1 if the individual is a citizen of the country of destination and 0 otherwise. In the outcome Equation (2) the dependent variable is dichotomous indicating whether the respondent is currently employed or not[5]. The dependent variable in the outcome Equation (3) is a continuous variable (ISEI scale by Ganzeboom and Treiman, 1996) measuring the occupational status of individuals[6]. A higher occupational status score is associated to a higher prestige of the job. Note that our explanatory variable is $Citizenship_i$ which enters as a dummy variable in the outcome equations.

The vector z_i includes the following individual-level variables: Age and Age squared measured in years; Years of residence and Years of residence squared measured as number of years in the destination country; 3 dummies for marital status (Single, Married, Divorced/Separated); 3 dummies measuring the level of educational attainment (High education, Medium education, Low

education); 4 dummies capturing language proficiency (Mother tongue, Advanced, Intermediate, Beginner).

The vector $AreaOrigin_j$ includes dummies for the area of origin of the individual specified as follows: EU-28, EFTA (EFTA countries), MENA (Middle East and North Africa), Other Europe, NAAO (North America, Australia and Oceania), Other Africa, Latin America, ESA (East and South Asia countries). In line with our expectation that citizenship is of most importance to those migrants who face the highest structural barriers in the labour market, particularly those from less developed parts of the world,[7] we run separate analyses on the basis of subsamples representing migrants from different origin regions. We distinguish between immigrants from "developed" countries, including those from the EU-28, EFTA, NAAO, and immigrants from "developing" countries, including the remaining areas of origin. We recognize that this is a crude distinction and that, had we had better quality information on the precise country of origin of individual respondents (rather than her or his broad region of origin), we would have been able to make a more finely-grained origin country variable measuring development level on a continuous scale (see Peters et al., 2020 for such an approach)[8].

The vector $MigReason_i$ includes 6 dummy variables specifying the reason for migration immigrants provide in the survey. It contains the following categories: (1) those who declare to have migrated for employment reasons but had not a prearranged job at destination before moving (Labour); (2) those who migrated for study reasons (Study); (3) those who migrated to join a family or to form a family (Family); (4) those who migrated for the purpose of international protection (International protection); and (5) those who migrated for other reasons (Other reason). We exclude from the analysis immigrants who declare to have secured employment in the destination country prior to migration. This typology of immigrants are mainly intra-corporate transfers and/or employees recruited through employment agencies and usually do not rely on the classical employment channel and have different career/occupational prospects.

Throughout the baseline estimations we use destination country dummies (ϕ_c) to filter out the effect of all unobserved country-specific factors influencing the labour market outcomes of immigrants. In alternative to this specification, we use several contextual variables to control for the influence of specific destination country characteristics. We include the citizenship policy indicator "The Migrant Integration Policy Index (MIPEX) Access to Nationality" measuring the level of legal openness of destination countries regarding access to citizenship. MIPEX is a measure of different policies toward the integration of migrants, where higher scores on a scale from 0 to 100 represent more inclusive migrant integration policies (Niessen et al., 2007). We use an adapted version of the MIPEX subscale for "access to nationality" from the 2013 edition of MIPEX, which only

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[4]The treatment effect model is used because occupational status is a continuous variable. Both methods assume that standard errors of the simultaneously estimated equations are jointly normally distributed. The score test (Murphy, 2007; Chiburis et al., 2012) rejects misspecification of the recursive bivariate probit model at 5%.

[5]Employed individuals are categorised following the definition of ILO.

[6]The ISEI score ranks worker occupations into a scale which varies from 11 (subsistence farming) to 89 (medical occupations). It is computed as weighted averages of standardised measures of income and education of incumbents in each ISCO 08 classification of occupations. Hence, ISEI scale is suitable for across countries comparisons.

[7]Research also suggests that naturalisation propensity differs strongly between migrants from developed and developing countries (Vink et al., 2013).

[8] Note that Japan and South Korea are considered in the "developing" countries category due to EUROSTAT categorisation of these countries in the East Asia category together with other developing countries.

includes those naturalisation criteria which are relevant for first generation migrants. The scores on this subscale are based on the following criteria: eligibility, conditions for acquisition, security of status, and dual nationality.

To check the robustness of the results obtained from MIPEX, we employ an alternative measure based on two indicators developed within the Global Citizenship Observatory: the Citizenship Law (CITLAW) indicators (GLOBALCIT, 2017) and the Citizenship Implementation (CITIMP) indicators (Huddleston, 2013; cf. Huddleston and Vink, 2015 for a comparable approach). Among possible alternative citizenship policy indices, these have the most comparable geographical coverage to MIPEX (Goodman, 2015, p. 1911). From CITLAW, we use ANATORD, which is a general ordinary naturalisation indicator, combining the more specific CITLAW indicators for residence, renunciation requirements, language and civic knowledge requirements, cultural affinity, and economically based naturalisation (Jeffers et al., 2017, p. 7). We calculate the average of the ANATORD and CITIMP measures based on the law in place in 2011, which is the closest available data point comparable to MIPEX 2013 and to the year of data collection for the LFS AHM 2014. The correlation coefficient between MIPEX and ANATORD-CITIMP is 0.62 (see **Table A2** in Appendix A) and the Cronbach's alpha statistic is equal to 0.84.

Other destination country variables we use are: *Labour market mobility* measuring the extent legislation and practices support the labour market integration of immigrants; *Unemployment Rate* (data from the World Bank for year 2013) to account for the labour market structure and situation; *Migrants share* (data from Global Bilateral Migration Database for year 2010) which influences the probability of being employed and the typology of jobs available to immigrants. Since the use of mixed-level data may violate the observation's independence (the so-called Moulton problem), we cluster the standard errors at the country level.

In **Table 1** we present the descriptive statistics of the employment variable and of the occupational status variable by citizenship, by gender and by the development level of the origin country of immigrants. It is interesting to note that a naturalised immigrant coming from a developing country has the same (unconditional) probability of being employed as a not naturalised immigrant. Conversely, naturalised immigrants coming from developing countries present a higher occupational status (8 points ISEI score) compared to not naturalised immigrants.

RESULTS

This section summarises the results of the empirical analysis which is conduced separately for men and women and for immigrants coming from developing and developed countries. The choice to estimate separate models by gender is standard in the economic literature as the question of labour market status is generally gender—biased. Instead, the choice to estimate separate models by the development level of the country of origin is less standard in the literature. It is motivated by the different

structural obstacles immigrants from developed countries face in the labour market, e.g., less discrimination, few administrative obstacles (free movement for EU and EFTA citizens), compared to immigrants from developing countries. The former type of immigrants is less relevant for the purpose of this analysis also because the reasons to naturalise are often unrelated to the labour market (Vink et al., 2013). Hence, we focus our analysis on immigrants from developing countries. **Figure 1** reports the estimated relationship between citizenship and the probability of being employed by gender and by development level of the origin country. **Figure 1A** shows that naturalisation is positively associated with being employed for men coming from developing countries, but not for women. However, the estimated parameter is moderately significant at 8% level. The probability of being employed for naturalised men is on average 20%[9] higher than that for non-naturalised.

As expected, we do not find evidence of a significant relationship between citizenship and employment for immigrants coming from developed countries (**Figure 1B**). One explanation of these results could be the strong signalling effect of citizenship for immigrants from developing countries. By contrast, for immigrants from developed countries, who face a less precarious situation in the labour market, given their presumed higher human capital, as well as a lower chance of statistical discrimination, the effect of signalling is not relevant.

As regards the other covariates (see **Table 1A** in Appendix A), they mainly show the expected effect on our dependent variables. Generally, human capital variables like education, language proficiency and age (proxy for experience) have a positive effect on the probability of being employed. As expected, individuals migrating to follow their studies show a higher propensity of being employed than those migrating for family reasons show [see models with (a) suffix] while immigrants seeking international protection show a lower propensity as compared to the same category. Generally, more educated individuals and being more proficient in the destination country language is positively associated with being naturalised [see models with (b) suffix]. Economic migrants show a lower probability of naturalisation than individuals migrating for family reasons do, while women seeking international protection are more likely to naturalise. We also find that areas of origin explain a good part of the variation of citizenship acquisition and employment prospects of immigrants. In particular, both men and women immigrants from MENA countries have a lower probability of being employed compared to immigrants from European countries that are not part of EU-28, while immigrants coming from East and South Asia show the opposite result. Results also show that men immigrants from EFTA countries are less likely to naturalised compared to immigrants

[9]It is measured as the average treatment effect (ATE) and corresponds to the marginal effect of citizenship (dichotomous variable) on the probability of being employed across the 13 countries considered in the analysis. The magnitude of this effect may depend on the number of observations for each country in our sample. As the magnitude of the cross-country effect is not a primary interest of this study and given that population weighting could artificially increase the standard errors, we do not use population weights in our estimations.

TABLE 1 | Descriptive statistics of the main dependent variables by citizenship status and development level of the origin country.

Immigrants	Employment			Occupational status		
	Mean	S. D	Obs.	Mean	S. D	Obs.
Naturalised	0.635	0.48	3223	37.7	21.7	2045
Developing countries	0.6	0.49	2234	35.4	21	1335
Men	0.68	0.46	849	37.5	20.5	578
Women	0.55	0.5	1385	33.8	21	757
Developed countries	0.72	0.45	989	42	22.5	710
Men	0.91	0.29	364	42	22.1	329
Women	0.61	0.49	625	42.1	22.9	381
Not naturalised	0.667	0.47	9611	33.7	21	6400
Developing countries	0.6	0.49	4829	27.4	16	2914
Men	0.7	0.46	2084	28.1	14.8	1452
Women	0.53	0.5	2745	26.6	17.1	1462
Developed countries	0.73	0.44	4782	39	22.7	3486
Men	0.82	0.38	2141	39.2	22.1	1758
Women	0.65	0.47	2641	38.7	23.3	1728

Source: EU-LFS AHM for year 2014.
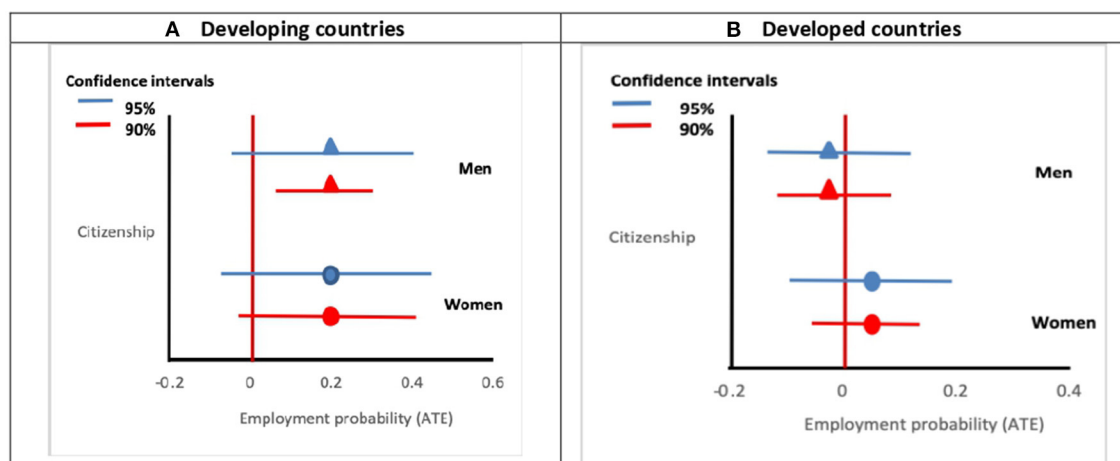
FIGURE 1 | The effect of naturalisation on employment status among immigrants from developing **(A)** and developed countries **(B)**, by gender. Graphs based on the results of **Table 1A** in the Appendix. The horizontal lines represent the 90 and 95% confidence intervals based on clustered standard errors.

from EU-28 countries. Conversely, immigrants coming from NAAO countries are more likely to naturalise compared to immigrants coming from EU-28 countries. For these immigrants, naturalisation may serve as a means of overcoming the labour market restrictions and obstacles to free movement in Europe.

Finally, we use the Wald statistic to test for selection bias. The Wald test rejects the null hypothesis of no correlation (ρ) between the error terms in models including only immigrants from developing countries. In models including only immigrants from developed countries the null hypothesis is not rejected at conventional significance levels, meaning that selection is less likely[10]. As argued before, the motivations to naturalise

of immigrants from developed countries, and especially of those from EU-27, are often unrelated to the labour market outcomes[11].

Figure 2 explores the relationship between citizenship and occupational status. In these estimations we control for the same individual characteristics as in the case when the dependent variable was employment status. The results show that being a citizen is significantly associated—at 5% level—with a higher job status for migrant men from developing countries but not for women **Figure 2A**. On average, a naturalised man ranks 5.6 points higher in the ISEI scale than a non-naturalised man does. In substantive terms this, is equivalent to moving from the profession of mason to a professional repairer. This

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[10]We estimate these models using the probit model. Results do not change significantly from those reported in **Table 1A**. Results are available upon request.

[11]Selection is absent when unobserved characteristics influencing the propensity to naturalise are not correlated to employment.
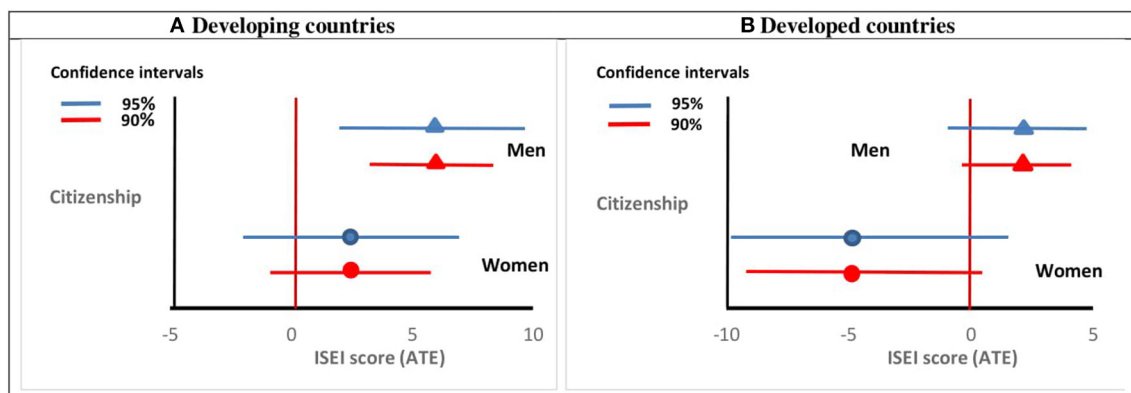
FIGURE 2 | The effect of naturalisation on occupational status among immigrants from developing **(A)** and developed countries **(B)**, by gender. Graphs based on the results of **Supplementary Table 1**. The horizontal lines represent the 90 and 95% confidence intervals based on clustered standard errors.
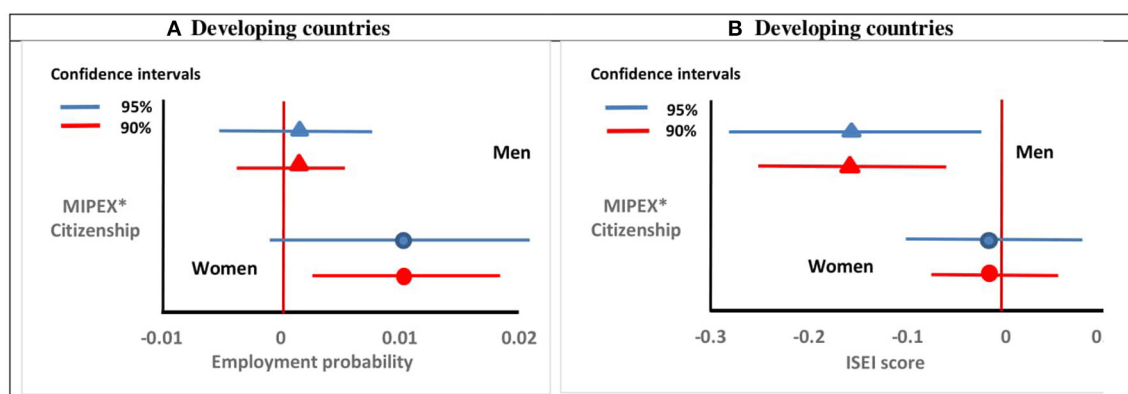

FIGURE 3 | The effect of naturalisation, conditioned by access to citizenship (MIPEX), on employment status **(A)** and occupational status **(B)** among immigrants from developing countries, by gender. Graphs based on the results of **Supplementary Table 2**. Estimations include variable controlling for labour market integration opportunities each country offers to immigrants *(Labour market mobility)*, the general labour market situation *(Unemployment rate)* and the effect of immigrant's population *(Share Migrants)*. Only immigrants coming from developing countries are considered. The horizontal lines represent the 90 and 95% confidence intervals based on clustered standard errors.

corresponds to a 7% increase on average if we consider the ISEI index range in our sample (11–89). As regards immigrants coming from developed countries, we do not find any association of naturalisation with the occupational status (**Figure 2B**).

Specification Check: Institutional Context
Throughout our analysis, we used country dummies to control for all country characteristics that might affect the relationship between citizenship and employment. However, the institutional context, especially the level of accessibility of citizenship, might be one of the factors that influence the relationship between citizenship and employment outcomes among foreign-born residents.

In **Figure 3**, we present the results of the interaction between the variable *Citizenship* and *MIPEX*. The interaction tests if the relationship between citizenship and employment outcomes is conditioned by access to citizenship. Given the results from our main analyses, we present only the results for immigrants from developing countries. Results show that

the effect of citizenship policy is heterogeneous across labour market outcomes and varies by gender. In general, our results suggest that easier access to citizenship increases the positive returns to citizenship in terms of employment. For both men and women, the interaction coefficient is positive but statistically significant at 10 level only for women. This indicates that the positive relationship between citizenship acquisition and employment propensity tends to be stronger under the condition of a less restrictive citizenship policy, but only for women[12].

