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Ethnic diversity, trust, and the mediating role of positive and negative interethnic contact: A priming experiment



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ABSTRACT

This study not only shows that the empirically well-established negative relationship between residential diversity and trust in neighbors holds for the case of Germany, but goes beyond existing research by providing experimental evidence on the causal nature of the diversity effect. Respondents exposed to experimental stimuli that made salient the ethnic or religious heterogeneity of their neighborhoods display significantly lower levels of trust in their neighbors than do respondents in the control group. Further, we explore the role of interethnic contact in mediating the relationship between diversity and trust in a degree of detail unmatched by earlier studies. We consider not only positive forms of interethnic contact such as friendships, but also neutral and negative encounters between people of native and immigrant origin. We find that interethnic contacts mediate negative diversity effects on trust in different ways for both groups. For natives, distant encounters and negative experiences with immigrants in diverse contexts reduce trust, whereas for people of immigrant origin trust in neighbors suffers from the relatively small number of native acquaintances in diverse neighborhoods.

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1. Introduction

Interpersonal trust is widely seen as a key factor for the functioning of societies because it helps minimize transaction costs and enables cooperation and civic engagement (e.g., Fukuyama, 1995). In recent years, much work has focused on the consequences of ethnic diversity, which according to a range of studies is negatively associated with trust (e.g. Alesina and La Ferrara, 2002; Putnam, 2007). However, some studies do not find a negative association between diversity and trust. A recent meta-analytical review indicates that studies based on the common indicator of “generalized trust” as well as those using national-level indicators of diversity are less likely to find a negative relationship than those that associate diversity on the local level to more specific measures of trust, such as trust in neighbors (Schaeffer, 2014).

We want to bring this debate further by addressing three key research questions. First, existing research is virtually all correlative, and therefore the causal nature of the relationship between diversity and trust remains contested. As far as we are aware, there is currently no experimental study that investigates the relationship between diversity and trust directly for a large, representative population sample. To fill this gap, we conducted a priming experiment within the context of a survey study in Germany. Priming is an experimental technique that consists in activating memory contents by experimental stimuli (or primes) that are unobtrusively (or even subliminally) presented to respondents in experiments (e.g., Epley and

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Gilovich, 1999; Smith et al., 1994). Subsequently, researchers compare response times, attitudes, or behaviors between respondents in experimental treatments groups and the control group, since any observed differences between the groups can be causally attributed to the concepts that are made cognitively salient by the experimental primes. In our experiment, we primed ethnic and religious aspects of neighborhood diversity for randomly selected respondents. By comparing the trust levels of these respondents with those of respondents who did not receive such a treatment, we are able to make causal inferences about the impact of the cognitive salience of diversity on trust, which previous studies have not been able to make.

Second, the available studies provide only limited insight into the mechanisms by which diversity is related to trust. We investigate the role of one of the most prominent mediating factors highlighted in the literature, namely interethnic social contacts. Following the lead of the contact hypothesis (Allport, 1954; Pettigrew and Tropp, 2006), several authors have posited that negative effects of diversity on trust may be mitigated by the potential for interethnic contacts that diverse contexts provide (e.g. Stolle et al., 2008). However, most of these studies have operationalized interethnic contact by way of positively connoted contact measures such as friendships or talking to neighbors. Much less attention has been paid to the possibility that interethnic contact can also have a dark side, for instance when it involves (perceived) discrimination by members of other ethnic groups (Pettigrew et al., 2011). We use more differentiated measures of interethnic contact than any previous study that we are aware of, including not only weakly positive (talking to neighborhood acquaintances) and strongly positive (friendships) types of interethnic contact, but also neutral casual encounters, as well as negative experiences of discrimination and harassment by members of other ethnic groups. Thus, we allow for the possibility that more interethnic contact in diverse settings must not always – as is often implicitly assumed – lead to a correction of previously held prejudices and feelings of threat, but may sometimes also sustain or increase mutual distrust.

Third, previous evidence regarding the relationships between diversity, interethnic contact, and trust mostly pertains to the attitudes of the ethnic majority. However, to the extent that interethnic contact depends on the size of ethnic out-groups in a person's surroundings, the relationship between diversity and interethnic contacts is likely to differ between the majority – whose contact chances with minorities are highest in diverse contexts – and minorities – whose intergroup contact opportunities are highest in contexts dominated by the majority group where there are few members of the own ethnic group. To the extent that interethnic contact mediates the relationship between ethnic diversity and trust, we therefore investigate whether this mediation differs between minorities of immigrant origin and the native ethnic majority.

The paper is structured as follows. We first give a brief overview of previous research on the diversity–trust linkage, continue with a discussion of the role of interethnic contacts, and conclude the theory section of the paper by raising the question whether this role differs between ethnic minorities and the majority group. We then present our data, research design, and the variables used in the analysis, before we move on to our results and conclusions.

2. Diversity and trust

In recent years, many studies have investigated the relationship between ethnic diversity of nations, regions, cities, and neighborhoods, and different types of trust, spurred especially by the finding of a negative connection between racial and ethnic diversity and trust that has been prominently put on the research agenda by Alesina and La Ferrara (2002) and Putnam (2007). Studies of context effects on generalized trust in people without any reference to a particular social and spatial context have frequently failed to confirm an eroding effect of ethnic diversity on trust and social cohesion (for a recent meta-analytical review see Schaeffer, 2014). By contrast, empirical studies that focus on smaller spatial units such as neighborhoods and on more contextualized forms of trust such as trust in neighbors have mostly provided evidence of a negative relationship (e.g. Hou and Wu, 2009; Leigh, 2006; Öberg et al., 2011). With regard to Germany, the context of our study, Gundelach and Traunmueller (2010) found a negative association between German regions' ethnic diversity and residents' generalized trust.

Most of these studies have correlative designs. The causality of the reported effects thus remains open to question. Both unobserved heterogeneity, and selection effects (e.g., if people with low trust levels would have a stronger inclination to move away from diverse neighborhoods) may cause the observed relationship between diversity and trust (or its absence) to be spurious. These problems are not entirely avoided either in the few field-experimental studies on the topic that have been conducted, in which ethnic diversity is used as an explanatory context variable, but is not itself subject to experimental control (Falk and Zehnder, 2013; Koopmans and Veit, 2013). Designs with full randomization and experimental control can establish causal claims with greater confidence, but laboratory experiments that have taken into account ethnicity were usually conducted with interethnic pairs of participants instead of ethnically diverse groups, leading to mixed findings reflecting trust, cooperation, and discrimination among specific ethnic groups rather than general effects of ethnic diversity (e.g. Bouckaert and Dhaene, 2004; Fershtman and Gneezy, 2001; Glaeser et al., 2000). Two exceptions are the studies of Alexander and Christia (2011) and Koopmans and Rebers (2009), which both use public goods games to study cooperation in culturally homogeneous and diverse groups with random assignment and find lower cooperation levels in the latter. While these studies provide a stronger basis for causality claims, they raise, as laboratory experiments generally do, the question of external validity.