One explanation could be the higher investment in specific human capital and language skills in countries where naturalisation is faster, and that immigrants expect to reap these higher returns for a longer period of time. According to Gathmann and Keller (2018), the access to citizenship effect might be less relevant for male immigrants who are more likely to have a permanent work permit and a continuous work history.

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[12]The parameter is weakly significant at 7.5% level.

Indeed, they show that faster access to citizenship more strongly benefited women with no work history who entered the labour market for the first time. **Figures 3A,B** subsequently presents the results for occupational status. For men, the positive relationship between citizenship and having a better job status is weaker under the condition of having easier access to citizenship. This result is consistent with the "devaluation hypothesis" according to which liberal citizenship policies might "devalue" citizenship as a selection device that signals immigrants' integration in the labour market. For women, the results suggest that access to citizenship does not condition the returns to naturalisation in terms of better jobs. We reproduce these results by using the ANATORD-CITIMP indicator as an alternative measure for the relative accessibility of naturalisation (**Supplementary Table 3**). Results confirm the positive relationship between more accessible citizenship policy and employment for women. According to this indicator, access to citizenship does not condition the positive effect of citizenship on occupational status for migrant men from developing countries.

CONCLUSION

This paper explores the relationship between citizenship and labour market outcomes for foreign-born residents in 13 West European countries. The analysis uses the *ad hoc* module of the European labour force Survey for the year 2014. In order to cope with the selective nature of the naturalisation process, we employ a treatment effect method and a recursive bivariate probit method that account for unobserved characteristics of naturalising immigrants.

Our main finding is that of a positive relationship across these destination countries between citizenship and the probability of employment for immigrant men, as well as between citizenship and occupational status for men. In line with previous findings, we observe that these citizenship premiums only apply to immigrants from developing countries. These findings align with the study of Zwysen (2018), equally based on LFS data but without taking into account the selection of immigrants into citizenship, who finds a slightly positive association of naturalisation with job quality but not with employment.

We find that the effect of citizenship policy is heterogeneous across labour market outcomes and varies by gender. Our analyses show that liberal access to citizenship does not diminish the positive returns on employment from naturalisation. By contrast, in countries where citizenship is relatively easily accessible, the relationship between citizenship and paid employment is stronger for female migrants. However, easier access to citizenship is related with lower returns of naturalisation on occupational status for male immigrants. A tentative explanation for this result may be that a liberal citizenship policy "devalues" the acquisition of citizenship in the eyes of employers and thus serves less as a selection device between immigrants. Further research is needed to better understand why, if at all, such a devaluation hypothesis only seems to hold for occupational

status (and not for employment as such) and why only for men (and not for women). Building on our comparative approach as well as the recent work by Helbling et al. (2020), researchers could also further explore the extent to which immigration policies, rather than citizenship policies, condition the citizenship premium in labour markets of destination countries, through the selective impact of admission criteria.

DATA AVAILABILITY STATEMENT

The dataset analyzed in this study is the Labour Force Survey 2014 *ad hoc* module on the Labour market situation of migrants and their immediate descendants (2014). These data have been obtained from Eurostat. To protect the anonymity of respondents the access to microdata is restricted and data use agreements do not allow us to disclose the individual-level data. Requests to access these data should be directed to Eurostat. Information about the dataset can be obtained here: https://ec.europa.eu/eurostat/documents/1978984/6037334/ESS-agreement-LFS-2014-module-with-annex-EN.pdf.

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SUPPLEMENTARY MATERIAL

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Entrenched Inequalities? Class, Gender and Ethnic Differences in Educational and Occupational Attainment in England

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Research in social stratification tends to focus on class differences in educational and occupational attainment, with particular attention to primary and secondary effects in the former, and class reproduction in the latter, domain. Research in ethnic studies tends to focus, however, on ethnic penalty or premium. Many studies have been conducted in each tradition on specific issues but little research is available that examines class, gender and ethnic effects simultaneously or in tandem with contextual effects, let alone on the whole trajectory from compulsory schooling, through further and higher education, to labor market position. Using data from the Longitudinal Study of Young People in England, this paper shows pronounced class differences but remarkable gender progress in each of the educational domains. With regard to ethnicity, people from minority ethnic heritages had lower GCSE scores due to poorer family conditions but achieved higher transition rates to A-Level study, higher university enrollment and, for some groups, greater attendance at elite universities, resulting in an overall higher rate of degree-level attainment than did whites. One might expect members of ethnic minority backgrounds to fare equally well in their earlier careers in the labor market, but only to find them more vulnerable to unemployment, less likely to have earnings, and more disadvantaged in terms of disposable incomes.

Keywords: class, ethnicity, gender, educational attainment, labor market position, England

INTRODUCTION

The aim of this paper is to study the educational and occupational achievement of members of second-generation ethnic minority groups in England, whether they are subject to similar class effects as those from the majority group, and whether there are specific ethnic penalties in their educational trajectory from compulsory schooling to higher education and furthermore in their early careers in the labor market. Sociologists have conducted many studies on how family origins affect children's educational and occupational attainment in Britain. Most of the studies are focused on educational attainment in compulsory schooling and progression to A-Level study given the prior academic performance. Yet, little research is available that combines insights from both social mobility and ethnic studies traditions to examine the entire educational trajectories from compulsory schooling through A-Level studies to higher education, and furthermore into the labour-market position after completion of education, and to interrogate the underlying socio-economic-cultural

factors at the individual and community levels in terms of parental class, gender and ethnicity on the one hand, and school-level deprivation and diversity on the other, that shape the trajectories. This paper seeks to make a contribution to knowledge in this respect.

The paper is structured as follows. In the next section, we give a brief account of the sociological analyses on educational and occupational attainment, with particular attention to research on primary and secondary effects, and on ethnic penalty and premia. We show that while many studies have examined the class effects in broad terms on the transition to A-Level studies, no research is currently available that links family class, gender and ethnicity, and also contextual influences to pupils' performances and transitions in the entire educational journey and moves further afield into labour-market positions. After that, we present data and analyses. The paper will conclude with some discussion.

LITERATURE REVIEW

Sociologists concerned with social inequality have conducted much research on educational and social mobility. They wish to find out how family condition in terms of parental class, education and income either singularly or in combination with other ascribed characteristics such as gender and ethnicity affects people's opportunities and outcomes in educational and occupational attainment. Yet, as Li and Heath (2016) point out, whilst sharing the same goal of investigating social inequality, mainstream sociologists and ethnic studies scholars have largely traveled on separate tracks, with the former concerned with class effects and the latter with ethnic penalties (and, more recently, ethnic premia, see Heath and Brinbaum, 2014).

As education plays a pivotal role in increasing people's human capital, broadening intellectual horizons and serving as a passport to the labor market, it is a major arena of class competition, academic debate and policy-making. The classical modernization theory proposes that with economic development and growing government provision of educational services, achievement between children from different social class origins will become increasingly equal and family influences will gradually pale into insignificance. The increasing influx of visible ethnic minority groups into Britain has posed a serious challenge to the theory: can it explain the process of educational stratification for immigrants' children equally well as it does for the majority population? Here the first task is to test whether the theory can really explain the patterns and trends of educational attainment for the mainstream (majority) population, and the second task is to see how well it explains the educational attainment for the second-generation ethnic minority groups. How big an effect does origin class have on children's attainment? Do class differences in children's educational attainment stay constant or become stronger or weaker over time with greater government provision of educational services? Does the class position of immigrant families play an equally protective role in their children's education as that of the majority families? Do ethnic minority children from advantaged class backgrounds

suffer a "perverse fluidity" and experience excessive downward mobility as earlier studies found for African Americans in the United States (Duncan, 1968; Hout, 1984)? Or do immigrant children show greater aspiration, resilience and determination for more education despite family disadvantages?

In a landmark study on social stratification of education, Halsey et al. (1980: 184) show pronounced class differences in education and increasing differentials at higher levels of educational attainment. For instance, 71.9% of the men from professional and managerial "service-class" origins attended selective secondary schools as compared with only 23.7% of working-class sons, at a disparity ratio of 3.0:1. The ratios became 4.9:1, 9.6:1 and 11.2:1 at O-Level, A-Level and University attendance respectively.

Do class differences in educational attainment stay constant or do they show signs of aggravation or amelioration? Breen et al. (2009) used the pooled data from the General Household Survey (1973–1992) to study educational stratification in Britain in comparison with seven other industrial societies. Using a semi-cohort approach, the authors showed that class differences in educational attainment were being consistently reduced for men from successive birth cohorts from 1908–24 to 1955–64, and this result obtained whether one used country-specific data or with class and educational variables standardized across countries. Similar patterns of declining social inequality in educational attainment was found for women (Breen et al., 2010), lending support to the modernization theory. The authors attribute this to the reduction in family resources and the government provision of educational services after the end of the Second World War, yet this is contrary to economists' findings of declining social mobility in education (Blanden et al., 2005).[1]

Why do children from different classes have different educational outcomes? One theory is that their families have differential possession of resources. Bourdieu (1986) holds that middle-class families possess cultural, social and economic capitals beyond the reach of working-class families, and that it is differences in family resources that will engender differences in educational outcomes. For instance, middle-class families tend to use their superior resources to help their children's education by creating a pro-learning family environment, practising "concerted cultivation" (Lareau, 2003), moving to more expensive catchment areas where good-quality state schools are located or sending the children to private schools. Perhaps most importantly, according to Bourdieu, middle-class families

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[1]Further analysis using the same data as Breen and colleagues used shows that if one focuses on degree-level education, the differences between children from the service class and those from the manual working-class families enlarged from 12.9 to 21.6 percentage points from the oldest to the youngest cohort, which would lend support to the declining mobility thesis by Blanden and her colleagues (2005). The two aspects are not in contradiction: a reduction of class differences at the lower levels of education was going hand in hand with an increase of class differences at the higher (degree or above) levels of education. As more people were attending the lower levels of education, this would lead to an overall reduction in educational inequalities but this does not prevent a deepening of class differences at the higher levels of education.

equip their children with a habitus which enables them to "move in their world as a fish in water" whereas the anti-learning attitude of working-class children makes them feel like "fish out of water" in educational environments (Bourdieu, 1990: 108).

Bourdieu's cultural capital theory is challenged by Goldthorpe (2007a) who finds it inherently flawed, that is, incompatible with the observed facts. In Britain as in other developed countries, working-class children have steadily increased their attendance beyond compulsory education in the last few decades. If there is a working-class habitus which instils an anti-learning attitude in them and which makes them feel like a fish out of water in school, why would their attendance rates have increased so much? The very fact of increasing attendance suggests that working-class children are not as anti-learning as the habitus theory would imply, but have an eagerness for more advanced learning if their family resources would allow them to. In an effort to provide an alternative and more viable explanation, Goldthorpe developed the "rational action theory" (RAT), also called "relative risk aversion" (RRA) theory (Breen and Goldthorpe, 1997, 2001; Goldthorpe, 2000, 2007b, 2014; see also; Kahneman, 2011) to explain both the increasing working-class uptake of education at the absolute level and the constant differential with the middle class uptake at the relative level. Key in the RRA thesis is the proposition that parents in all social positions would wish their children to do at least as well as they themselves have done in terms of educational and occupational attainment and to try to avoid downward mobility. When children are faced with the need to make decisions as to whether or not to proceed to a more advanced level of study or to enter the labor market at the end of compulsory schooling, they will consult with their parents. The outcome of such consultation tends to be that working-class children with more limited socio-cultural-economic resources will usually make "realistically feasible" decisions (called "strategy from below") whereas middle-class children, backed by superior resources, will more often than not make more ambitious decisions, even when they have similar or even lower levels of academic performance as compared with working-class children (called "strategy from above"). This tendency to exercise caution (risk aversion) in the case of working-class children and to embrace challenge (risk venture) in the case of middle-class children underlies the distinction between the primary and the secondary effects, a distinction made by Boudon (1974). The primary effects may be of a genetic or socio-economic-cultural kind, and refer to levels of academic performance that are actually achieved by children from different class origins. It is usually the case that students from more advantaged backgrounds have higher levels of performance than do those from more disadvantaged backgrounds. The secondary effects refer, however, to the different choices that children of different class origins will tend to make in consultation with their parents at critical junctions on their educational journey from compulsory (GCSE) to post-compulsory work such as transition to A-Level and, furthermore, to undergraduate and post-graduate studies in England. Both the "realistically feasible" choices and the more "ambitious" choices are deemed rational by the actors given the circumstances in which they find themselves.

Goldthorpe and his colleagues have made several efforts to test the thesis of primary vs. secondary effects. Using the National Child Development Study of 1958 when the respondents turned 16 in 1974, and two Youth Cohort Study (YCS) datasets where the respondents were also aged 16 (in 1987 and 2002), they find that people from professional-managerial ("service-class") families have higher scores in English and mathematics examinations than do working-class students in each of the three cohorts, which is as expected. Yet, they also find that, even at similar levels of academic performance, students from service-class families have a higher likelihood of transition into A-Level work than do working-class students, by around 15 to 20 percentage points; that there is little change over time in the class differentials from 1974 to 2002; and that secondary effects account for around one quarter to one half of the class differentials in educational attainment (Erikson et al., 2005; Jackson et al., 2007; Goldthorpe and Jackson 2008). These findings lend powerful support to the rational action theory. Yet it is also the case while these are among the best research findings in this area, they only differentiate three broad origin classes without taking gender or ethnicity into consideration. Jackson (2012) tried to improve upon the situation by pooling three YCS datasets together (when students turned 16 in 1998, 2000 and 2002) and analyzing the transition rates to A-level and to university studies between different ethnic groups. The primary effects are measured by standardized scores in the public examinations of mathematics and English at GCSE, and of A-level grades, and the secondary effects by class-based transition rates given prior levels of performance. She found that most ethnic groups had lower test scores but higher transition rates than did the white majority group, which she interpreted as evidence of significant disadvantages in the primary effects but significant advantages in the secondary effects. Jackson holds that the former runs counter to claims of positive selection (ethnic premium) as proposed by scholars in prior research but the latter indicates a defensive strategy against possible discrimination at the hands of employers. Jackson's view of the higher transition rates by ethnic minority groups as a defensive strategy makes sense in light of the systematic findings on barriers faced by ethnic minority groups in the British labor market (Berthoud, 2000; Li and Heath, 2008; Li and Heath, 2018; Heath and Di Stasio, 2019) although to term such "defensive strategies" as an advantage seems debatable.

While early studies may have a reasonable excuse to ignore the issue of ethnicity on grounds of data limitation, the rapid increase of the visible ethnic minority composition in the population indicates that any continued adoption of an ethnic-blind approach is no longer viable. Given this, researchers have paid increasing attention to second (or multiple) generation ethnic experiences in education, access to employment and career advancement (Heath and Brinbaum, 2014; Li, 2018b; Lessard-Phillips and Li, 2017). Yet it has been difficult to accommodate the conventional class analysis approach with the ethnic studies approach. For instance, one may aptly term middle-class children's greater educational ambition a resource-based "advantage", because middle-class families do have superior resources of various kinds relative to working-class families, but in what sense can we call the higher transition rates by

poverty-ridden ethnic minority students an "advantage"? Scholars have made a few suggestions as to why ethnic minority children who come from poorer families and who achieve lower test scores at the stage of compulsory schooling should exhibit higher transition rates to further and higher education, and posited different theses such as "positive selection" (Borjas, 1987; Feliciano, 2005; Ichou, 2014), "consonant acculturation" (Portes and Zhou, 1993), or "reinvigorated aspiration" (Li, 2018a). The positive selection thesis holds that visible ethnic minority immigrants from far-away countries (rather than from nearby countries such as the "guest workers" who moved from Turkey to West Germany after the Second World War) are not a random selection of the population in their country of origin but have exceptional qualities in terms of aspiration, ambition, determination, perseverance and resilience.[2] The first generation arriving in the receiving country will often meet with multiple handicaps due to a lack of economic capital, disrupted social capital, insufficient cultural and human capital (such as ignorance of the local labor market, low levels of education, possession of foreign qualifications unrecognized by the employers, and poor English) and other factors, and will tend to find themselves in poorly-paid jobs shunned by the mainstream population. But they are determined to survive and thrive, and will pass on their ambition, aspiration, determination and other positive qualities to their children. This thesis sounds attractive but does not explain why there is so much variation among different second-generation ethnic minority groups whose parents came from countries of similar distances to Britain. The segmented

assimilation theory (Portes et al. 2009), which proposes three modes of assimilation (consonant, selective and dissonant acculturations), is designed to explain the variation among the different groupings. The most successful group will, according to the theory, adopt the "consonant acculturation" strategy where professional parents and their children will learn the language and culture together and the children will obtain elite middle-class positions upon entry into the labor market, achieving full integration. The second group who adopt the "selective acculturation" strategy will be economically successful but will choose to preserve their unique cultural traditions. The third group with "dissonant acculturation" will join the ranks of the underclass. This theory sounds elegant, but does not stand rigorous empirical test, as the great majority of second-generation children do not fit neatly into any of the modes (Waters et al., 2010). The thesis of reinvigorated aspiration as posited by Li (2018a) assumes that the second-generation, growing up in poor families and poor communities, will have a good understanding accrued from lived/perceived experience and parental communications that, as members of ethnic minority heritages, they are likely to experience disadvantage and discrimination in the labor market, at all processes of job application, interviewing, and gaining promotions in the career life, and therefore have to aim higher now so as not to fall too low in future (see also Carmichael and Woods, 2000; Connor et al., 2004; Modood, 2005; Heath and Li, 2008; Wood et al., 2009; Rafferty et al., 2012; Zwysen and Longhi, 2018). At the core of this thesis is the "signaling" theory (Spence, 1973; Weiss, 1995) which assumes that competitors perceived to be in weaker positions tend to give stronger signals to avoid being ignored and to gain adequate recognition. Previous work applied the idea to analysis of degree-level attainment by the second-generation ethnic minority members in the United Kingdom but the thesis needs further and more rigorous test from the educational trajectory at different junctures to the labor market position in the different spheres to demonstrate its viability. The present analysis is devoted to this task.

To sum up, there has been much research on educational attainment in the United Kingdom but existing work is mostly limited to class effects on performance and transition to A-Level studies. Only a few studies extend to transition to university enrolment. No research has linked the family origin (including class and education), gender and ethnic effects on children's educational and career trajectories in one go whilst at the same time controlling for other socio-economic factors at the individual and contextual levels. With regard to the last point, we may note that most mobility studies adopt an individualistic approach, yet it is well known that contextual effects play an important role in children's education, a role keenly appreciated by parents and government decision-makers. Middle-class parents try to buy houses in catchment areas with good schools. Government offices have launched various widening-participation programs to help improve the life chances of children in deprived areas. Yet government analyses tend to focus on indicators of local-area deprivation without looking at parental socio-economic conditions (Social Mobility and Child Poverty Commission, 2015; Social Mobility and Child Poverty

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[2]It is generally recognized that immigrants are positively selected in that they tend to have higher levels of education than do their fellow citizens in the country of origin. It would have been a nice idea to test whether our ethnic minority respondents' parents were positively selected and, if so, by how much. In order to do this, we need information on their parents' country of birth and time of arrival to the United Kingdom, but neither variable was available in the datasets. Even if the variables were available, it would still be impossible to test this idea fully because there is no information on the average education in all the countries and for all the years concerning immigrants to the United Kingdom. The Understanding Society (USoc) has data on father's and mother's country of birth (pacob macob) and respondents' year of arrival to the United Kingdom (yr2uk4). In the 10 waves of the USoc, 148,337 people were interviewed, including 3,704 Indians. Excluding those with missing information on pacob and yr2uk4, there are 2,227 Indians in the file. From 1952 to 2017, there were Indians coming to the United Kingdom every year and their father's country of birth includes India, Pakistan, Bangladesh, Italy, Sri Lanka, Kenya, Uganda and South Africa, Jamaica and other countries. But even using the best education data source currently available (http://www.barrolee.com/) would fail to provide the relevant information in most of the time-year-country combinations for Indians, let alone for all other immigrant groups. For instance, there was no information on average education in China before the 1980s (see Barro and Lee, 2010; Barro and Lee, 2013: 197) although Chinese immigrants started to arrive to the United Kingdom from 1946 in the USoc file. I wish to thank one of the reviewers for alerting me to this potentiality although I have been thinking about how to improve on this for years. Perhaps a better approach is to compare the immigrant's parental class in the origin country with the white's parental class in the United Kingdom. If immigrant fathers' class position is similar to white fathers' class, we would have reasons to believe that they are positively selected, as they tend to come from poor countries with low levels of socio-economic development. Research in this respect does support this idea Li, 2020).

Commission, 2016; see also Friedman and Macmillan, 2017) just as academics tend to focus on individual attributes without taking considering contextual effects. Thus academic and government research efforts rely on different data sources and have not been able to form a meaningful dialogue, with the former being susceptible to the "atomistic" fallacy and the latter to the "ecological" fallacy (Robinson, 1951; Li et al., 2005). The present analysis is fortunate in being able to draw data from both personal and contextual perspectives and we hope to ameliorate the situation by including not only respondents' and their families' demographic and socio-cultural attributes that have been demonstrated to have an important bearing on primary and secondary effects, but also school-level indicators of family poverty and ethnic diversity. The former refers to the proportion of students being eligible to means-tested free school mean (FSM) and the latter to the Herfindahl index of ethnic diversity in each of the schools that took part in the survey. With these factors in mind, the present study seeks to address the following research questions:

- How do different ethnic groups perform in their GCSE studies as compared with white children and among one another, given their parental class, education, family composition and other socio-economic, including contextual, circumstances?
- How do the different ethnic groups differ in their transitional probabilities to A-Level studies, and to university (including Russell-Group) enrolments?
- Do ethnic minority children have the same returns to education in the labor market as do their white peers?

DATA AND METHODS

To address the foregoing questions, this study will use the Longitudinal Study of Young People in England (LSYPE1), also called Nest Steps (NS). The survey represents all young people aged 14 and resident in England attending maintained schools, independent schools and pupil referral units (PRU) in February 2004. It adopted a stratified, multi-stage, and random sampling design with oversamples of the major ethnic minority groups to provide sufficient ethnic samples for statistical analysis. 838 maintained schools, 52 independent schools and two PRUs were sampled. It follows their lives through seven waves annually until 2010, and then again when they were aged 25 in 2015. The initial sample size was 15,770 but at wave 4, a boost sample of 352 respondents was added, with a total size of 16,122. As with other cohort and panel studies, the NS has suffered sample attritions, with only 7,707 respondents being found in Wave 8 (age 25). The NS data can be linked with the National Pupil Database (NPD), which contains information on pupils' examination results at each key stage, schools and colleges attended, eligibility for legally-defined and means-tested free school meal (FSM), school-level characteristics such as proportion eligible for FSM and proportions of pupils from each of the main ethnic minority groups. The data thus contain a wealth of information at the individual and school levels enabling researchers to make a

detailed analysis of the primary and the secondary effects at different stages of educational career, and of the labor market position in their early working careers.

With regard to parental socio-economic position, class in terms of National Statistics Socio-economic Classification[3] (NSSeC) and education in the form of highest level of qualification will be used with the dominance approach adopted (Erikson, 1984; Li and Devine, 2011), namely, the higher position from father or mother. For single-parent families, his or her class and education will be used as family position. As Ilie et al. (2017) show, parental class and education have better predictive power than family income. Siddiqui et al. (2019: 82) also argue that as over half (58%) of the respondents in the survey had missing data on family income, any attempt to use existing variables to impute missing income would make subsequent analyses of income effects blighted. At a theoretical level, class, as Goldthorpe and McKnight (2006) hold, serves as a better indicator of permanent household income than wages or salaries on grounds of economic security, income stability and future prospect.

Other explanatory variables at individual and contextual levels include family composition, eligibility to free school meal, nativity, school-level deprivation in the form of proportions of students eligible for free school meal, and school-level ethnic diversity as indicated by proportions of students belonging to each of the main ethnic groups. A Herfindahl index was created on ethnic diversity for each school.

We use several outcome variables. The first of these pertains to GCSE test results taken at the end of compulsory schooling. Pupils usually take eight GCSE subjects in England. Some schools also offer students the optional short-course GCSEs which contain roughly half the learning material and count as half a GCSE. A summary score was created with A* = 8, A = 7, B = 6, C = 5, D = 4, E = 3, F = 2 and G = 1 for full GCSEs and A* = 4, A = 3.5, B = 3, C = 2.5, D = 2, E = 1.5, F = 1 and G = 0.5 for half GCSEs. The scores range from 0 to 111; with a mean score of 39.7 with standard deviation 20.7. For some of the analysis, the scores will be standardized with a mean of zero and standard deviation of unity. The other outcome variables pertain to transition rates to A-Level studies at the end of GCSE, and to university enrolment at the end of A-Level study or to elite Russell Group university attendance, and labour-market position including employment status, class position, gross weekly pay among the employed, and the 'continuous weekly income' for all respondents at wave 8. The analysis of both kinds of income are necessary as nearly a third of the young adults were workless, including unemployment (5.7%), full-time students (5.0%), looking after home (4.7), sick or disabled (1.7%) or inactivity for other reasons. Analyzing the "continued weekly income" from the perspectives of family class, gender and ethnicity is also important in addition to that of labour market earnings as it will allow us to see how the different

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[3]Prior analysis showed little difference between "routine" and "never worked and long-term unemployed" categories in parental class, thus the two categories were combined to produce a seven-way parental class variable.

TABLE 1 | Descriptive analysis of GCSE score, transition rate (%) into A-Level, university and Russel-Group (RG) university work by parental class, ethnicity and sex.

	GCSE score	% To A-Level	% To university	% To RG university
Parental class				
Higher salariat	55.0	82.2	67.1	26.2
Lower salariat	46.1	69.6	49.5	11.5
Intermediate	39.9	59.6	36.8	7.1
Own account	37.5	58.6	35.3	5.7
Lower technical	32.0	46.6	25.7	3.0
Semi routine	29.6	46.6	23.1	3.3
Routine	23.9	41.4	18.4	2.1
Ethnicity				
White	39.7	60.2	37.8	9.6
B Caribbean	31.8	53.8	39.4	2.4
B African	36.6	70.1	60.9	8.1
Indian	44.9	78.9	73.9	12.7
Pakistani	34.8	68.9	49.2	7.1
Bangladeshi	34.7	65.8	52.9	8.0
Chinese	59.5	91.0	96.8	29.3
Mixed	40.3	61.0	41.9	10.4
Other	43.5	72.9	52.5	11.0
Sex				
Male	37.3	58.1	36.5	8.9
Female	42.1	65.3	44.1	10.9
(All)	39.7	61.5	40.4	9.7
(Approximate N)	15,755	10,355	8,476	8,476

Notes: Weighted analysis and unweighted Ns. The weights are taken from waves 4, 6 and 7 respectively (the same below). The sample sizes become smaller over the waves but remain sufficient for analysis. Take GCSE for example. The number of respondents from higher salariat to routine origins are 1,697, 4,568, 1,430, 1,594, 1,388, 2056 and 2,350; for ethnicity, the numbers from white to other are 10,330, 703, 748, 1,010, 945, 728, 26, 822 and 417; and for gender, the numbers for men and women are 7,832 and 7,571 respectively.
Source: The Longitudinal Study of Young People in England (LSYPE) (the same below).

ANALYSIS

The analysis in this section will focus on the respondent's educational and early career trajectories from ages 16 to 25. As earlier noted, we shall first analyze ethno-class differences in educational achievement before moving to occupational attainment. We examine GCSE scores at age 16, transition rates to A-Level and to university studies (including attendance at Russell Group universities). In the second part, we shall look at the employment situation and incomes.

Educational Attainment in Compulsory Schooling

The data in **Table 1** show an overall view of the class, ethnic and gender differences in GCSE scores and probabilities of progression to A-Level, university and elite university studies.

With respect to class effects, we find pronounced differences with clear gradients in each of the four domains under discussion. As noted above, the mean GCSE score for the sample is around 40 but we see that people from higher salariat (professional and managerial) families had a mean score of 55 whereas those from routine manual families only had a mean score of 24, with a difference of 31 points. The class differentials increased when we look at the transition rates to A-Level and to university studies,

with the differences between the higher salariat and routine students being 41 percentage points in the former and 59 points in the latter regard. And with respect to access to the more prestigious Russell Group universities, as shown under the last column, the class differences are also striking, with over a quarter (26%) of the higher salariat children studying in Russell Group universities in contrast with a meagre two percent for those from routine families.[4]

The middle part of the table shows the data on ethnic differences. As white students comprise an overwhelming majority in the sample (86%), their attainment level closely represents the mean performance in each of the four aspects. We see clear and striking differences both between white and ethnic minority students, and among the ethnic minority groupings. In each of the aspects, Chinese students showed themselves as the highest performers, followed by Indians, in clear contrast with Black Caribbeans. Children from Black African, Pakistani, Bangladeshi families had the lowest GCSE scores but higher transition rates to A-Level and university than white students.

The data on gender differences show no female disadvantage. If anything, girls outperformed boys at each stage. The data on university enrollment echo the historical profile Heath et al.,

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[4]There are also data on access to Oxford and Cambridge Universities. Further analysis shows that 3.76% of respondents from higher salariat families attended these universities as compared with 0.22% from routine families, a disparity ratio of 17.

TABLE 2 | Selected family characteristics by ethnicity: proportions (%) growing up in working-class, poorly educated, single-parent households and being eligible for free school meal (FSM).

	Working-class	Low education	Single-parent HH	FSM
White	23	17	29	11
B Caribbean	32	20	64	18
B African	42	35	43	37
Indian	31	35	16	12
Pakistani	45	60	17	39
Bangladeshi	68	83	20	63
Chinese	31	56	12	5
Mixed	23	21	41	20
Other	36	45	28	33
(All)	25	20	29	13

2018a: 68, **Figure 4.2**) which shows men as having a lead over women in access to higher education from the mid-1950s to mid-1990s but since then, women have caught up with and increasingly surpassed men.

The intriguing question is why students in ethnic minority groups underperform in GCSE examinations but make "bold choices" at transitions to further and higher education. If the most important determinant of academic performance and subsequent choice concerns the "class-lined inequalities of condition" (Goldthorpe and Mills, 2004: 223), it is understandable that ethnic minority students who come from poorer families will have lower performance. But if the secondary effects are also reliant, and even more so than the primary effects, on family resources as the "relative risk aversion" thesis would argue, why would the poorer and worse-performing ethnic minority students make even bolder choices than their more affluent and better-performing white peers rather than take a "realistically-feasible" strategy as the RRA thesis would predict? In other words, if family poverty that leads to the lower performance is regarded as "disadvantage," how does this disadvantage in the primary effects turn around to become an "advantage" in the secondary effects? Most analyses in this regard have, as noticed above, tended to use a one-dimensional approach, with a three-way schema of parental class, and focus on contrasting performances between service- and working-class students and, in so doing, ignored ethnicity as a non-issue. Therefore, the questions that are of crucial importance for present research and that reflect the genuine concern of an increasingly diverse society were overlooked in most of the existing sociological analyses in this regard. As we take a multi-dimensional approach in the present study, we need to have a closer look at the other domains of socio-economic disadvantages that reinforce one another in their impact on ethnic minority students' performance. Here the primary question we need to establish is: what kind of socio-economic disadvantages do members of ethnic minority heritages face?

Table 2 shows some selected family circumstances to represent social disadvantages: proportions of parents in working-class positions, with low level of or no formal education, of single-parent family type and being eligible for free school meal (FSM) which, for our sample, was equivalent to annual gross household income below £13,480 (Hobbs and

Vignoles, 2010). These are, we believe, best available indicators of family economic, cultural and social deprivation.

It is clear that white students have much better socio-economic resources as judged from the range of indicators under consideration. White parents are least likely to be in work-class positions (23%) but ethnic minority parents are much more likely to be in such positions, with Pakistani and Bangladeshi parents particularly disadvantaged (68 and 45% respectively). Even more pronounced are differences in parental education, with only 17% of white parents having primary level or no schooling whereas for people from Bangladeshi, Pakistani and Chinese heritages, parental low education reaches a staggering high, at 83, 60 and 56% respectively. The combination of lower class position and poor education would mean that, even without labor market discrimination and differences in family size, ethnic minorities would have much greater vulnerability to poverty. While the large amount of missing income data in the NS file, at 58% as previously noted, makes it inadvisable to construct a poverty measure, we do have solid evidence on ethnic income poverty. Using the United Kingdom Household Longitudinal Study (UKHLS), Li (2018a: 487; see also Heath et al., 2018b) showed an ethnic poverty profile closely corresponding to the distributions to class and education position as shown in the table. The proportion of households in poverty, as defined by the United Kingdom government criteria (60% below median of the standardized household mean incomes) runs from 15, 21, 22, 25, 36, 49 to 56 percent for white, Indian, Black Caribbean, Chinese, Black African, Bangladeshi and Pakistani groups respectively. Although FSM eligibility does not fully reflect family poverty as Hobbs and Vignoles (2010) showed, we still find a close correspondence between indicators of socio-economic disadvantage (class, education, poverty) and FSM eligibility, with white students least likely and all other groups (except for Chinese) more likely to have FSM. Finally, single-parent family structure may be an indicator of inadequate family social capital crucial for the maintenance of cultural tradition (Sakamoto et al., 2009), "concerted acculturation" (Lareau, 2003) and emotional support (Putnam, 2007). Here we find that Black Caribbeans are most likely to live in single-parent families, with 64% being "always" or 'sometimes' headed by single parents, followed by Black Africans (43%).

Overall, data in **Table 2** show that white students do enjoy superior socio-economic-cultural resources relative to their ethnic minority peers who face multiple disadvantages. People from Bangladeshi and Pakistani origins have the poorest economic situation, next come the Chinese in terms of low parental education, with the two black groups lying in between, and Indians being closest to whites. It is probably an interplay of these and other influences such as oriental cultural tradition (Hirschman and Wong, 1986) which emphasizes over-achievement and perception of pervasive disadvantages in the labor market such as shown in Li and Heath (2018), that led to the poorer academic performance but more ambitious choices for more advanced educational studies by the ethnic minority students. We now turn to multivariate modeling on such effects.

TABLE 3 | Random coefficient models on GCSE scores by socio-economic attributes.