We seek to complement existing studies by way of a priming experiment integrated into a large population survey in Germany. Ideally, to study effects of diversity on trust, one would want to randomly allocate individuals to neighborhoods of

varying levels of diversity, while keeping all else constant – which is obviously impossible. Instead, we experimentally draw respondents' attention to certain aspects of their neighborhood, by randomly assigning them to conditions that primed the ethnic, religious, or generational composition of neighborhoods. By comparing trust levels of respondents who received the ethnic and religious treatments to respondents who were exposed to a neutral control condition, we are able to establish whether raising the cognitive salience of cultural diversity reduces trust levels. The generational priming serves as a further control and allows us to investigate whether emphasizing any kind of social diversity reduces trust, or whether there is a specific effect of ethno-cultural diversity. Obviously, our design has its own limitations, primarily because it measures trust as an attitude rather than actual behavior. Nevertheless, we believe it fills an important gap because it is based on a large population sample, refers to trust in a realistic neighborhood setting, and contains a cognitive manipulation of ethno-cultural diversity. Together, these features allow firmer causal claims than previous studies have been able to draw.

3. The role of interethnic contact

A variety of mechanisms have been proposed in the literature to explain diversity effects on trust and cooperation. The two most important of these are social control and sanctioning to enforce cooperative norms (Bernhard et al., 2006), and ethnic biases and in-group preferences, which make people distrustful of members of out-groups and unwilling to invest in public goods from which the latter will profit (Alesina and La Ferrara, 2002).

In both types of explanations, the density and type of social contacts across ethnic groups figure prominently. Social control and sanctioning can operate more efficiently within homogeneous groups because social networks are denser within than between groups (Habyarimana et al., 2007), a tendency that is partly related to ethnic biases as people tend to prefer associating with others who are similar to themselves (McPherson et al., 2001). As a corollary, levels of trust of people who entertain many interethnic contacts, and who have therefore more opportunities to sanction (or greater risks to be sanctioned by) members of other ethnic groups should be less negatively affected by diversity than trust levels of people who have no or very few interethnic contacts.

Interethnic contact is also central in work from a social-psychological perspective, which emphasizes that diverse contexts and the presence of sizeable out-groups increase both perceptions of group threat and opportunities for interethnic contact (Pettigrew et al., 2010; Schneider, 2008). Social identity and self-categorization theory (see Hornsey, 2008) and theories of group threat and intergroup conflict (Blumer, 1958; Quillian, 1995; Sherif et al., 1961) emphasize the potential for conflict immanent in ethnically diverse settings, as explicitly pointed out in the group size proposition (Blalock, 1967). By contrast, the contact hypothesis (Allport, 1954) rests upon the assumption that intergroup contact attenuates prejudices. Empirical evidence in favor of the contact hypothesis has been reported by various authors (Pettigrew and Tropp, 2006). Accordingly, ethnic biases and prejudices should be less prevalent among residents of ethnically diverse settings, because these provide more opportunities for interpersonal contact that crosses racial, ethnic, or religious group boundaries. Taking both group threat and contact theories into consideration, however, diversity may affect intergroup relations neither unambiguously negatively nor positively (Savelkoul et al., 2011; Schlüter and Wagner, 2008; Wagner et al., 2006). As Allport (1954) already hypothesized, whether interethnic contact promotes or reduces ethnic biases is likely to depend on its quality. The conditions for positive intergroup contact that Allport mentions (e.g. equal status and common goals) are best met by interethnic friendships. Therefore, in search of support for the contact hypothesis, many empirical studies have emphasized interethnic friendships or other positively connoted forms of interethnic contact. In this view, feelings of group threat are the result of fears and negative perceptions of out-groups that arise as a result of a lack of intergroup contact. Stolle et al. (2008:59–61), for instance, argue that “the *absence of direct contact* with or sustained knowledge about individuals of different racial, ethnic, or class backgrounds serves to reinforce prejudices that are themselves based on inaccurate and rigidly held stereotypes” (italics in original). Therefore, “while diversity itself (without contact) may push interpersonal trust downwards, interaction and actual experience with members of other social or racial groups can have counteracting positive effects”. Similarly, Uslaner (2011) argues that it is not diversity as such, but the social segregation along ethnic lines that often goes along with it, that has negative consequences for trust. Indeed, Stolle et al. (2008) find that for majority members in the US talking to neighbors alleviates the negative effect of neighborhood diversity on trust (see also Marschall and Stolle, 2004; Sturgis et al., 2011).

However, all these studies only consider positive forms of contact and thus exclude the possibility that some forms of intergroup contact may actually reinforce feelings of group threat and sustain interethnic prejudices, for instance if minorities and the majority group experience discrimination, unfair treatment, or worse even harassment and abuse in their encounters with one another (Pettigrew et al., 2011). The few studies that have compared interethnic contact of different valences suggest that negative contact experiences may actually be more important for understanding out-group categorization and rejection than are positive contacts, because the sources of negative experiences tend to be viewed as members of social categories, whereas the sources of positive experiences are more likely to be perceived as individuals (Paolini et al., 2010). Indeed, Barlow et al. (2012) find that among native majority groups in Australia and the US there is a stronger association between negative contact and increased racism and discrimination than between positive contact and its reduction. Phan's (2008) findings from Canada point in a similar direction. Contrary to contact theory, the effect of ethnically homogeneous friendship networks is negligible, whereas trust is strongly reduced by negative experiences of discrimination by other ethnic groups. Further, research findings for the Netherlands indicate that in diverse neighborhoods people have both less contacts to neighbors (Gijbels et al., 2012) and evaluate these contacts more negatively (Lancee and Dronkers, 2011).

Together these results raise the possibility that interethnic contact in diverse neighborhoods may be as much a cause of, as an antidote against distrust and prejudice. To investigate the conditions under which contact will have the one or the other effect, we will use in our analysis a differentiated set of positively, negatively, as well as neutrally connoted measures of interethnic contact.

4. Different causal patterns for minorities and majorities?

As in studies of prejudice and out-group rejection, many studies of the impact of diversity on trust have focused on the attitudes of the majority group. Studies that have compared minorities and the majority group have generally found that the relationship between diversity and trust differs. Putnam (2007), for instance, finds that the eroding effect of ethnic heterogeneity is stronger among white US-Americans, although it is also present among non-whites. This finding has been replicated by Stolle et al. (2008) for Canada. Bécares et al. (2011) compare different ethnic groups in the UK and find that black Caribbeans and Africans trust their neighbors less the higher the concentration of their own racial group, while white Britons trust their neighbors more, the higher the concentration of whites in the neighborhood. A similar pattern is reported by Oliver and Ha (2008) for the US.