	Model 1	Model 2	Model 3
Parental class (routine = ref)			
Higher salariat	20.55***	17.79***	10.34***
Lower salariat	15.33***	12.57***	7.60***
Intermediate	10.95***	8.44***	6.09***
Own account	8.81***	6.04***	3.72***
Supervisor and technician	5.83***	3.80***	2.21**
Semi routine	4.64***	3.12***	2.66***
Ethnicity (white = ref)			
B Caribbean	−4.84***	−3.25**	−4.97***
B African	1.30	4.01***	0.03
Indian	6.52***	7.45***	6.00***
Pakistani	2.47**	5.15***	4.65***
Bangladeshi	6.32***	10.08***	10.36***
Chinese	16.97***	18.63***	19.08***
Mixed	−0.41	0.72	−0.19
Other	5.10***	7.05***	5.26**
Female	4.64***	4.71***	4.67***
Eligibility for FSM		−6.15***	−4.53***
% Eligible for FSM at school level		−0.37***	−0.41***
Parental education (low = ref)			
Degree+			15.13***
Sub-degree			8.40***
A-level			6.76***
O-level			4.39***
Family structure (two-parents = ref)			
Sometimes lone-parent			−2.02***
Always lone-parent			−2.32**
Born outside the United Kingdom			3.03***
Ethnic diversity at school level			0.10***
Constant	24.99***	33.70***	29.00***
Random effects parameters			
var (zfsmpct)	2.23***	1.77***	1.68***
var (zdiv)	−6.48**	−5.51	−10.07***
var (_cons)	1.86***	1.82***	1.70***
var (Residual)	2.76***	2.76***	2.73***
(N)	11,099	10,645	10,374

Note: *p < 0.05; **p < 0.01; ***p < 0.001. For parental education, low refers to primary level or no formal education. In the part for random effects, zfsmpct and zdiv refer to standardized values of percentage of pupils eligible for free school meals and of ethnic diversity at the school level respectively. Stata calculates the variances for the random parameters in the form of the log of standard deviations. The values of the logs are presented in the random part.

We first look at the net effects on academic performance as demonstrated in GCSE examination results. The data are shown in **Table 3** with three models. Model 1 contains family class, ethnicity and gender, our key intersectional variables. Model 2 adds respondent-level FSM eligibility and school-level proportion of students eligible for FSM. The inclusion of the two FSM variables is of both conceptual and substantive importance. Conceptually, one may expect schools with high proportions of students eligible for FSM as being highly deprived and having an unfavourable learning environment, a negative effect over and above personal poverty (own FSM). Controlling for individual and school-level FSMs can hopefully help mitigate ecological and atomistic fallacies. Substantively, while Siddiqui et al. (2019) suggest that with the availability of individual FSM data, there is no need to include family circumstances such as parental class and education, we can directly test whether parental position is still significant after

controlling for both individual- and school-level types of FSM. One further consideration is that Ilie et al. (2017) recommend using two other contextual-level deprivation indices in lieu of FSM, but our prior analysis suggests little need for so doing.[5] The results in Model 2 can help us to address the questions of relative merits or otherwise of the claims from different theoretical perspectives as outlined above. Finally, Model 3 adds variables on parental education, family structure, nativity, and school-level ethnic diversity as measured by the Herfindahl index. Sociologists tend to use parental class alone as family position in addressing intergenerational educational or occupational mobility (Halsey et al., 1980; Goldthorpe and Jackson, 2008; Breen et al., 2009) but increasingly there is an appreciation that parental education plays a crucial role over and above parental class in shaping children's educational and occupational attainment when parental education is used as a "positional good." namely, in a relative rather than absolute sense (Bukodi et al., 2014; Li, 2018a). As the cohort members in the present study are of the same age, there is no need to produce relative measures of parental education. Finally, as students are nested in schools and as schools differ in the levels of socio-economic deprivation and ethnic diversity, multilevel regression techniques are used, with school-level FSM and Herfindahl diversity serving as level-2 covariates.

The data in Model 1 of **Table 3** show powerful class and some ethnic and gender effects net of one another. Students from higher salariat families have, controlling for ethnicity and gender, 20.6 scores higher than those from routine families. We noticed in **Table 1** that Pakistani and Bangladeshi students had lower mean GCSE scores than white students and, from **Table 2**, we also saw that their family class and education positions were much lower than those of whites. Yet, here, we find that their performance is significantly higher than that of white pupils, suggesting that it was their lower parental class that suppressed the achievement. With similar family positions, Pakistani and Bangladeshi students would perform equally well as, or probably better than, their white peers. Girls, on average, outperformed boys even when parental class and ethnicity are held constant.

As people eligible for FSM tend to be from poor households, we would expect them to have, other things being equal, lower levels of academic performance, which is shown as true. They have six scores lower on average. Furthermore, we find that school-level FSM also have a net and substantial impact on students' performance. With an overall FSM at around 14%, an increase of ten percentage points of school-level FSM would, other things being equal, lower a student's performance by around four scores. As most of the ethnic minority students except Indians and Chinese were more likely to be in receipt of FSM, controlling for individual and school level FSM have placed them on higher (net) performance scores than white students.

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[5]The two contextual variables recommended by Ilie et al. (2017) are idaci ("income deprivation affecting children index") and imd ("index of multiple deprivation"). Analyses were conducted including the two variables, rescaled to range from 0 to 100, on top of the variables already in Model 3. The coefficients were rather weak: 0.08 and 0.02 respectively, the latter being non-significant and the coefficients for the other variables in Model 3 being little affected. Given this, the two variables were not included in the model.

TABLE 4 | Average marginal effects (AME) from logit models on transition into A-Level work by socio-economic attributes.

	Model 1	Model 2	Model 3
Parental class (routine = ref)			
Higher salariat	0.454***	0.037	0.022
Lower salariat	0.331***	0.005	−0.009
Intermediate	0.230***	−0.012	−0.009
Own account	0.201***	−0.013	−0.010
Supervisor and technician	0.095***	−0.034	−0.031
Semi routine	0.093***	−0.001	−0.001
Ethnicity (white = ref)			
B Caribbean	−0.031	0.088**	0.068*
B African	0.154***	0.158***	0.107**
Indian	0.215***	0.149***	0.144***
Pakistani	0.165***	0.166***	0.147***
Bangladeshi	0.181***	0.145***	0.122***
Chinese	0.318***	0.142	0.139
Mixed	0.009	0.028	0.021
Other	0.175***	0.132***	0.107**
Female	0.071***	0.023*	0.028**
GCSE		0.013***	0.013***
Eligibility for FSM			0.025
% Eligible for FSM at school level			0.000
Parental education (prim = ref)			
Degree+			0.078***
Sub-degree			0.043*
A-level			−0.001
O-level			0.016
Family structure (two-parents = ref)			
Sometimes lone-parent			−0.006
Always lone-parent			−0.017
Born outside the United Kingdom			0.043
Ethnic diversity at school level			0.001
(N)	8,641	8,641	7,971

Note: *p < 0.05; **p < 0.01; ***p < 0.001. For parental education, low refers to primary level or no formal education.

Finally, in Model 3, we find that parental education, family structure, nativity and school-level ethnic diversity all play an important role. People with degree-level parents have, other things being equal, 15 scores higher than those whose parents have only primary level of education or no formal schooling. People growing up in lone-parent families, whether "sometimes" or "always" lone-parent, also had lower scores. Yet, those who were foreign born but who arrived in the United Kingdom at a young age achieved higher scores than did the others, by three points on average, possibly reflecting the "positive selection" effect due to the recency of immigration and their parental higher qualifications.[6] School-level ethnic diversity also has a positive impact on students' achievement.

[6]Further analysis shows that around 5% of the sample were foreign born and came to the United Kingdom as children. Yet, among the foreign born, parental education is more stratified, with 23.8% of parents having degrees or higher, as compared with 18.4% of the United Kingdom born; yet the proportions having only primary or no education were also higher among the foreign born than the United Kingdom born, at 43.4 and 19.1% respectively. The positive selection effect is particularly strong among foreign born Chinese and white parents with 45 and 32% having degree-level education.
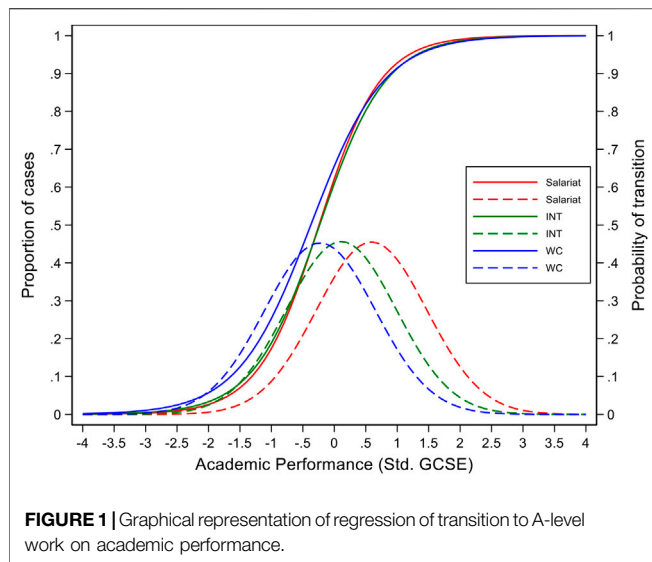
An interesting and important point is that, after controlling all these individual and contextual factors, we still find highly significant effects of parental class and ethnicity. Combining the findings from **Tables 1–3**, we may say that most ethnic minority students had lower performance scores due to the multiple handicaps arising from "inequalities of condition" inherent in their family position and, yet, if they had had comparable parental socio-economic conditions to those found in white families, they may well have obtained similar, or even better, results. Only Black Caribbean students might have fared worse.

Transition to A-Level Studies

We now move to the choices made by the young people to follow A-Level studies. Most existing work on primary and secondary effects have focused on this, with the secondary effects gleaned from differences between salariat- and working-class children. Our analysis in **Table 4** follows the structure of **Table 3**, with Model 1 focused on intersectional effects, Model 2 adding prior levels of achievement to assess secondary effects, and Model 3 further controlling for other individual and contextual factors. The data in **Table 4** show average marginal effects (AME) from logit models, with logit coefficients transformed to proportions, or transition rates, to A-Level work.

The data in Model 1 shows the expected class differentials. Ethnic and gender status being equal, those from higher salariat families were 45 percentage points more likely to choose A-Level studies than those from routine families. Most people from ethnic minority backgrounds are also significantly more likely to choose A-Level studies than the white majority, holding constant family class position. As ethnic parents have lower class positions than whites, controlling for class boosted their transition rates as compared with the raw figures shown in **Table 1**. Girls are significantly more likely to choose A-Level studies than boys.

The crucial findings are shown in Models 2 and 3 where academic performance and other personal and contextual attributes are taken into account. It is surprising that parental class loses its significance altogether. Chinese students have very high GCSE scores, but once prior performance is controlled for, they are not significantly more likely to opt for A-Level studies. The overall pattern in Model 2 is echoed in Model 3 when the other factors are controlled for. The most salient feature that emerges from the findings under the two models is the lack of significant parental class effects. One reason for the difference in the findings as shown here and those by Goldthorpe and colleagues as cited above may be due to the number of class categories used: a seven-class schema is used here but a three-class schema used in their analyses; another reason may be due to the inclusion of ethnicity, gender and other covariates here, making the analysis more complicated, diluting the impacts of class. To further ascertain why the discrepancy emerged, further analysis was conducted, with a three-way schema for parental class, and with GCSE scores normalized with a mean of zero and standard deviation of unity, which is the same framework as adopted in prior analysis (Erikson et al., 2005; Jackson et al., 2007; Goldthorpe and Jackson, 2008; Jackson, 2012); Jackson, 2013.

FIGURE 1 | Graphical representation of regression of transition to A-level work on academic performance.

have a closer look to see whether this proposition is verifiable in our data.

The data in **Table 5** are organized for this purpose. Academic performances (GCSE scores) are divided into three bands: low, middle and high. In the last row of the table, we find that the transition rates for A-Level studies under the three bands are 18, 56 and 93 percent. Thus those in the high band of achievement are around 5 times as likely to make the decision to go on to A-Level studies as those in the low band. Do we find class differentials only among the middle-band achievers but not among the high and the low achievers? Surprisingly, we do not. The first three rows under "All" show little class difference among the low and the mid, but significant class differences among the high, achievers. A very high proportion of high-achievers from all class origins choose to move to A-Level studies and working-class high-performers have a higher rate than salariat low- or mid-performers. But a close look still shows that, among the high performers, working- and intermediate-class children have a significantly lower rate than salariat children, at 86, 91, 94% respectively. Thus, our data show a pattern of secondary effects only among the high-achievers rather than among the intermediate performers as Jackson et al. (2007) have expected.

Since we are also concerned with ethno-gender differences, further analysis is conducted on ethno-class-gender effects on children's performance and transition probabilities, with results listed in the lower part of the table. Here we find that the RRA predictions mainly apply to the high-achieving white students.

The data in **Figure 1** shows clear class differences in the primary effects, with students from salariat families having much higher scores than those from working-class families, which closely resembles previous findings by other scholars using other datasets. Yet, controlling for prior attainment, the differences in the transition rates, or the secondary effects, for children from the three classes as shown in the S-shaped curves are quite indiscernible. Does this contradict the predictions of the rational action theory that middle-class children will tend to make more ambitious choices and working-class children more realistically-feasible choices? Probably not. If we compare the historical trends on transition rates between the NDCS (born in 1958 and reaching age 16 in 1974) and the 2001 YCS data as shown in Goldthorpe and Jackson (2008, **Figures 3.1** and **3.2**), we can see that the secondary effects were being reduced from earlier to later time points, suggesting that all children were becoming more likely to continue with A-Level studies. Our NS children's transition time occurred in around 2006, even later than in the YCS2001 data, hence the class differences may be expected to be even smaller than shown in the YCS2001. From this perspective, we may say that even if primary effects remain, the strength of secondary effects may well decline or shift to more advanced levels, and this explanation would be consistent with Goldthorpe's critique of Bourdieu's cultural capital (habitus) theory, and with the "maximum maintained inequality" (MMI) and the "effectively maintained inequality" (EMI) theses by Raftery and Hout (1993); Lucas (2001).

Another feature in this regard that merits further consideration pertains to the possibility that the secondary effects may not cover the whole range of performance but only emerge at a particular performance level. Jackson et al. (2007: 218) state: "It would seem reasonable to suppose that students who perform very poorly in their examinations at 16 will have a low probability of going on to A-levels and that those who perform very well will have a high probability almost regardless of their class origins, while it is at intermediate levels of performance that the scope for secondary effects to operate is largest." We can

TABLE 5 | Transition rate (%) into A-levels work by family class, ethnicity, sex and bands of GCSE scores.

	Bands of GCSE scores		
	Low	**Mid**	**High**
All			
Salariat (=ref)	20	57	94
Intermediate	16	53	91**
Working class	19	57	86***
White men			
Salariat (=ref)	17	53	94
Intermediate	11	48	90*
Working class	17	52	76***
White women			
Salariat (=ref)	18	59	94
Intermediate	15	49*	91
Working class	17	52	87**
Ethnic minority men			
Salariat (=ref)	26	67	96
Intermediate	29	77	91
Working class	26	72	95
Ethnic minority women			
Salariat (=ref)	52	72	97
Intermediate	43	82	95
Working class	30*	75	94
(All)	18	56	93

Note: The figures in this table pertain to the percentages that transition into A-Level studies. Further analysis is made on significance tests with people from salariat origins as the reference group. For instance, at the overall level (under All), 86% of people from working-class origins as against 94% of salariat children made the transition to A-Level studies, with a difference of 8 percentage points, and this is significant at the 0.001 level.

TABLE 6 | Average marginal effects (AME) from logit models on access to university and to Russell-Group (RG) universities.

	Access to university		Access to RG universities	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Parental class (routine = ref)				
Higher salariat	0.528***	0.144***	0.246***	0.044**
Lower salariat	0.357***	0.100***	0.099***	0.006
Intermediate	0.224***	0.069**	0.053***	0.001
Own account	0.187***	0.047*	0.035***	−0.008
Supervisor and technician	0.109***	0.024	0.011	−0.012
Semi routine	0.077***	0.042	0.013*	0.001
Ethnicity (white = ref)				
B Caribbean	0.031	0.100**	−0.069***	−0.042**
B African	0.309***	0.258***	−0.002	0.002
Indian	0.394***	0.326***	0.051**	0.031*
Pakistani	0.235***	0.249***	0.020	0.029
Bangladeshi	0.331***	0.337***	0.092*	0.109**
Chinese	0.598***	0.588***	0.235*	0.111
Mixed	0.029	0.023	0.005	−0.005
Other	0.207***	0.184***	0.041	−0.017
Female	0.077***	0.048***	0.018**	0.003
Eligible for FSM		−0.015		0.006
% FSM in school		−0.002***		−0.002***
Parental education (low = ref)				
Degree[+]		0.150***		0.069***
Sub-degree		0.084***		0.002
A-level		0.023		0.001
O-level		0.019		−0.023*
Fam structure (2 parents = ref)				
Sometimes lone-parent		−0.026*		−0.017*
Always lone-parent		−0.014		0.020
Born outside the United Kingdom		0.066**		0.032*
Ethnic diversity at school		0.001**		0.001**
Five A-C incl E&M		0.352***		0.203***
Pseudo R^2	0.112	0.307	0.099	0.264
(N)	8,105	7,489	8,105	7,489

Notes: *p < 0.05; **p < 0.01; ***p < 0.001. "Five A-C incl E&M" refers to 'Achieved 5 or more GCSEs or equivalent at A*-C grade including English and Maths.

For both men and women in the majority group, there are clear and significant class differences among the high achievers. For ethnic minorities, however, it is academic performance rather than parental class position that plays a more decisive role. It is noted here that even at the low level of performance, ethnic men and women are more likely to make the transition than their white peers. Yet it is also the case that among ethnic minority women in the low band, class differences exist, with working-class girls being 22 percentage points behind their salariat counterparts in the transition rates (30 and 52% respectively), which constitutes a statistically significant difference. Further analysis shows that all low-performing working-class girls from ethnic minority heritages apart from Black Africans (no Chinese girls were in this category) had low transition rates, at 30, 26, 22, 29 percent for Black Caribbean, Indian, Pakistani and Bangladeshi groups although they were still more likely to opt for A-Level studies than their white counterparts from salariat families.

Overall, our analysis has enhanced the application of the rational action theory with regard to the class-ethno-gender specificity rather than showing encompassing support. With this mind, we move on to the transition to university including Russell Group universities.

Transition to University

Table 6 shows the transition rates to university (Models 1 and 2) and to Russell Group (RG) universities. Models 1 and 3 show the intersectional effects and Models 2 and 4 show full effects akin to Model 3 in **Table 4**. The data in Model 1 on access to university are similar to those in Model 1 on transition to A-Level studies, showing pronounced class and clear ethno-gender effects. The only notable differences between the patterns shown here and those revealed previously on transition to A-Level studies are that family class and ethnicity effects are even more pronounced here on access to university, suggesting that the higher the level of educational attendance, the more important the family class position and that white working-class children are being left further behind. With regard to the secondary effects, we need to take into account prior performance but there is no clear guidance as to what can effectively serve as such an indicator: one could use GCSE scores, number of A-C grades, or having achieved five or more A-C grades at GCSE or equivalent including English and Mathematics. After some careful comparison, we decided to adopt the last of these as it is an important and quite commonly used indicator. 51% of white as compared with 35% Black Caribbean and 39% of Pakistani students achieved this, with Chinese (78%) and Indians (61%)

TABLE 7 | Education, labor market position and income (£) by ethnicity (N = 7,707).

	% degree	Labor market position (%)				Gross pay (£)	Weekly income (£)
		Salariat	Other	Unem	Inactive		
White	25	35	48	6	10	351	313
B Caribbean	28	25	58	11	7	270	227
B African	50	45	39	12	5	338	228
Indian	49	50	37	10	3	362	246
Pakistani	31	34	43	11	11	263	217
Bangladeshi	27	37	44	8	11	321	213
Chinese	45	54	36	9	0	394	224
Mixed	29	34	48	10	8	322	236
Other	47	37	43	13	6	339	227
(All)	27	36	48	7	9	347	300

Note: Full-time students are omitted in analysis of the labor market position. "Other" refers to those in non-salariat' jobs, and 'Unem' to the unemployed. Gross pay refers to gross weekly earnings from the main job but excludes the small number of respondents (N = 36) with abnormally high pay (over £100 per hour) in accordance with government instructions on collection of earnings data. Continuous weekly income pertains to take-home income for cohort member and partner as derived from banded incomes (1 = under 25 … 16 = more than 1,400).

being in the lead, and Black African (45%) and Bangladeshi (43%) students being in the middle. In addition, the other personal and contextual variables as previously used are included in the model for as covariates.

The data in Model 2 shows that achieving five or more GCSE A-C grades including English and Mathematics is of crucial importance in securing a place in university. Other things being equal, those students with this level of achievement have a transition rate being 35 percentage points higher than those without this attainment. Parental education has a positive effect but coming from single-parent family has a negative effect. School-level poverty (in terms of percentage FSM eligibility) and ethnic diversity have the effect as expected. Controlling for these, we find that ethnic effects were little changed but class effects declined sharply. Yet, these declines notwithstanding, it is still the case that those from salariat families are more likely to be enrolled in university by around 10–15 percentage points, and those from intermediate families by around five points, than working-class students. The class advantage as shown here echoes what Goldthorpe and colleagues observed for transitions to A-Level study, and the pattern again renders support to relative risk aversion thesis.

The main features of access to university are largely echoed in access to Russell Group universities, albeit with weaker strengths due to the small numbers involved. As Bangladeshi students tend to face more disadvantages in terms of parental class and primary attainment, they are found to have a higher probability of accessing Russell Group universities when prior conditions are held constant, in contrast to Black Caribbean students.

Labor Market Position

Having looked at the educational trajectory in some detail, we move to the respondents' labor market situation in wave 8 when they were aged 25. In the preceding analysis, we found that ethnic minority students, with the exception of Chinese and Indians, performed less well than did white students in the primary effects but better in the second effects. The first result arose chiefly from family disadvantages and the second result obtained in spite of family poverty. A question that would lend itself in this regard is: did their aspiration, determination and efforts pay off? In other words, did ethnic minority students obtain occupational and

earnings' positon commensurate with their human capital investment? How well did they fare in their earlier career life as compared with their white peers?

Table 7 shows the main characteristics of the respondents' human capital and labor market positions at wave 8. The data cover percentage with a degree, labour-market position, and gross and net weekly incomes by ethnicity.[7] Labor market position is a combination of employment status and class position with four categories: salariat and non-salariat among the employed, and unemployed and inactive among the workless. Gross weekly pay is payment from the main job for those in employment, with the workless including the unemployed. full-time students, looking after home and sick and disabled having no earnings from the labor market. 36 of the respondents reported abnormally high earnings (over £100 per hour) and these are omitted from analysis following the government instructions in the collection of earnings data (see Labour Force Survey, 2015: 384). It is clear that people of ethnic minority heritages are well educated and have a higher likelihood of having a degree-level qualification than do the majority, with those from Black African, Indian and Chinese heritages having a probability nearly twice as high. It is noteworthy in this regard that even those from Pakistani, Bangladeshi and Black Caribbean origins who grew up in poverty-ridden homes outperform whites in gaining a degree qualification.

With such a high educational profile, we would have reason to expect ethnic minority groups to make similarly impressive progress in the labor market positions. Unlikely their parents, they do not have language problems and their social capital is similar to that of white students. Yet, when we turn our gaze to employment and income situation, we are disappointed. The educational attainment by the ethnic minorities did not have the returns as expected. Every minority group were more likely to be

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[7]For brevity, we do not present parental raw class effects on respondent's education, class and incomes here but will include the effects in the modeling. We have conducted the analysis and found salient effects in each of the domains. For instance, 44% of higher salariat children had degrees as compared with 13% from routine families. Similarly, 53% of the former held salariat positions as compared with 17% of the latter, and differences in "continuous weekly income" amounted to £108 (£343 for the former versus £235 for the latter).

TABLE 8 | Average marginal effects (AME) on avoidance of worklessness (%) and gross weekly earnings (£) conditional on employment based on Heckman's model.

	Avoidance of worklessness (%)		Growth weekly earnings (£) conditional on employment	
Parental class (routine = ref)				
Higher salariat	0.264***	0.108**	161.80***	79.87***
Lower salariat	0.223***	0.097**	103.89***	41.86
Intermediate	0.177***	0.066	83.43***	32.59
Own account	0.138***	0.050	70.71***	28.76
Supervisor and technician	0.136***	0.081*	39.86*	21.05
Semi routine	0.077*	0.060	21.20	3.09
Ethnicity (white = ref)				
B Caribbean	−0.090*	−0.071	−52.56**	−50.54***
B African	−0.083	−0.176***	49.34*	0.35
Indian	−0.056	−0.152***	66.89***	31.38*
Pakistani	−0.104**	−0.139***	−2.87	−24.62
Bangladeshi	−0.061	−0.113**	22.88	−9.63
Chinese	−0.159	−0.132	125.89*	76.11
Mixed	−0.060	−0.070	−0.17	−3.59
Other	−0.129*	−0.171**	70.12	38.15
Female	−0.003	−0.001	−88.23***	−96.15***
Marital status (single = ref)				
Married		0.013		33.61**
Divorced/separated		−0.090		−58.90**
Number of children in HH		−0.069***		−32.73***
Parental education (low = ref)				
Degree+		0.022		41.08**
Sub-degree		0.020		22.46
A-level		0.063**		18.58
O-level		0.075***		22.21
R's education (low = ref)				
Degree+		0.264***		124.98***
Sub-degree		0.169***		70.99***
A-level		0.231***		92.72***
O-level		0.137***		53.38***
Limiting LT illness	−0.152***	−0.130***		
N	6,703	6,265	6,703	6,265

Note: Full-time students at Wave 8 were omitted from analysis.

unemployed, with the two black groups and Pakistanis being nearly twice as likely as whites to face unemployment, and that in spite of the higher educational qualifications. For those lucky enough to have a job, the chances of securing a "nice" job (in professional-managerial salariat position) are not too bad, although they may still be regarded as being disadvantaged if educational attainment is taken into account. For instance, 50% of Black Africans and 25% of whites had degree-level education but the salariat occupancy of the former is only slightly higher than that of the latter (45 vs. 35%). What is of even greater concern is the fact that, despite the higher levels of educational qualifications and of somewhat similar levels of occupational attainment (for those with a job), the two black groups and the two Muslim groups (Pakistani and Bangladeshi) have notably lower gross weekly earnings, and the "continuous weekly income" for the cohort member and partner is much lower for all ethnic minorities than for whites, suggesting lower returns to education and labor market position and greater economic disadvantages for the ethnic minorities.

Finally, we take a look at the two kinds of income data: gross weekly earnings and continuous weekly income. For the former, we use the Heckman regression method as the earnings depend on being employed. For the selection part, we use limiting long-term

illness as the "identifying" variable in addition to other variables that are also used in the regression part. As the probit coefficients predicting whether earnings' data are actually observed are not intuitive, we have transformed into percentages using the average marginal effects. Thus the first two columns in **Table 8** refer to the avoidance of worklessness and the last two columns to the earnings differentials conditional on employment. Under both selection and regression parts, we use two models. Model 1 includes family class, ethnicity and gender, and Model 2 includes marital status, number of dependent children, and parental and own education.

Looking firstly at the joint effects of worklessness in the selection part, we find that parental class exerts a powerful influence, with those from higher salariat families being 26.4 percentage points more likely to be in employment than those from routine manual families, other things being equal, with clear class gradients. Holding constant family class, all ethnic minority groups were less likely to be in employment, with Black Caribbean and Pakistani respondents being nine and ten percentage points less likely than whites to be employed. Under Model 2 when the other covariates are taken into account, we find, as expected, highly salient effects of own education and fairly noticeable parental educational effects, but parental class effects are much reduced. Yet, interestingly,

controlling for education brought the ethnic penalties into much sharper relief, with those of Black African, Indian, Pakistani and Bangladeshi heritages being significantly more likely to face worklessness than whites, and the magnitude ranged between 11 and 18 percentage points higher.[8]

For those fortunate enough to be in employment, family class still plays a highly important role, and Black Caribbeans and female respondents receive much less gross weekly pay, with Indians and Chinese having significantly more gross weekly earnings. When the other factors are taken into account, family class effects are sharply reduced. Black Caribbean's penalty remains at a similar level although Indians' and Chinese premiums are much reduced. People's own education plays a very important role. Demographic attributes like gender, marital status and number of dependent children play a more salient role in terms of the amount of earnings than the probability of being in employment, other things being equal.[9]

As around 12 percent of the respondents are married or partnered[10] who are expected to share economic weal and woe, and as those not in employment may have other sources of income, we now turn to the "continuous weekly income," that is, incomes from all sources, which is a good measure of the overall economic well-being of our respondents. The data, obtained from OLS analysis, are shown in **Table 9** with four models. Model 1 contains our main variables on parental class, ethnicity and gender, Model 2 adds personal attributes on marital status, number of children and health condition (in terms of GHQ12),[11] Model 3 further adds parental and own education and, finally in Model 4, we add respondents' own class position differentiating salariat, non-salariat and workless.

The data in **Table 9** show marked ethnic disadvantages. Firstly, we find that, under Model 1, parental class exerts a huge impact on people's income, with those from higher salariat families having over £100 per week than those from routine families, a difference

TABLE 9 | OLS regression of weakly take-home income (£).

	Model 1	Model 2	Model 3	Model 4
Parental class (routine = ref)				
Higher salariat	102.79***	81.61***	52.05***	51.53***
Lower salariat	88.30***	72.82***	46.47***	45.58***
Intermediate	74.27***	62.31***	41.12***	40.93***
Own account	64.58***	51.41***	35.74***	35.10***
Supervisor and technician	53.25***	41.60***	30.18***	29.29***
Semi routine	16.85***	11.97***	4.90	4.55
Ethnicity (white = ref)				
B Caribbean	−81.27***	−91.36***	−89.65***	−88.95***
B African	−76.33***	−88.68***	−94.67***	−94.78***
Indian	−55.56***	−69.23***	−70.29***	−70.53***
Pakistani	−70.01***	−85.27***	−79.46***	−78.98***
Bangladeshi	−58.88***	−80.89***	−70.51***	−70.50***
Chinese	−77.49***	−84.45***	−80.68***	−79.62***
Mixed	−77.49***	−83.62***	−83.92***	−83.73***
Other	−76.58***	−85.80***	−86.86***	−88.30***
Female	32.09***	31.11***	27.58***	27.85***
Marital status (single = ref)				
Married		6.79***	4.63*	4.97**
Divorced/separated		−5.90	−2.21	−2.72
Number of children in HH		−12.29***	−4.87***	−2.92**
Health status (GHQ12)		−0.66***	−0.57**	−0.36
Parental education (low = ref)				
Degree+			36.76***	35.42***
Sub-degree			38.19***	36.53***
A-level			34.53***	33.50***
O-level			33.55***	32.76***
R's education (low = ref)				
Degree+			41.95***	37.13***
Sub-degree			29.35***	26.32***
A-level			35.53***	32.34***
O-level			20.83***	19.00***
LM position (workless = ref)				
Salariat				17.26***
Non-salariat				9.47***
Constant	232.88***	263.59***	224.81***	216.56***
R^2	0.413	0.523	0.592	0.596
N	7,231	6,913	6,473	6,106

[8]An important question in this respect is whether ethnic minorities have equal returns to education in terms of employment opportunities, hence having earnings. Further analysis shows that at the degree level, the two black groups, Indians and Pakistanis were significantly less likely than whites to have a job; at the sub-degree level, Chinese were significantly behind whites; at A-Levels, the three South Asian groups were significantly behind; at the O-Levels, Chinese were significantly behind; and for those with only primary or no formal qualifications, Indians and Chinese are significantly behind. These findings are obtained with all other factors in the models held constant.

[9]Again, a relevant question that poses itself is whether there are equal returns of education to earnings. Here, the significant effects are as follows: at the degree level, whites have £46 more than Black Caribbeans; at the sub-degree level whites have £83 and £286 more than Indians and Chinese respectively; at the A-Levels, whites have £93 more than Black Caribbeans, but £167 and £196 less than Indians and Chinese respectively; and at the O-Levels, whites make £70 and £218 more than Pakistani and Chinese respondents respectively, holding constant all other factors in the models.

[10]The percentages of respondents who are married or partnered at the age of 25 are 11, 14, 30 and 25 for Whites, Indians, Pakistanis and Bangladeshis respectively. Seven percent of the mixed, six percent of Black Africans are also married. Only two percent of the Black Caribbeans and no one from the Chinese origins are found married.

[11]Using information of "limiting long-term illness" does not change the main patterns of the other variables.

similar to that found by Laurison and Friedman (2016). After taking parental class into consideration, we find that ethnic minorities have much lower incomes, ranging from 56 to 81 pounds less than whites. As ethnic minorities' parental class are generally in low positions, controlling for parental class makes little impact on respondents' income differentials, which is clearly shown when we compare the findings under model 1 with those under the last column of **Table 7**. As our respondents were still young in wave 8, most of them were unmarried and only a small portion of them had children or health issues, controlling for these factors does not change the patterns very much. In model 3 where we further control for parental and own education, we find that educational qualifications make a big difference and that, as a result, parental class effect is almost halved. In model 4, we further control for respondents' own class position. Here we find that, as expected, people in salariat positions have higher weekly incomes than do the workless (unemployed + inactive). Yet, it is also important to note that, if we compare the figures from models 1–4, we find that, as more variables are controlled for, parental class effects are progressively reduced whereas ethnic effects are actually

increased. For instance, respondents from higher salariat families are found to have £102.8 more weekly income in model 1 than do those from routine families, holding constant ethnicity and gender effects, but when the other factors are taken into account in model 4, the class differential is reduced to £51.5. If we look at Black Africans' income, we find that they have, given parental class and gender status, £76.3 less per week in model 1 than do white respondents but when all other factors are taken into account in model 4, their income differentials becomes larger, at £94.8 less. People prefer to "compare like with like," but the more like the personal and other characteristics we compare, the more unlike the take-home incomes between the ethnic minority and the majority groups we find.

DISCUSSION AND CONCLUSION

This paper has sought to contribute to scholarship on socio-ethno differences in British society. Most existing analyses on primary and secondary effects have confined their efforts to a three-way parental class effects on GCSE scores and transition to A-Level studies. Using the Longitudinal Study of Young Persons in England (LSYPE1, also known as Next Steps, NS), the present study has used a more elaborated seven-class NSSEC schema, and addressed class, ethnicity and gender effects simultaneously whilst controlling for parental education, family structure, economic situation (in terms of FSM eligibility) and contextual (school) level ethnic diversity and deprivation. We analyzed the socio-ethno differences not only in the primary and secondary effects during compulsory schooling, but in transition to university and to elite Russell Group universities too; and, furthermore, we linked the educational trajectory to labor market position and income profiles at age 25. Previous analyses in this area tend to focus on one or another specific aspect (Strand, 2007; Anders, 2012; Croll and Attwood, 2013; Anders, 2017; Ilie et al., 2017; Siddiqui et al., 2019; and those by Goldthorpe and his colleagues as noted above), but the present study has sought to provide a more systematic and comprehensive perspective.

The main findings can be summarized as follows. Firstly, there are pronounced parental class effects in all aspects under investigation: ranging from GCSE scores, transition rates to A-Level, university and elite (Russell Group) university studies, obtaining degrees, avoidance of worklessness to gross weekly earnings and continuous weekly take-home income. As ethnic minority groups come from disadvantaged families in terms of parental class, education and incomes, they tend to perform less well in school but are more likely to opt for A-Level and higher education studies, providing further evidence to the validity of the thesis of "reinvigorated aspirations" (Li, 2018a). Their attendance at elite universities is, on the whole, still lower than that of the white students, echoing previous findings by Boliver (2013).