These diverging findings for ethnic minorities and majorities may be related to the different relationship between contextual ethnic diversity and the opportunities for interethnic contact. The ethnic composition of the population in most Western immigration countries – even more so in the European than in the North American context – is characterized by one large majority group and many comparatively small minority groups. Low diversity areas are usually dominated by the majority group, and areas of high diversity are those where we find many people of immigrant origin (Schaeffer, 2013). As a result, ethnically diverse neighborhoods offer fewer opportunities for co-ethnic contacts for the native majority group, but usually not for minorities, who will encounter more rather than less in-group members in diverse contexts. This has important implications because, as Oliver and Ha (2008) show for the US, the higher the percentage of co-ethnics in one's neighborhood, the lower the probability of minority members to have majority friends and vice versa (see also Martinovic et al., 2009; McPherson et al., 2001; Schlüter, 2012).

Here too, however, we should take into account that contact opportunities need not always lead to positive experiences. In diverse contexts, ethnic minorities may have fewer opportunities to establish positive ties to natives – which might reduce their trust levels – but they may also be less exposed to discrimination by them, which may in turn have a positive effect on trust. Conversely, in diverse contexts majority group members have more opportunities to get to know minorities as friends and acquaintances – a factor assumed to enhance trust – but they may also be more exposed to negative experiences with minority individuals – which may again reduce trust. As far as we are aware, there is no previous study that has investigated these complex paths through interethnic contact that potentially link diversity and trust in different ways for minorities and majorities.

5. Data and method

We use data drawn from the EDCAS-telephone survey that was conducted between October 2009 and May 2010 across 55 German cities and regions (Schaeffer et al., 2011). This study was funded by the German Federal Ministry of Family Affairs, Senior Citizens, Women and Youth.¹ From the total of more than 7500 interviews, 4200 respondents were randomly allocated to a survey experiment that is at the center of our analyses. Within each area, interviews were stratified by three subsamples: sixty percent were randomly sampled from the entire population, twenty-six percent were oversampled from the population of immigrant origin, and another fourteen percent were oversampled from the population of Turkish immigrant origin.

5.1. Dependent variable

The dependent variable in our study is trust in neighbors, for which we rely on a widely-used and validated measure: “If you lost your wallet containing your address and some money at your place of residence, how likely is it that the wallet would be returned with nothing missing from it?” (e.g., Helliwell and Wang, 2011; Letki, 2008; Öberg et al., 2011; Stolle et al., 2008). Compared to the standard generalized trust measure (“Generally speaking, do you believe that most people can be trusted, or can't you be too careful in dealing with people?”), the wallet question avoids moralistic overtones and refers to a realistic situation, in which trust is important, and to a specific social setting, namely respondents' place of residence (Delhey et al., 2011; Hardin, 2004; Soroka et al., 2007; Uslaner, 2002). The respondents could indicate their level of trust on a scale with response options ranging from “not at all likely” (0) to “very likely” (10).

5.2. Experimental conditions

Respondents were randomly assigned to one of four experimental conditions, which took the form of different introductions of the wallet question. All conditions were introduced with the following sentence: “Places of residence are different. In

¹ The funding source was neither involved in the study design, the analyses and interpretation of the data, nor in writing or submitting this article for publication.

some locations residents are very similar; in others they are very different from each other.” In the control condition no further reference to any particular kind of similarity or difference was made and respondents were immediately asked the wallet question. The three experimental conditions raised the salience of a particular dimension of neighborhood diversity. Two of these dimensions were related to immigration (ethnic and religious diversity) and one was not (age diversity). In the ethnic prime condition the introductory sentence continued “. . . because they come from different countries – some are for example of German origin, some originate in Turkey and others are from Italy.” The religious and age prime conditions similarly continued “. . . because they have different religious beliefs – some are for example Christians, some Muslims and others are atheists,” respectively “. . . because they belong to different generations – some are for example still very young, some are middle-aged and others are already elderly.” Note that while varying dimensions of diversity were highlighted, diversity was in all conditions framed neutrally, avoiding any positive or negative evaluations.

5.3. Explanatory variables on the individual level

First of all, we distinguish between people with and without an immigrant background. The former group is composed of first and second generation immigrants, i.e. either the respondent or one or both of the respondent's parents were born abroad.² Second, we include a number of common individual-level background variables: age, gender, education (low, medium or high education; modeled after ISCED1D),³ employment status (gainfully employed vs. not economically active), marital status (married or cohabiting vs. single), parenthood (having children vs. childless), religious affiliation (dummies for Protestant, Catholic, Muslim, and other religious affiliation vs. atheists or agnostic) and the number of years respondents have lived in their current neighborhood.⁴

We further included four measures of different types of interethnic contact in order to investigate their roles in mediating diversity's effects on trust. These measures range from strongly positive (friendships), via weakly positive (acquaintances) and neutral (encounters), to negative (harassment and unfair treatment) contacts with members of ethnic out-groups.

5.3.1. Interethnic friendships

Friends were circumscribed as “people outside the family with whom one discusses important matters and whom one trusts.” Respondents were asked how many of their friends belonged to the main ethnic out-group. For native Germans without foreign roots, the measure is based on the number of friends with an immigrant background. For immigrants and their children, it refers to the number of German friends without foreign roots. Following the US General Social Survey, the response options ranged from “none”, “one”, “between two and five” (numerically coded as 3.5), “between six and ten” (coded as 8) to “more than ten” (coded as 11).⁵

5.3.2. Interethnic acquaintances in the neighborhood

Acquaintances were circumscribed as people in the neighborhood whose names one knows and with whom one regularly talks when coming across them. The question for native Germans referred to immigrant acquaintances, and the one for immigrants to German acquaintances. Response categories were the same as those for friendships.

5.3.3. Interethnic encounters in the neighborhood

To capture casual interethnic encounters that are not necessarily tied to any positive or negative evaluation, we combined the answers to two questions referring to typical meeting places in the neighborhood. For German respondents the questions were: “How often do you encounter people with an immigrant background when you visit bars, restaurants, tearooms or coffee shops in your neighborhood?” and “How often do you encounter people with an immigrant background when you visit public parks, squares, and playgrounds in your neighborhood?” Answers could range between “never” (0), “seldom” (1), “sometimes” (2), “often” (3) and “very often” (4). For immigrant respondents, the questions referred to encounters with native Germans. The two items correlated strongly and were merged into a composite indicator of the frequency of casual interethnic encounters in the neighborhood ($\alpha = .84$).

5.3.4. Unpleasant experiences with members of ethnic out-groups

To account for the fact that interethnic contacts sometimes entail negative experiences, we asked respondents whether they had unpleasant experiences such as harassment or unfair treatment by members of ethnic out-groups. For native Germans, the question read: “Some people have had unpleasant experiences with people with an immigrant background, others haven't. How about yourself? How often did you have unpleasant experiences with people with an immigrant background, for example in the form of harassment or unfair treatment?” For immigrant respondents, the question referred to unpleasant experiences with native Germans. Response options were the same as those for interethnic encounters.

² For reasons of convenience, we will sometimes refer to people of native ethnicity as “natives” and to people of immigrant origin as “immigrants,” although of course the native-born offspring of foreign-born parents are not really themselves immigrants.

³ [epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:International_standard_classification_of_education_\(ISCED\)](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:International_standard_classification_of_education_(ISCED)).

⁴ The neighborhood was defined as the area within ten minutes walking distance from a respondents' home.

⁵ For friendships as well as for acquaintances, we experimented with different numeric codes for the highest response category, as well as with dichotomized variables. The results were very similar to those reported here.

5.4. Explanatory variables on the context level

Some of the explanatory variables are situated on the level of the 55 cities and regions from which we drew our sample. The areas on the contextual level (*Kreise*) are intermediate administrative units between the German federal states and the municipalities and have on average 200,000 inhabitants. In urbanized areas, they coincide with single cities (*Stadtkreise*), in rural areas they cover a larger area with several smaller towns and villages (*Landkreise*). All statistics at the contextual level refer to the year 2009 and were provided by the Federal Statistical Office, the statistical offices of the 16 German states,⁶ the German Federal Office for Migration and Refugees,⁷ and the German Federal Office of Criminal Investigation.⁸

5.4.1. Ethnic diversity

This is the explanatory variable on the contextual level that is the central focus of our analysis. The lack of full census data in Germany and the privacy restrictions on the use of the German *Mikrozensus* imply that we lack information for most areas on the population share of specific ethnic groups that includes both foreign nationals and naturalized immigrants. What we do have, though, is the composition of the population by nationality. In addition, we can compare the total population per area with an immigration background (foreign nationals plus naturalized immigrants) to the population of foreign nationals. Across cities and regions, these two measures correlate very highly ($r = .95$), which implies that, even though it underestimates ethnic diversity in each one of the areas, the nationality-based measure adequately taps differences across localities in the degree of immigration-related ethnic diversity. We measure ethnic diversity by means of the so-called fractionalization index, which is a transformation of the Herfindahl concentration index. The diversity index reflects the probability that two randomly drawn individuals from an area belong to different groups. The values of the diversity index are given by:

$$EF = 1 - \sum_{i=1}^k s_i^2$$

s_i is the share of national group i ($i = 1, \dots, n$).

The index indicates the difference of the sum of the squared proportions of 193 nationality groups per area from one. The values of the ethnic fractionalization index can accordingly vary from zero to one.

Because we have two ethno-cultural primes, one referring to countries of origin and one to religious affiliation, we would ideally also need a separate measure of *religious diversity*. Official statistics on Muslim and other immigrant religious affiliations are however not available in Germany. Aggregating such information from our own dataset is also not an option, because the number of observations per area in the randomized part of our sample is too low ($n < 40$ in most of the areas). The only available option is therefore to use nationality as a proxy for religion. Using official statistics on nationality, we classified all countries according to the majority religion and aggregated nationalities with the same majority religion. Thus, we obtained an estimate of the percentage of Muslims in the form of the summed percentages of foreign nationals from Islamic countries, and proceeded similarly for Hindu, Buddhist, Jewish, and Christian countries, with the latter including Germany. However, this indicator of religious diversity correlates very strongly ($r = .92$) with our measure of ethnic diversity, causing multicollinearity problems. The reason is, as [Schaeffer \(2013\)](#) has shown, that in the European context culturally weighted and standard indicators of ethnic diversity are empirically almost indistinguishable, because of the predominance of the contrast between the large group of natives and relatively small immigrant populations. If we include, in spite of the multicollinearity issue, both ethnic and religious fractionalization in our regressions, ethnic fractionalization turns out to be the stronger and significant predictor and religious diversity is not significant. For this reason, we will only use ethnic fractionalization in our analyses. For the interpretation of the results we should however be aware that the ethnic diversity measure to a large extent also picks up religious diversity.

5.4.2. Context-level control variables

To ensure that ethnic diversity effects are not spuriously caused by some other relevant context-level variable, we include several control variables on the contextual level. To begin with, we control for socio-economic differences among areas by combining the local *unemployment rate* and *average income* (after tax, including social transfers) into a *socio-economic deprivation* scale ($\alpha = .79$).⁹ This is important because several studies have shown that local ethnic diversity correlates with poverty and social inequality, and that economic deprivation is an important predictor of trust ([Delhey and Newton, 2005](#)). In addition, several studies report that residents of urban regions have lower levels of trust (e.g., [Lancee and Dronkers, 2011](#)). As immigrants tend to be concentrated in urban areas, this may confound ethnic diversity effects. Therefore, we include population density, indicated by the number of inhabitants per square kilometer divided by 1000, as an indicator of urbanity. Further, we include

⁶ www.destatis.de/EN/FactsFigures/CountriesRegions/RegionalStatistics/RegionalStatistics.html.

⁷ www.bamf.de/DE/DasBAMF/Aufgaben/FuehrungAZR/fuehrungazr-node.html.

⁸ www.bka.de/nn_193232/DE/Service/Kontakt/kontakt_node.html?__nnn=true.

⁹ Besides socio-economic deprivation, socio-economic inequality might affect trust. For Germany, no official statistics on socio-economic inequality are available for the local level. [Lancee and Dronkers \(2011:610\)](#) found for the Netherlands that, controlling for economic deprivation, economic diversity has a positive effect on trust in neighbors. Similarly, [Schaeffer \(2014:84\)](#) found that a subjective measure of socio-economic inequality for the local level in Germany had a significant positive effect on trust, which left the negative effect of ethnic diversity unaffected. There is therefore no reason to believe that inclusion of a socio-economic inequality measure, if it had been available, would change our findings in relation to ethnic diversity.

a dummy for localities that are situated in the area of the formerly socialist *East Germany*. Empirical evidence indicates that trust continues to be significantly lower in formerly socialist societies, where the destruction of an independent civil society and the practice of security agencies to recruit ordinary people to spy on their fellow citizens sowed distrust among the population (Brosig-Koch et al., 2011; Sztompka, 1995; Traunmüller, 2011). Finally, our dependent variable, the expectation that a lost wallet is returned, may be related to levels of crime in the neighborhood. We therefore also control for local *street crime rates* (*Strassenkriminalität*, which includes crimes such as mugging, pick-pocketing, theft from cars, and physical assault in the public sphere). To arrive at a per capita measure, we took the total number of registered street crimes multiplied by 100,000 and divided it by the area's total population.

Descriptive statistics for all the individual-level and context-level variables are shown in Table 1 separately for the full sample of respondents, for Germans without foreign roots and for residents with an immigrant background. After list-wise deletion of missing values, 3532 cases were left for analysis – 2136 natives and 1396 people of immigrant origin. We do not separately analyze immigrants of Turkish versus other national backgrounds because case numbers become too low.¹⁰

6. Results and discussion

Before we can answer questions about causality and mediating mechanisms, we need to establish whether there is any effect of ethnic diversity on trust in neighbors to begin with. Fig. 1 shows the average degree to which residents of the 55 cities and regions trusted that a wallet lost in their neighborhood would be returned to them. For the reasons discussed above, ethnic diversity effects may be different for natives and immigrants. Therefore, the figure indicates the average trust values as well as the bivariate regression slopes of ethnic diversity on trust separately for these two groups.