The mainstream sociological analyses on primary and secondary effects have focused on parental class differences in academic performance at GCSE, and in transition rates to A-Level studies conditional on prior attainment. With respect to the secondary effects, the rational action theory expects the parental class effects to manifest themselves at lower levels of achievement or, more specifically, at the intermediate level. Most research in this respect has adopted a three-way class and ignored ethnicity and other factors. The present analysis has adopted a framework with a more elaborate class schema, with more explanatory variables and a greater coverage of analytical scope. Our analysis is not limited to testing the validity of the rational action theory concerning primary and secondary effects although we did find some support for the theory. Our findings in this regard are both substantively grounded and culturally fine-tuned.

The determination, ambition and aspiration of the young people from ethnic minority heritages were clearly shown in the choices they made with respect to transition to higher education. All members of ethnic minority groups were more likely to attend university and to hold a degree at age 25 that whites. Only Black Caribbeans were significantly less likely to attend elite Russell Groups universities.

All this suggests, as Li and Heath (2016) posit, a generally level playing ground of the educational system in Britain. Where ethnic minorities lag behind, such as in GCSE performance, it is mainly due to inequality of condition such as family and school deprivation rather than inequality of opportunity. They made laudable efforts in spite of family hardships, aimed higher and attained better educational qualifications. Given this, we might expect them to fare at least equally well in the labor market. Yet, to our dismay, we found that in spite of their better qualifications, they were more likely to face unemployment and inactivity, and had markedly lower weekly incomes even though among those lucky enough to be in employment, they were not too much disadvantaged (only Black Caribbeans were making significantly lower earnings). They started lower, worked harder, achieved well in education but were not fully rewarded in the labor market.[12]

Overall, we found persisting class effects and entrenched ethnic inequalities in British society. The first-generation immigrants may have been positively selected but they had to face the harsh reality in the labor market upon arrival in the United Kingdom, resulting in having depressed class positions and economic hardships. They may have passed their aspiration, determination and resilience to their children who, as we have seen, started from pervasive family poverty but made determined efforts at decision points, and achieved remarkable progress in educational attainment. Yet, in spite of all this, they still found themselves in greater worklessness resulting in lower incomes. The former Prime Minister Therese May (2017) said that continued ethnic disadvantages must be "explained or changed." The analysis in this paper has sought to explain the entrenched ethnic disadvantages in British society, and our evidence calls for greater efforts by policy-makers, employers and wider society to adopt more decisive and more effective measures that can eliminate labour market discrimination against ethnic minorities, for social justice and for national prosperity.

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[12]Even at age 25, 4.5% of the sample were still in education, with Chinese women and Black African men and women being much more so than others, at 29, 12, 12 percent respectively.

DATA AVAILABILITY STATEMENT

Publicly available datasets were analyzed in this study. This data can be found here: discover.ukdataservice.ac.uk/series/?sn=2000030.

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AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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The Unequal Distribution of Linguistic Capital in a Transnational Economic Order

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Foreign language proficiency is an unequally distributed form of linguistic capital that is becoming increasingly important in contemporary societies: first, it enables persons to participate transnationally in educational activities and in labor markets beyond the national institutions of their home country. It is also crucial for integrating an increasing share of the population with a migration background into the labor market. Thus, this article focuses on the explanation of language proficiency. Its main aim is to enrich the discussion in this field by deriving hypotheses from the sociological theory of reproduction and the discourse on migrant integration. Variables are included which have not been tested in a broad fashion in previous empirical research. We use data on different groups of migrants and non-migrants in multilingual Switzerland, where we could study the determinants of the unequal distribution of language proficiency in three official languages and foreign language repertoire in general. Our main results show that the hypotheses derived from the two theoretical discussions are empirically supported overall and contribute substantially to the explanation of language proficiency. However, most of these variables indicate the importance of unequally distributed opportunities for learning languages, thus highlighting that language learning may be part of the general process of reproducing social inequality structures.

Keywords: linguistic capital, transnationalisation, Switzerland, economic approach to language, Bourdieu, labor market

INTRODUCTION

Foreign language proficiency is an unequally distributed and increasingly important resource in contemporary societies: on the one hand, it enables people to participate transnationally in educational activities and labor markets beyond the national institutions of their home country and profit from these boundary crossing engagements. On the other hand, it is crucial for the structural integration of an increasing share of the population with a migration background into both the labor market and the educational system of their country of residence. Up to now, the relevance of language proficiency has been discussed in two more or less completely separate strands of literature. The first is research focusing on the increasing importance of foreign language proficiency of transnationally mobile and active people in the era of globalization (e.g., Fligstein, 2008; Gerhards, 2010), while the second includes migration and integration research aimed at the

language proficiency of people with a migration background (e.g., Van Tubergen and Kalmijn, 2005, 2009; Esser, 2006a). In both strands of literature, it is assumed that language proficiency is a form of cultural capital, in this case linguistic capital, which can be invested in education systems and especially in the labor market and occupations. This linguistic capital is also mostly acquired in educational institutions (Chiswick, 2008; Gerhards, 2010), giving an advantage to those with higher education. Hence, foreign language proficiency, or a broad repertoire of languages in general, is deeply intertwined with structures of social, economic, and occupational inequality. This is both true for migrants, who differ in their proficiency in the languages of their country of residence, and for transnationally active people, who usually have a higher endowment with linguistic capital compared to the rest of the population. In this article we try to connect these two strands of literature, assuming that the major determinants of language proficiency do not differ between migrants and transnationally active persons. With regard to language proficiency, we focus on the number of fluently spoken languages as the dependent variable, both for the national languages of Switzerland and foreign languages in general.

There is a broad range of literature on the conditions for learning a second or further language (which for convenience we simply call foreign languages) in different disciplines, focusing on psychological, linguistic, social, and biological foundations of language. Our paper concentrates on the social contexts of foreign language proficiency (measured as the number of languages in which a person is orally proficient) in order to determine foreign language proficiency's relationship to social and economic inequality and migration experiences. In our contribution we mainly draw on two theoretical discussions which have so far not had much impact in the discussion on language proficiency and its determinants: Pierre Bourdieu's sociological theory of reproduction, which reveals the structural inequalities underlying the unequal distribution of foreign language proficiency. This theory has rarely been tested in quantitative studies of language proficiency (Gerhards, 2010; Rössel and Schroedter, 2014). In addition, since proficiency in the languages of their destination countries is especially important for migrants' structural integration into the labor market and the occupational structure, we add theoretical concepts and hypotheses derived from migration and integration research, focusing especially on the ongoing discussion on the role of transnational ties and experiences for integration into the host country. We broaden this discussion by taking into account that transnational ties and experiences are not only a characteristic of migrant populations, but also of transnationally active autochthonous population segments (Dahinden, 2009; Mau, 2010). Our study goes beyond most previous research by accounting for a very differentiated set of measures of transnational experiences both for Swiss persons and migrants in Switzerland. As a kind of background theory we also briefly summarize the well-established economics of language approach, without deriving hypotheses from it, which conceptualizes foreign language proficiency as a kind of human capital and thus language learning as a form of capital investment. This approach is quite widespread not only in the literature on economics,

but also in social science studies of migrants' proficiency in the languages of their host countries (Van Tubergen and Kalmijn, 2005, 2009; Esser, 2006a; Chiswick, 2008; Chiswick and Miller, 2014).

We aim to test the hypotheses derived from these two streams of theoretical discussions with respect to linguistic capital in the German-speaking part of Switzerland to enrich the existing discussion, which is strongly based on the economic approach on language learning. Furthermore, existing research on the social and economic determinants of foreign language proficiency usually focuses on only one destination country language. We take a step beyond this, since Switzerland is a country with four national languages (German, French, Italian, Rhaeto-Romanic). With regard to language integration, there is still the conviction in most cantons of Switzerland that pupils should learn another national language as their first foreign language and English as second foreign language. In some cantons, however, English is the first foreign language and another national language is the obligatory second foreign language (EDK, 2021).

An analysis of job advertisements in the German-speaking part of Switzerland shows that in 2015 and 2016, 14% of all positions required proficiency in French and 4% in Italian[1]. Furthermore, 24% of all job advertisements required knowledge of English. These language requirements are especially widespread in high-status occupations and in public administration. The actual use of different languages in the workplace is even higher: according to the Swiss Federal Statistical Office, in 2014, 28% of all people in paid work used more than one language at work on a daily basis [BfS (Bundesamt für Statistik), 2018, p. 7]. Economic transactions among the different language regions of Switzerland are more often conducted in one of the national languages than in English (Andres et al., 2005). Furthermore, the economic premium for being fluent in another national language is as high as the premium for being fluent in English (Grin, 1999). This means that both Swiss and foreigners increase their labor market opportunities by speaking more than one of the Swiss national languages fluently. In other words, speaking more than one national language is profitable for both persons with and without a migration background.

Accordingly, in our empirical study we do not focus only on proficiency in one language, but due to the specific situation in Switzerland, we study the determinants of linguistic capital in general (number of (foreign) languages spoken) as well as those of Swiss-specific linguistic capital (number of Swiss national languages spoken). In both cases, linguistic capital is an unequally distributed resource which is important not only for the higher rungs of the international labor market, but also for successful integration into the Swiss job market. Our empirical study thus contributes to the current state of research by taking a broad theoretical discussion and the hypotheses derived from it into account, focusing on a case in which proficiency in more than one language is relevant, and by studying persons with and without

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[1]This information is based on the Swiss Job Market Monitor: https://www.stellenmarktmonitor.uzh.ch/en.html. We thank Ann-Sophie Gnehm for analysing the data.

migration experiences. Hence, it goes beyond existing studies on linguistic capital in multilingual countries by first comparing migrants and autochthonous populations and then by studying both proficiency in national languages and (foreign) language competence in general (cf. Chiswick and Miller, 1994, 2001; Van Tubergen and Wierenga, 2011).

We proceed by presenting the main theoretical discussions we draw on and developing hypotheses based on the sociology of reproduction and the research on migration and integration. We then introduce our unique dataset based on a stratified random sample of migrants and non-migrants living in Zurich, Switzerland. These data enable us to study the language proficiency of persons with and without a migration background. Additionally, the data set is rich in relevant variables, enabling us to operationalise quite specific hypotheses derived from both theoretical discussions. Based on these data, we test the theoretical hypotheses developed before finally discussing our results and concluding with a short summary and outlook on further research.

THEORETICAL APPROACHES

Our research contributes mainly hypotheses derived from two theoretical discussions: Bourdieu's theory of linguistic capital; and, the discussion concerning migration and the integration of migrants (cf. also Rössel and Schroedter, 2014). However, we start by briefly introducing the economic approach to language as a benchmark theory in the field. The two other perspectives may yet provide important additional insights and explanations for the unequal distribution of linguistic capital and its relationship to the economic and occupational structure of inequality.

The Economics of Language

The economic approach to language considers language learning to be an investment in individual human capital (Chiswick, 2008; Chiswick and Miller, 2014). The main determinants are therefore economic incentives to learn a language, efficiency in learning a language, opportunities to practice and learn it and, finally, the costs of learning. A number of variables are related to *economic incentives*: for example, it can be assumed that migrants who want to stay in the host country for an extended period of time can make better use of their language skills in the national language than those who only plan to stay for a short period. It can also be assumed that migrants in higher professional positions can make better use of their language skills (Chiswick, 2008; Braun, 2010, p. 17–18; Chiswick and Miller, 2007; Isphording et al., 2014)[2]. Thus, higher earnings associated with certain occupations could be a major incentive to invest in destination language proficiency. The second key determinant of the economic model, the *efficiency of language learning*, describes the ability of individuals to translate formal and informal opportunities for language learning into de facto language competency. The most important variable at

this point is the age at which learning begins, which has a strong influence on the ability to learn languages (Birdsong, 2006; Hufeisen and Riemer, 2010, p. 745). Furthermore, people with a higher level of education show higher efficiency in learning, as do people who already speak more than one language (e.g., people who grew up in bi-/multilingual families). A barrier to language learning efficiency is the linguistic distance between a person's first language and the second or further language (Chiswick, 2008, p. 14–17; Van Tubergen and Kalmijn, 2005; Hufeisen and Riemer, 2010, p. 745–747). The third determinant of *learning opportunities* is not only formal educational institutions that offer language learning opportunities, but above all opportunities to learn a language in everyday life, like vacations or longer stays abroad (Chiswick, 2008, p. 10–12; Braun, 2010; Chiswick and Miller, 2014).

The economics of language approach is empirically well-supported and thus forms a kind of standard perspective of language learning. Therefore, in our empirical study, we will control for several variables derived from this theory, like occupational status, employment status, linguistic distance between mother tongue and destination country language. However, the main focus of our article is on the hypothesis derived from the sociology of reproduction and the migration and integration literature, which will be discussed in the next section. These approaches hint at variables which have not been tested broadly in previous research.

Theory of Reproduction

The economic approach to language conceptualizes language learning mainly as an individual and voluntary choice to invest in foreign languages. However, this view tends to overlook the structural bases and constraints of such investments and thus the relationship between inequalities in linguistic capital and the unequal distribution of other types of capital and thus the ongoing reproduction of inequality in society. Pierre Bourdieu, as the most important protagonist of the theory of reproduction, sees language proficiency as one form of cultural (linguistic) capital. Traditionally, especially proficiency in the legitimate standard language of a nation-state is a form of cultural capital which may be invested in the education system or the labor market (Bourdieu, 1990; cf. Gerhards, 2010; Rössel and Schroedter, 2014). This is an especially important form of linguistic capital for migrants, since the inequality of linguistic proficiency in the destination country language is ususally greater among migrants compared to persons without migration background. However, with contemporary conditions of Europeanisation and transnationalisation, this may have changed. Persons with proficiency in different foreign languages may have advantages in the educational system and the labor market (Fligstein, 2008; Gerhards, 2010). Thus, the value of language proficiency depends on the institutionalization of certain languages as legitimate in a certain society and beyond its borders. Therefore, in our study we focus not only on the standard languages of Switzerland, but also on the general foreign language repertoire (in doing so, we exclude the mother tongue). Bourdieu mentions three main sources of cultural

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[2]The arguments of the economic approach apply not only to migrants, but also to the foreign language proficiency of autochthonous populations, e.g., Swiss-German persons learning a further national language or a foreign language.

capital[3]: practices, the education system and the parental home (Bourdieu, 1970). His assumption is that legitimate forms of cultural capital are mainly learned in the parental home and educational system. In this context, people usually acquire the legitimate culture of a society, such as the standard national languages and traditional "highbrow" culture, which is transferable to other fields and enables actors to grasp other and new forms of cultural capital. Thus, a highbrow cultural orientation should also further the acquisition of linguistic capital.

In Bourdieu's conception, societies' class structure results from the distribution of the types of capital. He sees the different classes and class fractions of capitalist society not only entangled in an economic class struggle, but also in a symbolic class struggle for the validity of values and culture. In this respect, the class structure of society is expressed in the various cultural lifestyles and language varieties. This means that the market in which investments take place is already oriented in favor of the dominant classes or the autochthonous population. Thus, the social position of the class factions with a surplus of cultural capital is reproduced by transferring this capital, in addition to the early acquisition of cultural competence, primarily through investments in the educational market and acquiring the highest possible academic titles (Bourdieu, 1982, p. 442–444). The habitus acquired in the early stages of socialization at home is fundamental to successful learning at school and acquiring academic titles. Pupils and students highly endowed with incorporated cultural capital are more versatile in their interests and have the ability to understand and enjoy works of classical high culture and to use the legitimate high-level language with stylistic confidence (Bourdieu and Passeron, 1977). It is precisely these skills that also come into play in the communication between professors and students and in the structure of exams, with the effect that the incorporated cultural capital is reflected in measurable educational successes (cf. Sullivan, 2001; Rössel and Beckert-Zieglschmid, 2002; Jaeger and Breen, 2016). Thus, the investment of linguistic capital is not only an individual, voluntary choice but part of a societal process of reproducing inequality. However, up to now only a few quantitative studies have tested Bourdieu's ideas on the reproduction of linguistic capital (Gerhards, 2010; Rössel and Schroedter, 2014).

Especially the role of the parents and of highbrow orientations have often not been studied in the economics of language approach. Whereas the relationship between highbrow orientation and language proficiency and repertoire is presumably not unidirectional, the impact of parents' education and language repertoire can be interpreted in a causal way, since it is not very likely that parents' education or language repertoire depends on the later language repertoire of their children. Based on the above considerations, we

derive the following hypotheses from Bourdieu's theory of reproduction.

H_1: The higher the parents' education, the larger the respondents' (foreign) language repertoire (transnational linguistic capital) will be, i.e., the number of foreign languages they speak fluently.

H_2: The broader the parents' language repertoire, the larger the respondents' (foreign) language repertoire will be.

H_3: The stronger the person's orientation toward classical highbrow culture, the larger their (foreign) language repertoire will be.

H_4: The higher the person's education, the larger their (foreign) language repertoire will be.

An important similarity between the economic approach and Bourdieu's theory is the focus on opportunities to learn and practice a language. In contrast to the economic approach, Bourdieu emphasizes the inequality in opportunities leading to unequally distributed linguistic capital. This is relevant to the following discussion on the relationship between transnational experiences and linguistic capital, which highlights aspects that have received little attention in the literature so far. Derived from Bourdieu's emphasis on the importance of practice and the relevance of learning opportunities in the economic approach, our general assumption is that transnational experiences – enabling individuals to practice a given language – have a positive impact on linguistic capital.

Migration, Transnational Experiences, and Integration

The relevance of transnational experiences and relations for the integration of migrants has been intensively discussed in the literature (e.g., Snel et al., 2006; Schans, 2009; Soehl and Waldinger, 2010). In more recent discussions, it has been acknowledged that not only migrants, but also autochthonous persons have transnational experiences and relations (Dahinden, 2009; Mau, 2010; Teney and Deutschmann, 2018). Thus, these experiences and practices may have an effect on both migrants, but also autochthonous Swiss' linguistic proficiency. According to the concept of exposure in the economic approach to language, such experiences and relations may also be relevant for language acquisition, since they are opportunities to learn and practice a new language. However, such transnational activities are often resource-based (Itzigsohn and Saucedo, 2002; Guarnizo et al., 2003; Portes et al., 2003; Fligstein, 2008; Gerhards, 2010). That is, they can also contribute to unequal opportunities in language learning. Furthermore, transnational experiences might have different effects on language acquisition for migrants and the autochthonous population – especially in respect to the Swiss-specific linguistic capital. Accordingly, we will first discuss the relationship between transnational experiences and integration in the host society for migrants, taking into account the special case of multilingual Switzerland (cf. Rössel and Schroedter, 2014). We will then broaden the discussion and derive a hypothesis applicable to the autochthonous population and the language repertoire in general.

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[3]In our discussion, we mainly focus on the incorporated cultural capital. According to Bourdieu, the cultural capital can also take two other forms: that of institutionalized cultural capital in the form of educational titles and that of objectified cultural capital in the form of objects (e.g., books or musical instruments).

The ability to speak the language of the host country is essential for acculturation and social integration. It also facilitates integration into other social subsystems, in particular the labor market (Esser, 2006a). Currently, there is not a great deal of systematic empirical research on the relationship between transnational relations/experiences and integration into host societies. The traditional theoretical perspective in assimilation research mostly regards transnational relations as incompatible with assimilation (Alba et al., 2002; Schans, 2009; Amelina, 2010). However, the results of empirical research on this question are somewhat inconclusive. Overall, the few general studies on transnational relations and integration do not show a clear pattern (e.g., Guarnizo et al., 2003; Portes et al., 2003; Snel et al., 2006; Soehl and Waldinger, 2010).

Concerning how transnational relations and activities relate to linguistic proficiency in the language of the destination country, the results of empirical studies are much more clear-cut. Having more social relations and experiences in the country of destination (spouse, previous stays, friends, interethnic networks) leads to higher language proficiency (Esser, 2006a,b, 2008; Van Tubergen and Kalmijn, 2009; Braun, 2010). The contrary is true for social relations and experiences with the country of origin. This also seems to hold for the language repertoire of non-migrants in foreign languages, i.e., the more international their social networks and experiences, the broader their language repertoire (Gerhards, 2010; Rössel and Schroedter, 2014).

In general, it must be assumed that the process of reproducing cultural and linguistic capital outlined by Bourdieu is less seamless among migrants than among persons without migration experience, as migration research emphatically shows (cf. Jacob and Kalter, 2011). Migrants are typically embedded in transnational social contexts, i.e., in their contexts of origin as well as in the contexts of the host country. As a result, in the context of the economic theory of language acquisition outlined above, certain factors may be disadvantageous for migrants when acquiring Swiss-specific linguistic capital. While, for example, educational qualifications, stays abroad and social contacts with foreigners can generally be advantageous for foreign language acquisition, in the case of migrants, these will often be directed toward the context of origin (educational qualifications outside Switzerland, transnational relations in the country of origin, social networks within their own ethnic group), so that knowledge of the mother tongue or other languages is generally deepened, but not necessarily knowledge of the Swiss national languages (Chiswick, 2008; Braun, 2010, p. 12; Stevens, 1985)[4]. We therefore expect that migrants will have a deeper linguistic competency in foreign languages in general, but not in the Swiss national languages – in particular if they are from countries where none of the Swiss main languages are spoken. Furthermore, given the importance of education and its effect on learning efficiency and exposure, we assume that education in the

country of destination has a major positive impact on destination language skills.

H[5]: Traveling to foreign countries, social relations with persons in foreign countries and longer stays abroad have a positive impact on transnational linguistic capital.

H[6]: Persons with a migration background exhibit a smaller repertoire of national languages, i.e., Swiss-specific linguistic capital.

H[7]: Opportunities to speak the mother tongue have a negative impact on the repertoire of national languages.

H[8]: Education in Switzerland has a positive impact on Swiss-specific linguistic capital.

DATA AND METHODS

Our analysis is based on data from an online survey that we conducted in the context of the project "Toward a European Society: Single Market, Binational Marriages, and Social Group Formation in Europe (EUMARR)" between June and September 2012 in Zurich. The inquiry was addressed to persons in mono-national and binational partnerships (both marital and non-marital). The sample included persons from Switzerland, the EU-27 countries and other European and non-European countries that were living together with their partner. It is thus not a representative survey of the total population of Zurich, but a survey of a nationally and culturally very heterogeneous group that somewhat exaggerates the heterogeneity of Zurich's population. The basic sample was drawn randomly from several predefined strata of people from the population register of the city of Zurich[5]. We contacted all selected people by post in German and English and invited them to participate in the online survey. It was possible to answer the online survey both in German and English. With increasing time intervals, we sent three reminders to the sampled persons. The third and final reminder included a paper questionnaire which could be returned free of charge. This procedure yielded a response rate of about 40 percent.

Our dataset contains information on a rather select group of people in the population of Zurich. Due to the national and cultural heterogeneity of the sampled individuals, it is well-suited for analysing the causal mechanisms underlying the accumulation of linguistic capital. The advantage of the data set is the rich coverage of variables relating to social background and transnational experiences. This provides an opportunity to test hypotheses both for persons with and without a migration background. However, in interpreting the results one should take into account that the sample probably contains persons with an above-average endowment with transnational experiences and networks.

As a background to our sampling strategy one has to keep in mind that Switzerland's population contains roughly 25% foreigners, the majority of whom (over 80%) come

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[4]Visits to "home countries" are crucial for maintaining the language of origin. For instance, frequent visits to their parents' country of origin have been shown to be a major factor in second-generation migrants' proficiency in their parents' mother tongue (Soehl, 2018, p. 1529).

[5]The sample was restricted to couples within a specific age range (men between 30 and 45 years of age, with partners aged between 18 and 57) and with certain citizenships; for more details, see Schroedter and Rössel (2013).

from European countries. Switzerland adopted a treaty of free movement for EU citizens in June 2002, guaranteeing the freedom to move and work in Switzerland but also access for those commuting across the border to Switzerland (EDA, 2021). This results in Europeans having a fairly secure legal status in Switzerland. This legal situation combined with the strict naturalization laws may be the reason for the high percentage of foreigners in the Swiss population. With regard to labor market opportunities, migrants in Switzerland cover more or less all horizontal and vertical segments of the occupational structure. However, with increasing social and cultural distance from Switzerland, migrants face poorer labor market opportunities (Ebner and Helbling, 2016).

As mentioned above, we studied two different dependent variables. On the one hand, we considered the number of foreign languages spoken fluently (*transnational linguistic capital*), and on the other hand the number of official Swiss languages spoken fluently (*Swiss-specific linguistic capital*). Both variables were based on two questions in the survey. First of all, individuals were asked to indicate the language in which they were raised. It was possible to provide up to three answers, but respondents were invited to first list the language they would consider their mother tongue. Additionally, the respondents were asked to note the foreign languages they spoke fluently[6]. Due to overlaps in the questions and answers and pronounced multilingualism in Switzerland and especially in Zurich, it seemed advisable to merge the information of both questions. The maximum value of the variable of transnational linguistic capital was therefore set to four, allowing all respondents to give the same number of possible answers. Accordingly, the category applies to four and more fluently spoken (foreign) languages. The number of the national languages spoken was restricted to three, as Rhaeto-Romanic is only spoken by a small fraction of the population and all of those in our sample could also speak (Swiss) German. This means that in the first case (*transnational linguistic capital*), we added up all languages a respondent spoke minus the mother tongue; in the second case (*Swiss-specific capital*), we added up all national languages a respondent spoke, independent of their monther tongue (i.e., including the mother tongue for those with either (Swiss) German, French, or Italian as their mother tongue).

It has to be noted that the dependent variables have two weaknesses. First, they are merely a partial measure of language skills, as only the abilities to speak and to understand are captured, not the abilities to read and write. However, there is usually a strong correlation between the different elements of language competency (Jude, 2008). Additionally, in the Swiss labor market, oral use of the foreign language is the most important element, before reading and writing skills [BfS (Bundesamt für Statistik), 2018, p. 7]. Second, it is a subjective measure of language skills, i.e., the respondents had to indicate themselves whether they are able to speak a language or not. Although empirical research has shown that subjective and

objective measures of language competencies correlate to a high degree (approx. $r = 0.5$), there is also a considerable chance of measurement error. Nevertheless, it has been shown that the measurement error does not influence the analysis of the determinants of language competencies extensively (Charette and Meng, 1994; Van Tubergen and Kalmijn, 2005).

In the next step, we will introduce the independent and control variables. First of all, we differentiate between (1) Swiss persons without and (2) Swiss persons with a *migration background* as well as (3) foreigners to test hypothesis 6. The differentiation between Swiss and foreigners is merely based on their formal citizenship(s). Swiss with a migration background are defined as Swiss citizens who meet one or more of the following criteria: (a) foreign citizenship(s) in addition to Swiss citizenship, (b) born abroad, (c) at least one parent born abroad. Sixty-three percent of such respondents were born in Switzerland. The vast majority of foreigners are first-generation migrants born abroad (92%) and come from one of the EU27 countries (88%). Sixty percent of the foreigners are citizens of one of the neighboring countries. Thirty-nine percent of all foreigners in the sample have German citizenship, 11% Italian, 7% Spanish, and 5% British. Of the Swiss with a migration background, 63% were born in Switzerland and 43% have an additional citizenship of an EU27 member state. Sixteen percent of all Swiss with a migration background have Italian as their second citizenship, 9% German. For the analysis of Swiss language capital, we further differentiate between foreigners who speak one of the main Swiss languages as their mother tongue and those who do not. We label Swiss citizens as autochthonous if neither of their parents were born abroad. Nevertheless, this group could include third generation migrants.

With regard to the *intergenerational reproduction of cultural capital*, we included the following variables: *education of father and mother*, the *number of foreign languages each parent spoke when the respondent was a child*, *highbrow cultural orientation*, and *education of the respondent*. As the majority of the respondents were highly educated, we distinguished between secondary education or less, postsecondary education and two levels of tertiary education. Higher tertiary education applied to persons who held a PhD or an equivalent degree. A *highbrow cultural orientation* was measured as an additive index whereby different regular highbrow cultural activities were summed up (going to classical music concerts, the theater, the opera, visiting museums, or exhibitions).

The migration context as well as *transnational relations and experiences* were operationalised as follows: for both analyses (transnational and Swiss-specific linguistic capital) we considered *regular contact with friends and relatives* (including in-laws) (a) within or (b) outside of the European Union. Regular contact meant that the respondent on average visited his/her friends and/or relatives in the respective region at least once a year. Both variables are dichotomous. Another variable concerns the *partner's mother tongue*. As the survey did not include this variable, it was based on the information of the partner's country of birth. The most frequently spoken language in the country was assumed to be the mother tongue. In the first analysis (all foreign languages), we only differentiated between

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[6]In detail the question read as follows: "Please specify all the languages you currently speak apart from your mother tongue." It was complemented with the clarification: "By speaking a language we mean that you can have a long conversation in another language with native speakers of that language."

partners speaking the same mother tongue as the respondent and those speaking a different one. In the second analysis of Swiss-specific linguistic capital, we further differentiated between partners with a different mother tongue who spoke a Swiss main language and those who spoke another language. Furthermore, we also took into account whether they were raised bilingually or multilingually. Moreover, we included a variable on *trips within Europe* as well as longer stays abroad. *Trips* referred to visits with at least one overnight stay and up to 3 months. *Longer stays abroad* related to visits that lasted at least 3 months. We only added up the number of visits to (or stays in) different countries. For the analysis of Swiss-specific linguistic capital, we modified both variables in that they only captured travels and stays abroad to countries where one of the main languages of Switzerland is spoken, namely German, French, or Italian. In this analysis, we considered one further variable: the *percentage of friends born in Switzerland within the respondent's (max.) five best friends in Switzerland*. Regarding hypotheses 7 we also included *being an English native speaker* and the *share of inhabitants in Zurich who speak the same mother tongue*. Both variables decreased the necessity to learn one of the Swiss national languages. And regarding hypothesis 8, we took into account whether persons *acquired the highest qualification in Switzerland*.

In respect to the *economic approach to language learning*, we take several empirically established constructs into account as *control variables*, especially being employed, occupation and the language family of the mother tongue. *Being employed* is a dichotomous variable discriminating between those currently in paid work and those not. *Occupation* is based on the major ISCO-08 codes and differentiates among managers, professionals, technicians and associate professionals, clerical support workers, service and sales workers, and a broader category of mainly trades and elementary occupations. People who were not employed at the time were asked to provide information on their last paid job. Individuals who had never worked before were rare in our sample (<3%) and were subsumed under the "missing" category. Our assumption based on the economics of language is that especially those in high-status occupations (managers and professionals) will benefit from foreign language skills and accordingly have a higher incentive to invest in learning another language. The *language family* is relevant insofar as individuals whose mother tongue belongs to the same language family as the Swiss main languages are expected to face lower costs in learning one of the respective languages. We differentiated between the main languages, Indo-Germanic languages and other languages. Age and sex were also included as control variables.

ANALYSES

The language competencies of the respondents in our sample are comparatively high. **Tables 1, 2** present the distributions of language competencies of the Swiss EUMARR survey for our two dependent variables, transnational and Swiss-specific linguistic capital, for Swiss and migrants.

On average, according to a broad survey of languages in Switzerland, Swiss speak two foreign languages (Werlen,

2008). Especially Swiss from the German-speaking and Italian-speaking language regions stand out, with 2.2 foreign languages, whereas French-speaking Swiss on average speak only 1.7 foreign languages (Werlen, 2008, p. 3). According to this comprehensive survey of the language situation in Switzerland, most Swiss persons also speak one of the other national languages (84% of the German Swiss, 62% of the French Swiss, and 88% of the Italian Swiss) (Werlen, 2008). The respondents of the Swiss EUMARR sample possessed slightly more transnational linguistic capital than the average Swiss, but the mean was close to that of the Swiss Germans. On average, the respondents spoke 2.5 foreign languages (cf. **Table 1**). Swiss with a migration background had the highest language competency: 27% of them spoke four or more languages. However, Swiss and foreigners in our sample did not differ much in their foreign language competency. Overall, the most frequently spoken foreign language was English (90%), followed by French (63%), Italian (27%), German (22%), and Spanish (21%) (cf. **Table A1** in the Appendix for further details).

We find that on average, the respondents spoke two of the Swiss national languages (cf. **Table 2**). Swiss with a migration background also had the highest endowment with Swiss-specific linguistic capital. Foreigners with a mother tongue other than one of the main Swiss languages unsurprisingly had the lowest level of respective language proficiency. Almost all respondents spoke (Swiss) German (97%), while French was spoken by 67% and Italian by 34% (cf. **Table A2**).

In the following, we show the results of testing the hypotheses for linguistic capital accumulation using Poisson regressions with robust standard errors[7]. **Table 3** shows the results for transnational linguistic capital, **Table 4** the results for Swiss-specific linguistic capital[8]. In both cases, the models are structured as follows: the first model (1) contains the control variables age and sex, the migration background of the respondents and control variables relating to the economic approach of language learning (employment and occupations). We then add further variables step by step: first those relating to the intergenerational reproduction of cultural capital (model 2); and second, transnational experiences and relationships as well as further variables representing opportunities for learning and practicing languages (model 3). This allows us to systematically understand whether the variables derived from these two theoretical discussions increase the explanatory power of the statistical models.

As was also evident descriptively, migrants and non-migrants in our sample did not differ significantly in their endowment with transnational linguistic capital (cf. **Table 3**). The traditional assimilation view of migrants usually marks them as "deficient" in certain respects. Our study shows that migrants may have as much transnational linguistic capital as non-migrants – although the market value of the languages

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[7]We ran Poisson regressions because our outcome variables were count data, and Poisson regressions are the best choice for modeling this kind of data. In order to control for mild violations of underlying assumptions, we used robust standard errors as recommended by Cameron and Trivedi (2010, p. 574).

[8]**Table A3** provides an overview of the distribution of the different variables (cf. **Appendix**).

TABLE 1 | Language competencies in the sample: transnational linguistic capital.

	Number of fluently spoken additional (foreign) languages			
	Swiss	Swiss with migration background	Foreigners	Total
None	3%	1%	1%	2%
One	14%	10%	18%	14%
Two	36%	29%	38%	35%
Three	31%	33%	31%	31%
Four and more	16%	27%	13%	18%
Mean (SD)	2.4 (1.0)	2.8 (1.0)	2.4 (0.9)	2.5 (1.0)
Total	697	532	702	1,931

Source: Data from the Swiss EUMARR survey.

TABLE 2 | Language competencies in the sample: Swiss-specific linguistic capital.

	Number of fluently spoken Swiss national languages*				
	Swiss	Swiss with migration background	Foreigners with a main language as mother tongue	Foreigners with other mother tongue	Total
None	–	1%	–	7%	1%
One	18%	18%	28%	59%	27%
Two	52%	43%	52%	27%	46%
Three	29%	38%	20%	7%	26%
Mean (SD)	2.1 (0.7)	2.2 (0.7)	1.9 (0.7)	1.3 (0.7)	2.0 (0.8)
Total	697	532	419	283	1,931

*Source: Data from the Swiss EUMARR survey; *Rhaeto-Romanic included in German.*

spoken may vary. The positive effect of Swiss with a migrant background indicating that on average they speak more foreign languages than the autochthonous population in Zurich became insignificant as soon as the language context was controlled (cf. model 3a). This is mainly due to the strong positive effect of multilingual upbringing.