For both immigrants and natives, we find a significant negative relationship between ethnic diversity and trust in the return of a lost wallet ($b = -3.77, p < .001$ for natives and $b = -3.26, p < .001$ for immigrants). The somewhat weaker relationship for immigrants may be due to the fact that greater ethnic diversity for immigrants generally goes along with a higher population share of the own ethnic group, which may mitigate the negative relationship with trust. In most of the localities, trust levels among immigrants are lower than those of natives.

Apart from these differences between immigrants and natives, it is important to consider those between the ten East German and the 45 West German localities.¹¹ As we have indicated above, trust levels are generally lower in the East and this is also the case for our lost wallet measure. Because the East also has very small immigrant populations, the localities in the lower left part of the figure are almost all located in East Germany. The negative relationship between ethnic diversity and trust is however significantly present in both parts of the country.

In substantive terms, in the most ethnically diverse city in Germany, the industrial town of Offenbach near Frankfurt (ethnic fractionalization index .50), natives' trust in the return of a lost wallet averages 3.8 on our eleven-point scale, whereas trust among immigrants there is as low as 2.8. By contrast, in the most ethnically homogeneous region, Parchim in the rural North of East Germany (ethnic fractionalization .02), native and immigrant trust levels are both high, averaging 5.9 and 5.3, respectively. The highest trust levels in the sample are however found in low-diversity, rural parts of West Germany, where North Friesland (ethnic fractionalization .06) near the Danish border stands out with average trust levels of 6.4 for natives and 7.5 for immigrants.

Of course, the question is to what extent the negative relationship with trust is really due to ethno-cultural diversity, or to other factors, such as urbanity, the state of the local economy, or compositional effects related to the make-up of the local population in terms of age, education, religious affiliation and other individual-level variables. We approach this causality issue from two complementary angles. First, we test the causality of ethno-cultural diversity experimentally, and second we conduct multivariate regression analyses to control for the influence of other relevant variables.

Fig. 2 shows the results of our priming experiment for natives and immigrants separately. Compared to respondents who answered the wallet question without having been primed for a particular type of diversity in their neighborhood, those who had been primed for age and generational differences (young, middle-aged, and elderly people) displayed slightly lower levels of trust in neighbors, but the difference did not approach significance in either of the groups. By contrast, respondents who had been primed for differences between religious groups (Christians, Muslims, atheists) displayed levels of trust that were significantly lower than those of respondents in the control condition for both natives and immigrants ($b = -.42, p < .05$ for natives, $b = -.39, p < .10$ for immigrants). For natives, a priming of ethnic differences (Germans, Turks, Italians) also had a significant negative impact on trust ($b = -.32, p < .05$), but for immigrants the effect of the ethnic prime, though slightly negative, did not come close to statistical significance. The latter finding can probably be explained by the fact that for this group of respondents the ethnic prime directed attention towards people who are like themselves of immigrant origin, which is less likely to cognitively induce lower trust. We will explore further below whether priming effects differ across people who live in more or less diverse areas.

That respondents' trust in others was significantly reduced when their attention had been focused on ethno-cultural, but not when it had been focused on generational differences, indicates that on the cognitive level ethno-cultural diversity is

¹⁰ Apart from the fact that a few effects become insignificant for the Turkish group as a result of the reduced number of cases, the results for the two immigrant sub-groups are identical to those reported in the paper for the immigrant group as a whole.

¹¹ Berlin is included among the West German counties.

Table 1
Descriptive Statistics.

Individual-level	M (SD) or Percent Full sample N = 3532	Min–Max	M (SD) or Percent Natives N = 2136	Min–Max	M (SD) or Percent Immigrants N = 1396	Min–Max
Trust in neighbors	4.9 (3.1)	0–10	5.1 (3.0)	0–10	4.6 (3.1)	0–10
Female	52.3%	0–1	52.8%	0–1	52.1%	0–1
Age	48.3 (16.4)	18–97	52.9 (16.3)	18–91	41.2 (13.6)	19–97
Married	57.6%	0–1	54.1%	0–1	62.8%	0–1
Parenthood	68.6	0–1	69.2%	0–1	67.8%	0–1
Education level:						
Low	7.8%	0–1	3.3%	0–1	14.8%	0–1
Middle	60.6%	0–1	61.6%	0–1	59.1%	0–1
High	31.6%	0–1	35.1%	0–1	26.2%	0–1
Employed	60.1%	0–1	56.8%	0–1	65.1%	0–1
Religious belief						
Atheist	41.7%	0–1	46.9%	0–1	33.7%	0–1
Rotestant	17.6%	0–1	25.3%	0–1	5.9%	0–1
Catholic	19.6%	0–1	22.6%	0–1	15.0%	0–1
Muslim	14.6%	0–1	0%	0–1	37.0%	0–1
Other belief	6.5%	0–1	5.2%	0–1	8.5%	0–1
Years in the neighborhood	19.1 (16.1)	0–90	23.1 (18.0)	0–90	13.0 (10.2)	0–55
Immigrant origin	39.5%	0–1	0%	0–1	100%	0–1
Context-level	Regions N = 55					
Ethnic diversity	0.2 (0.1)	0.0–0.5				
Street crime rate	1.89 (.98)	.54–4.38				
Unemployment rate	8.5 (3.4)	3.3–14.8				
Average income	18.46 (2.25)	14.37–24.16				
Population density	.96 (1.06)	.04–4.27				
East German county	13.5%	0–1				

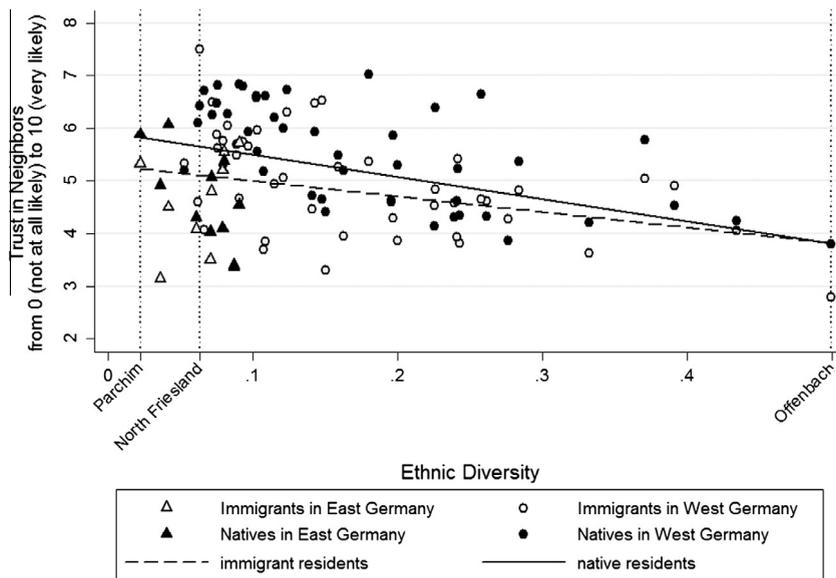


Fig. 1. Context-level ethnic diversity and trust in neighbors.

indeed causally related to trust. Though statistically significant, the magnitude of the priming effects is not large – about one-seventh of a standard deviation of trust – but the priming cues that we used were also very unobtrusive, consisting of no more than a half-sentence highlighting a particular kind of diversity. Moreover, they referred to diversity in neutral ways without suggesting that differences would have a harmful impact on the trustworthiness of local residents. If such minor and neutral cues already have significant effects, priming may be expected to be much more powerful if ethno-cultural diversity is made salient in more obtrusive and negatively evaluative ways, e.g. in the form of media stories. Several non-experimental studies of effects of media coverage of immigration and diversity on perceived group threat, anti-immigrant attitudes, and xenophobic violence point in this direction (Boomgaarden and Vliegenhart, 2009;

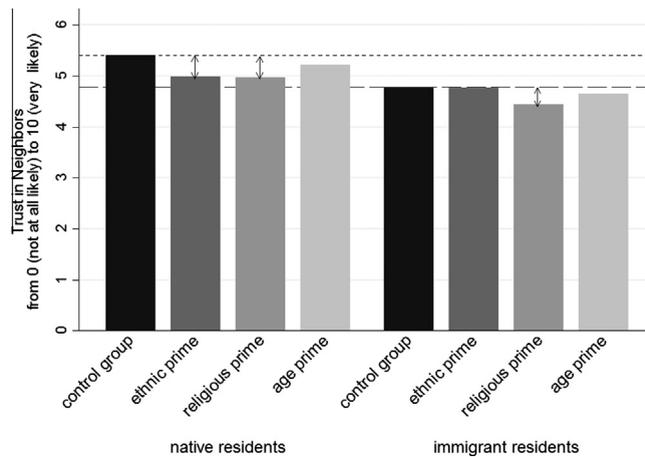


Fig. 2. Priming of ethno-cultural diversity and trust in neighbors. *Note.* Arrows indicate significant differences in respondents' average trust in the experimental treatment conditions compared to the control condition.

Koopmans and Olzak, 2004; Schlüter and Davidov, 2013). The only study that we are aware of that has investigated media coverage effects on trust confirms that political rhetoric about immigration strengthens the negative relationship between ethnic diversity and trust, but suggests that it does not matter whether immigration issues are positively or negatively framed (Helbling, Reeskens, and Stolle, 2013).

As a complement to the experimental evidence for a negative effect of diversity on trust, we now explore whether the effect of contextual diversity is robust if we include the experimental treatments as well as the full range of control variables on both the individual and contextual levels of analysis. Because of the multi-level structure of the data, we ran multilevel regressions using mixed effects models in STATA. To facilitate the interpretation of the interaction effects that will be tested in Table 3 further below, all continuous variables were centered at their means.

Table 2 shows the results of multilevel regressions for all respondents, and for natives and people of immigrant origin separately. Many of the control variables show effects in expected directions. Localities with higher levels of socio-economic deprivation, high street crime rates, and those located in East Germany display lower trust levels. Urbanity – measured by population density – has no independent effect once we have taken into account that urban regions tend to be more diverse, more socio-economically deprived, and have higher crime rates. On the individual level, being married, highly educated, and Protestant, as well as having lived longer in the neighborhood are associated with higher trust levels. Immigrants display lower trust levels than natives, although once other variables such as immigrants' lower education levels and their concentration in diverse and economically deprived areas are taken into account, the difference with natives is only marginally significant. All these effects are in line with what we know from previous research about the determinants of trust, but controlling for them hardly at all reduces the effects of context-level ethnic diversity, which remain strong and significant for both immigrants and natives. The negative effects on trust of our ethnic and religious primes also remain. Moreover, the context-level ethnic diversity effect is not affected when we control for the experimental conditions.

The possibility of an interaction effect between the experimental primes and context-level ethnic diversity, however, remains to be investigated. We have no a priori hypothesis about the direction such an interaction effect could take, because plausible reasons can be given either way. On the one hand, people who live in ethnically diverse areas might be pre-sensitized to ethno-cultural diversity and might therefore react stronger to cognitive stimuli that refer to such diversity (Helbling, Reeskens, and Stolle, 2013; Hopkins, 2010). On the other hand, one can argue that for those who live in ethnically diverse areas this dimension is already cognitively salient and will hardly be reinforced by comparatively weak stimuli such as our experimental primes. Schlüter and Davidov (2013), for example, report stronger media effects on perceived group threat for Spanish regions with relatively low shares of immigrants. The results in Table 3 give some support to the second interpretation, at least for the religious prime.¹² The positive interaction effect between context-level ethnic diversity and the religious prime indicates that the eroding effect on trust of raising the cognitive salience of religious diversity was less pronounced among respondents living in high-diversity areas. Conversely, priming exerted the strongest effect among those living in low-diversity areas where the cognitive salience of religious diversity prior to exposure to the experimental stimulus was likely to be low. The interaction effect is significant in the analysis for all respondents taken together and marginally significant for the subsample of natives. For those of immigrant origin, it is of similar magnitude, but drops below the significance threshold because of the lower number of cases. The interaction between context-level diversity and the ethnic prime does not come near to significance in any of the regressions.

¹² We do not reproduce in Tables 3 and 4 the results for the control variables, as these do not differ in any important way from those already reported in Table 2.

Table 2
Multivariate multilevel regression.

DV: Trust in neighbors	Model 1 All b (se)	Model 2 Natives b (se)	Model 3 Immigrants b (se)
Ethnic diversity	−3.40*** (.92)	−3.66** (1.19)	−2.54* (1.19)
Street crime rate	−.17* (.08)	−.14 (.10)	−.21* (.11)
Socio-economic deprivation	−.35*** (.09)	−.36** (.12)	−.30* (.12)
Population density	−.08 (.09)	−.15 (.12)	.01 (.12)
East Germany	−.44* (.21)	−.55* (.24)	−.19 (.37)
Female	.12 (.10)	.08 (.13)	.15 (.17)
Age	−.01 (.00)	−.00 (.01)	−.01 (.01)
Married	.27* (.12)	.25* (.14)	.30 (.22)
Parenthood	.14 (.14)	.12 (.16)	.19 (.25)
Education:			
Low	Reference	Reference	Reference
Middle	.23 (.20)	−.26 (.36)	.45* (.25)
High	.65** (.22)	.18 (.37)	.82** (.29)
Employment	.12 (.11)	.15 (.15)	.12 (.18)
Religious belief:			
Atheist/agnostic	Reference	Reference	Reference
Protestant	.39** (.15)	.34* (.16)	.59 (.36)
Catholic	.17 (.14)	.20 (.17)	.09 (.26)
Muslim	−.17 (.18)	–	−.14 (.21)
Other	−.08 (.21)	−.10 (.29)	−.06 (.31)
Years in the neighborhood	.01* (.00)	.01* (.00)	−.01 (.01)
Immigrant origin	−.24* (.13)		
Priming of diversity:			
Control	Reference	Reference	Reference
Religious prime	−.42** (.13)	−.44** (.17)	−.39* (.22)
Ethnic prime	−.29* (.14)	−.37* (.17)	−.14 (.24)
Age prime	−.11 (.15)	−.07 (.18)	−.15 (.27)
Constant	5.02*** (.32)	5.51*** (.48)	4.35*** (.46)
Observations	3532	2136	1396

* $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$ (two-tailed).