Since the results for both forms of linguistic capital are very similar, we first discuss the similarities, followed by expected differences. Turning to the intergenerational reproduction of cultural capital, we find that it is primarily the number of languages a father spoke when the respondent was a child that has a significant positive effect, which partly supports H_2 (cf. models 2a and 2b). Parental education has no direct effect on linguistic capital (H_1) when controlling for the other variables on the intergenerational reproduction of cultural capital. Only adding parental education to model 1a and 1b would show that especially higher education of the father has a significant positive effect (results are not shown, but available from the authors). In contrast, respondents' education has a strong and significant association with linguistic capital (H_4), which is assumed to be a result of both increased exposure and

increased efficiency coming with higher education. Moreover, our study demonstrates that a highbrow cultural orientation has a consistent positive association with linguistic capital (H_3). As assumed by Bourdieu, different forms of cultural capital cohere, and highbrow cultural capital still seems to be an important part of contemporary cultural capital. A comparison of model 1 and 2 indicates, that the variables derived from this theoretical discussion increase the explanatory power of the models. However, the increase is clearly stronger in the case of transnational linguistic capital.

Due to the differences in the results, the variables added in model 3 will be discussed separately for transnational and Swiss-specific linguistic capital. For the former, the hypothesis relating to transnational experiences and relations (H_5) receives strong support for transnational linguistic capital (cf. model 3a). All five indicators have a positive impact on the transnational linguistic repertoire. A particularly important factor is having a partner with a different mother tongue, since having such a partner also shapes the composition of a person's social network. Moreover, we find that the indicators of language and migration context largely correspond to expectations: growing up in a bilingual or multilingual family is significantly associated with greater linguistic capital, as is having acquired their highest educational qualification in Switzerland (H_8). However, being an English native speaker is associated with significantly less linguistic capital. This could be explained by the fact that speaking English as a lingua franca is sufficient to get by in an international city like Zurich. The lack of incentives to expand the language repertoire would thus outweigh the effect of exposure. The share of people who speak the same mother tongue as the respondent has a significant negative, but negligibly small effect on linguistic capital, which may be due to the composition of our sample (many of the respondents' languages are spoken as mother tongues, second or foreign languages by the inhabitants of Zurich). Both results are consistent with hypothesis 7.

With respect to the determinants of acquiring Swiss-specific linguistic capital, we will highlight notable results (cf. **Table 4**). As hypothesized, foreigners are less likely to speak one or more of the national languages than Swiss (H_6). Obviously, this applies above all to foreigners whose mother tongue differs from one of the Swiss national languages. In line with this result, obtaining the highest qualifications in Switzerland increases this linguistic capital (H_8). Exposure to the national languages, as shown by stays abroad in corresponding countries or the partner's mother tongue or social relations within the EU, has the hypothesized positive effect. Travels to and stays in (European) countries where one of the main languages of Switzerland is spoken might differ for the acquisition of Swiss-specific linguistic capital for Swiss and foreigners whose mother tongue is identical to one of those languages. In the case of the foreigners, these trips and stays might concern their home countries, which would not encourage learning of another main Swiss language. In order to take this into account, we also ran a model with interaction effects. While the effects were somewhat stronger for the autochthonous Swiss, the interaction effects were not significant (results available on request). This can be attributed

TABLE 3 | Determinants of the acquisition of transnational linguistic capital.

	Model 1a		Model 2a		Model 3a	
	IRR	R.SE	IRR	R.SE	IRR	R.SE
Age (cent. 37 years)	1.00	0.00	1.00	0.00	1.00	0.00
Sex (rf. male)	1.10***	0.02	1.11***	0.02	1.11***	0.02
Migration background (rf. Swiss)						
Swiss with migration background	1.13***	0.02	1.11***	0.02	1.04	0.02
Foreigner	0.97	0.02	1.00	0.02	0.98	0.03
Currently employed (rf. not employed)						
Employed	1.001	0.02	0.99	0.02	0.97	0.02
Occupation (rf. professionals)						
Missing	0.94	0.04	1.02	0.04	0.99	0.04
Managers	1.00	0.02	1.04	0.02	1.00	0.02
Technicians	0.90**	0.03	0.97	0.03	0.95	0.03
Clerical support workers	1.00	0.03	1.12***	0.03	1.09**	0.03
Service and sales workers	0.84***	0.03	0.94	0.03	0.94	0.03
Tradespeople	0.75***	0.05	0.84**	0.06	0.85*	0.05
Education of father (rf. sec. II)						
Missing			0.97	0.07	0.94	0.07
Secondary education I or less			1.07	0.04	1.03	0.03
Postsecondary			1.01	0.03	1.02	0.03
Tertiary			0.98	0.02	0.98	0.02
Education of mother (rf. sec. II)						
Missing			1.06	0.09	1.05	0.08
Secondary education I or less			1.05	0.03	1.03	0.03
Postsecondary			1.02	0.03	0.99	0.03
Tertiary			1.03	0.03	0.99	0.02
Father: no. of foreign languages			1.07***	0.01	1.07***	0.01
Mother: no. of foreign languages			1.02*	0.01	1.01	0.01
Education (rf. secondary ed.)						
Postsecondary			1.05	0.03	1.05	0.03
Tertiary I			1.16***	0.03	1.14***	0.03
Tertiary II			1.20***	0.04	1.15***	0.04
Highbrow cultural orientation			1.02**	0.01	1.01*	0.01
No. of trips to European countries					1.004*	0.00
No. of stays in different countries					1.04***	0.01
Partner with different mother tongue					1.14***	0.02
Social network within the EU					1.05*	0.02
Social network outside of the EU					1.05*	0.02
English native speaker (rf. no)					0.72***	0.04
Multilingual (rf. no)					1.12***	0.02
Percent of persons with same language					0.999***	0.00
Highest qualification in Switzerland					1.14***	0.03
Intercept	2.40***	0.07	1.71***	0.07	1.48***	0.08
Chi²	136.74		374.83		695.20	
Pseudo-R² (Nagelkerke)	0.03		0.06		0.11	
AIC	6088.23		6050.28		5984.38	
BIC	6155.02		6194.99		6179.18	
N	1,931		1,931		1,931	

*Source: Data from the Swiss EUMARR survey; *p < 0.05; **p < 0.01; ***p < 0.001.*

How to read the table: The incident rate ratio (IRR) for a dichotomous variable is simply the ratio of the number of events of one category to the number of events in the other category. In model 1a it shows, for instance, that Swiss with a migration background are – ceteris paribus – expected to have a rate 1.13 times greater for the number of foreign languages than Swiss without a migration background. Each additional language a father speaks is associated with an estimated 7% increase in languages spoken by the respondent.

TABLE 4 | Determinants of the acquisition of Swiss-specific linguistic capital.

	Model 1b		Model 2b		Model 3b	
	IRR	R.SE	IRR	R.SE	IRR	R.SE
Age (cent. 37 years)	1.01***	0.00	1.01***	0.00	1.01***	0.00
Sex (rf. male)	1.09***	0.02	1.09***	0.02	1.08***	0.02
Migration background (rf. Swiss)						
Swiss with migration background	1.03	0.02	1.01	0.02	1.01	0.02
Foreigner with national language	0.91***	0.02	0.92***	0.02	0.92**	0.02
Foreigner	0.65***	0.02	0.65***	0.02	0.80***	0.04
Currently employed (rf. not employed)						
Employed	1.02	0.02	1.00	0.02	1.00	0.02
Occupation (rf. professionals)						
Missing	0.91*	0.04	0.96	0.04	0.97	0.04
Managers	1.00	0.02	1.02	0.02	1.01	0.02
Technicians	0.91**	0.03	0.96	0.03	0.95	0.03
Clerical support workers	1.02	0.03	1.09**	0.03	1.09***	0.03
Service and sales workers	0.87***	0.03	0.94*	0.03	0.96	0.03
Tradespeople	0.78***	0.04	0.84**	0.05	0.89*	0.05
Education of father (rf. sec. II)						
Missing			0.94	0.07	0.91	0.07
Secondary education I or less			1.11**	0.04	1.09**	0.03
Postsecondary			1.00	0.02	1.01	0.02
Tertiary			0.98	0.02	1.00	0.02
Education of mother (rf. sec. II)						
Missing			1.04	0.08	1.06	0.09
Secondary education I or less			1.03	0.03	1.03	0.03
Postsecondary			1.01	0.03	1.01	0.03
Tertiary			1.02	0.02	1.01	0.02
Father: No. of foreign languages			1.05***	0.01	1.05***	0.01
Mother: No. of foreign languages			1.01	0.01	1.00	0.01
Education (rf. secondary ed.)						
Postsecondary			1.04	0.03	1.03	0.03
Tertiary I			1.09**	0.03	1.08***	0.03
Tertiary II			1.13***	0.04	1.09**	0.03
Highbrow cultural orientation			1.03***	0.01	1.02***	0.01
Family of language (rf. main language)						
Indo-Germanic					0.71***	0.03
Other					0.58***	0.04
No. of trips to Eu. co. with main lang.					1.01	0.01
No. of stays in countries with main lang.					1.04**	0.01
Language of partner (rf. same as ego)						
One of the Swiss main languages					1.15***	0.03
Other language family					0.99	0.02
Percentage of Swiss friends					1.00	0.00
Social network within the EU					1.05*	0.02
Social network outside of the EU					1.01	0.02
English native speaker (rf. no)					0.95	0.07
Multilingual (rf. no)					1.04*	0.02
Percent of persons with same language					0.998***	0.00
Highest qualification in Switzerland					1.16***	0.03

(Continued)

	Model 1b		Model 2b		Model 3b	
	IRR	**R.SE**	**IRR**	**R.SE**	**IRR**	**R.SE**
Intercept	2.05***	0.05	1.65***	0.06	1.52***	0.10
Chi^2	335.99		521.75		923.53	
Pseudo-R^2 (Nagelkerke)	0.06		0.07		0.10	
AIC	5408.65		5410.20		5382.21	
BIC	5481.00		5560.48		5604.84	
N	1931.00		1931.00		1931.00	

*Source: Data from the Swiss EUMARR survey; *p < 0.05; **p < 0.01; ***p < 0.001.*

to the particular situation of Switzerland (i.e., size and location in Europe) and the immediate proximity to neighboring countries where the main Swiss languages are spoken, which is used for visits and stays abroad by Swiss and migrants alike. In general, the variables added in model 3 clearly increase the explanatory power of the models in comparison to the models including only the control variables and the variables based on Bourdieu's theory of reproduction. The increase is again stronger for the case of transnational linguistic capital.

We also ran the Poisson regression models separately for persons with and without migration background (see **Tables A5–A8** in the **Appendix** in **Supplementary Material**). As expected, the results are overall similar. Three differences between the results for Swiss citizens and for foreigners should be highlighted: (1) There are few significant covariations between occupation and linguistic proficiency anyway, however, they differ between Swiss and foreigners. (2) The variables "highest qualification in Switzerland" and "percent of persons with the same language" show significant results in model 3 for foreigners, but not for Swiss. This is due to the fact, that for both variables the variation for Swiss is, for obvious reasons, rather small. (3) Regarding transnational activities and experiences we find somewhat different results for Swiss and foreigners. For Swiss, the number of trips to European countries covaries significantly with the language repertoire - this is not true for foreigners. For social networks in the EU it is the other way around: they are significantly correlated with linguistic proficiency for foreigners but not for Swiss. However, most effects do not differ between the two groups. Thus, the determinants of language repertoire among migrants and autochthonous persons do not differ to a strong degree, and our strategy to combine both groups in one model is justified.

It should be noted that the explanatory power of the models is rather low, which partly results from the small number of cases in relation to the number of covariates in the Poisson regressions. The main reason is, however, that the pseudo-R^2 measure underestimates the explanatory power of the model compared to the R^2 measure in ordinary regression models. Andress et al. (1997, p. 288) consider pseudo-R^2 values between 0.05 and 0.20 to indicate an explanatory power of medium level. However, it could also indicate that important variables were not accounted for.

SUMMARY AND DISCUSSION

Our starting point was that foreign language proficiency is an unequally distributed form of linguistic capital that is becoming more and more crucial in contemporary societies, both for migrants and transnationally active persons. Accordingly, we looked at the determinants of linguistic capital in a broad perspective, combining both the literature on foreign languages as new capital in the era of globalization and Europeanisation (Fligstein, 2008; Gerhards, 2010) and research on migrant integration (Van Tubergen and Kalmijn, 2005; Van Tubergen and Wierenga, 2011). We drew mainly on two theoretical discussions because they point to variables on which not much research exists: The first was the sociological theory of reproduction by Pierre Bourdieu to highlight the structural inequalities underlying the unequal distribution of foreign language proficiency. This theory was up to now rarely taken into account in quantitative research on language learning (Gerhards, 2010; Rössel and Schroedter, 2014). Additionally, since proficiency in the languages of their destination countries is especially important for migrants' structural integration into the labor market and occupational structure, we further added theoretical concepts and hypotheses derived from migration research, focusing especially on the ongoing discussion on the role of transnational ties and experiences for integration into the host country. With respect to this approach our data included a rich set of different measurements of such experiences and relations, thus going beyond existing empirical research. Due to its role as standard explanatory model, we took the economic approach to language, which conceptualizes foreign language proficiency as a kind of human capital, as a source of control variables into account.

We found strong support for the hypotheses derived from the sociological theory of reproduction. Education, both parents' and respondents' own education proved to be important determinants of linguistic capital. However, our empirical results showed that the effect of parental education was mediated entirely by parental linguistic proficiency. This is similar to several studies on the reproduction of cultural capital (Sullivan, 2001; Rössel and Beckert-Zieglschmid, 2002). Furthermore, a highbrow cultural orientation was a consistent

indicator of linguistic capital, thus clearly demonstrating the coupling of different forms of cultural capital and the role adherence to the dominant societal culture plays. Overall, our results show that acquiring linguistic capital is deeply embedded into the intergenerational reproduction of inequality in society. Thus, this perspective is clearly important in embedding the investment-oriented economic perspective into the structures of social inequality that underlie acquiring linguistic capital. This does not necessarily contradict the economics of language approach, but highlights the fact that linguistic capital is an unequally distributed resource not only because of different investments in language learning, but because of a strong inequality in the opportunities for language learning. This is a point that social scientific research on language proficiency should definitely take into account.

Finally, we derived a set of hypotheses from migration and integration research. Here, it turned out that education in Switzerland had clearly positive effects on linguistic capital, whereas the results for a migration background proved to be mixed. Although foreigners (i.e., mostly migrants of the first generation) exhibited a lower proficiency in the Swiss national languages, there was no difference with regard to foreign language repertoire in general. This is an important finding because it shows that while migrants may have a deficit in the national languages of their destination country, they do not necessarily have a deficit in foreign language skills in general, suggesting that a deficit-oriented approach can overlook part of migrants' life situations. Furthermore, the opportunity to speak one's mother tongue was significantly related to speaking fewer national languages.

In terms of transnational experiences and relationships, we found quite clear-cut results. They undoubtedly promote foreign language proficiency and increase proficiency in national languages if these experiences or relations are related to countries where the national languages are spoken. Thus, our empirical findings demonstrate that transnational experiences are relevant for linguistic proficiency both for persons with and without migration background and should be included in a social scientific explanation. The empirical results differ somewhat for persons with and without migration background, thus it is very important to include a differentiated set of measuremets of such experiences and relations. However, most transnational activities, like traveling, spending times in foreign countries and meeting friends abroad, are based on the availability of socioenomic resources, thus again indicating that language learning is embedded into the existing social structures of inequality (Itzigsohn and Saucedo, 2002; Guarnizo et al., 2003; Portes et al., 2003; Fligstein, 2008; Gerhards, 2010).

Our empirical results indicate that the variables suggested by the sociology of reproduction and the discussion on migration and integration strongly contribute to the explanatory power of the statistical models of language proficiency. However, these variables should be integrated into a unified approach to language proficiency, e.g., the economic approach to language. The variables suggested by the sociology of reproduction (education of parents, linguistic capital of parents, own education, highbrow culture) focus mainly on the opportunities and the efficiency of language learning, seen through the lenses of the economic approach. In contrast to the economic approach with its focus on language learning as an investment, the sociology of reproduction emphasizes that especially the opportunities to learn languages are unequally distributed and thus the constraints for individual choices. Also, transnational relations and opportunities mainly increase the opportunity to learn foreign languages, but they are also based on unequally distributed resources. Hence, a next step in the development of theories of language acquisition should be to integrate these variables into a coherent model that takes the inequality in opportunities and constraints into account. A very promising framework has been developed by Esser (2006a). Similar to the economic approach, he focuses on the motivation, opportunity, costs, and efficiency as determinants of language learning. However, in contrast to the economic approach, he goes beyond a mere focus on economic variables and takes social and cultural variables comprehensively into account.

Finally, we must discuss some limitations of our study. On the one hand, as outlined above, the measurement of linguistic proficiency could be more precise. Future research should focus on testing the robustness of our empirical results concerning the determinants of linguistic capital by including different measurements of language proficiency. Another weakness concerns a possible selection bias, as the questionnaire was only available in German or English and participation was therefore limited to people who were able to understand and read those languages. In addition, our sample included a very specific selection of persons with and without migration background in a very specific country, i.e., Switzerland. Thus, to generalize the empirical results regarding the sociology of reproduction and the transnationalisation literature, further cases need to be studied. Furthermore, our research design completely relies on cross-sectional data. Thus, we cannot interpret most of our results in a causal manner, but have to interpret them as empirical covariations. Yet, to the extent that the empirical correlations support our hypotheses, they suggest that our theoretical approaches lead to correct hypotheses and are therefore not falsified. A stronger interpretation is possible for the role of parental education and parental lingustic capital. Since there is a plausible time ordering involved, these covariations can be interpreted in a causal manner with a higher degree of certainty and thus support the role unequal opportunities play in learning languages. However, in order to present stronger arguments for a causal interpretation, future studies should rely on longitudinal empirical designs.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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