Table 3
Interaction between experimental primes and context-level diversity.

DV: Trust in neighbors	Model 1 All v	Model 2 All b (se)	Model 3 Natives b (se)	Model 4 Natives b (se)	Model 5 Immigrants b (se)	Model 6 Immigrants b (se)
Ethnic diversity	−4.99*** (1.22)	−4.11*** (1.25)	−5.62*** (1.50)	−4.47** (1.65)	−4.88* (2.32)	−3.71* (2.25)
Priming of diversity:						
Control	Reference	Reference	Reference	Reference	Reference	Reference
Religious prime	−.52*** (.15)		−.51** (.17)		−.69* (.29)	
Ethnic prime		−.34* (.16)		−.38* (.18)		−.37 (.33)
Ethnic diversity * religious prime	2.27* (1.12)		2.35* (1.34)		2.47 (2.17)	
Ethnic diversity * ethnic prime		.66 (1.25)		−.02 (1.46)		.77 (2.70)
Observations	1998	1737	1184	1085	814	652

Note: All control variables of Table 2 are included in the regression models, but not displayed for the sake of clarity. In order to have a meaningful comparison groups for the interaction terms, the models only draw on respondents in the control group and on respondents who were primed for ethnic or religious diversity, respectively.

* $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$ (two-tailed).

Next, we investigate an important potential mechanism linking ethno-cultural diversity to trust and introduce different types of interethnic contacts into our analyses. For interethnic contacts to be a mediating factor between diversity and trust, we must first establish that the frequency of these contacts is related to levels of ethnic diversity. In Figs. 3–6 we investigate this separately for natives and immigrants.

Fig. 3 shows that natives residing in ethnically more diverse cities and regions have significantly more immigrants' friends, whereas immigrants' number of native German friends is not significantly associated with context-level ethnic

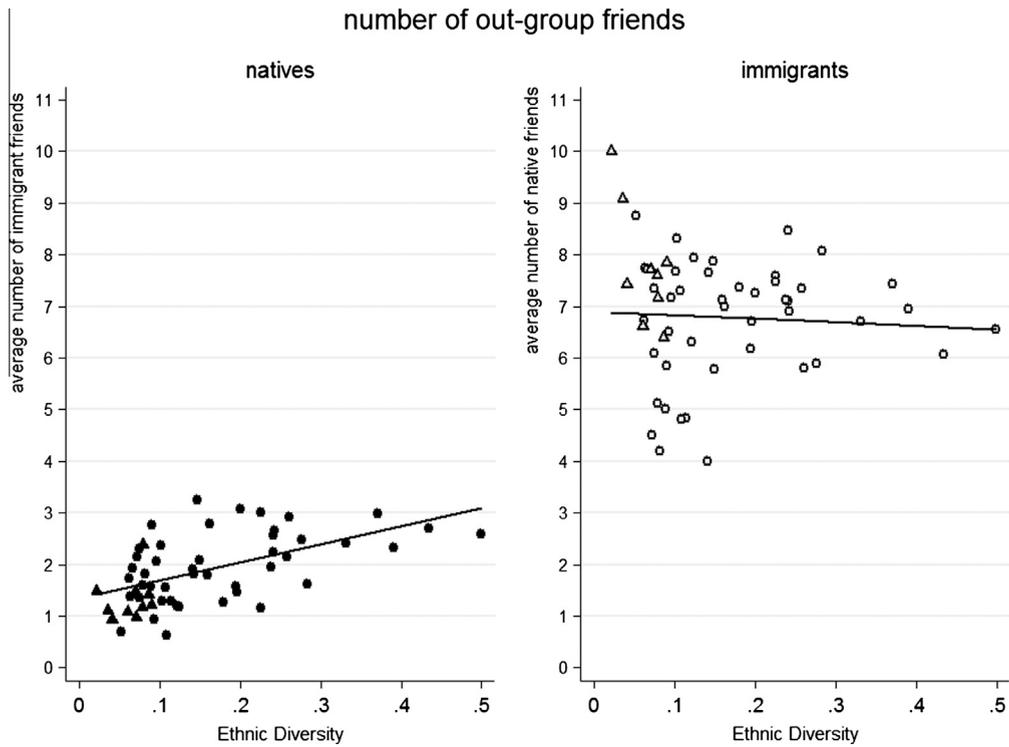


Fig. 3. Out-group friends and diversity. Note. Dots indicate West and triangles East German regions.

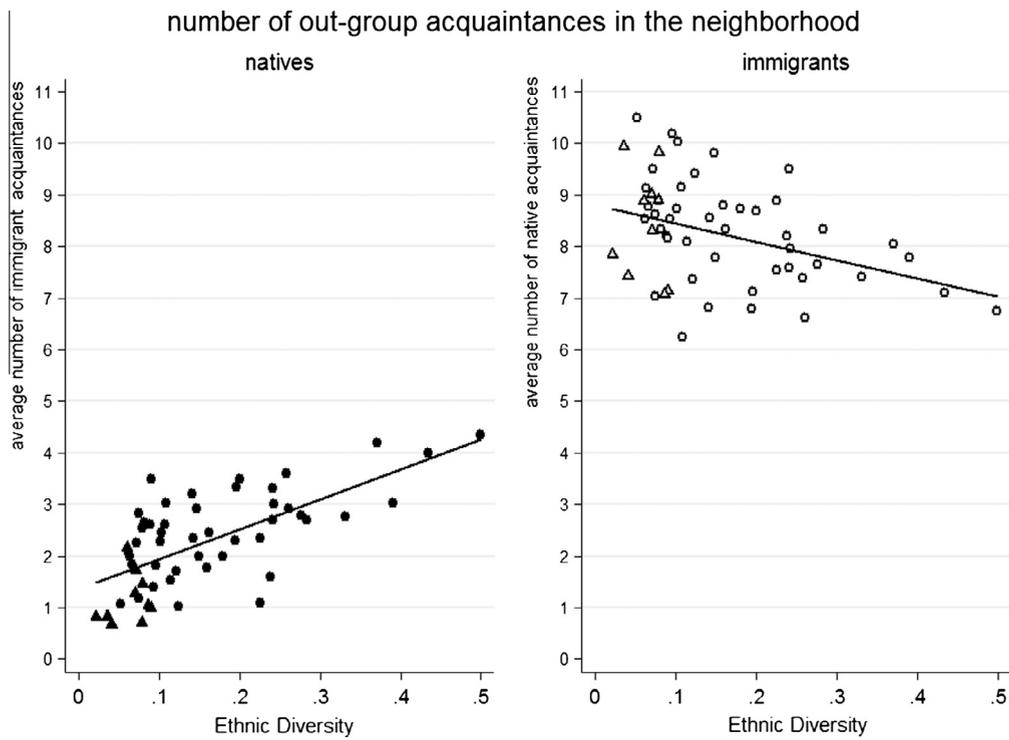


Fig. 4. Out-group acquaintances and diversity. Note. Dots indicate West and triangles East German regions.

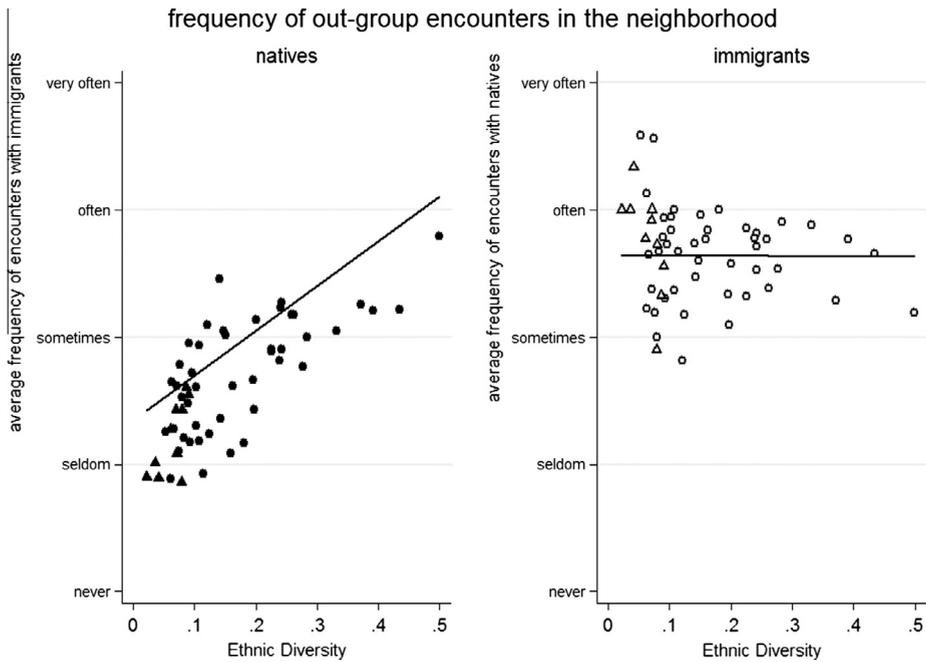


Fig. 5. Out-group encounters and diversity. Note. Dots indicate West and triangles East German regions.

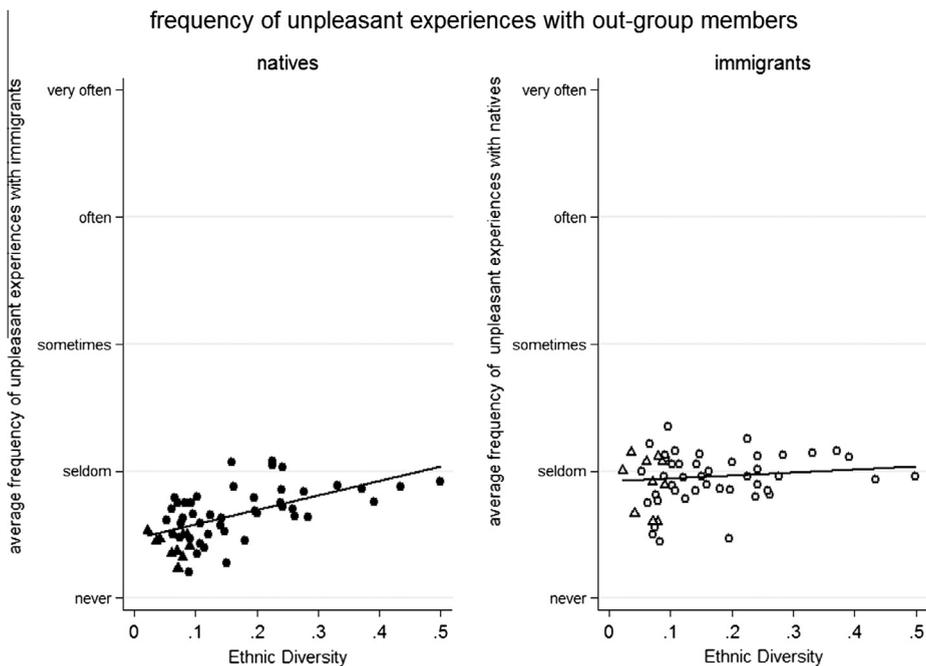


Fig. 6. Negative interethnic experiences and diversity. Note. Dots indicate West and triangles East German regions.

diversity ($b = 3.56$, $p < .001$ for natives and $b = -.20$, n.s. for immigrants).¹³ In addition, immigrants tend to have more German friends than the other way around, which is not surprising given the fact that there are in Germany many more Germans than immigrants to befriend.

¹³ The coefficients are from bivariate regressions of contact on regions' ethnic diversity without control variables.

Regarding the number of out-group acquaintances in the neighborhood, Fig. 4 shows that there is a significant relationship with ethnic diversity for both groups, but in opposite directions. Whereas natives have more immigrant neighbors that they know by name and talk to in diverse regions and cities ($b = 5.86, p < .001$), the opposite pattern holds for immigrants ($b = -3.56, p < .001$), who have more contact to German neighbors when they live in less diverse areas.

Turning now to casual encounters, Fig. 5 shows that natives in ethnically diverse localities encounter immigrants more often in public spaces in their neighborhood ($b = 3.17, p < .001$), but again the relationship is absent for immigrants living in diverse regions, who are somewhat (but not significantly) less likely to encounter natives ($b = -.19, n.s.$). Finally, Fig. 6 shows the frequency of negative interethnic contact experiences, which are not very frequent in either group. However, whereas native Germans living in ethnically diverse regions make such unpleasant experiences more often than residents of ethnically homogeneous regions ($b = 1.16, p < .001$), immigrants' negative experiences with natives are not significantly related to the ethnic diversity of the places where they live ($b = .23, n.s.$).

In sum, for native Germans all types of interethnic contact increase with context-level ethnic diversity. For immigrants, we find that interethnic contacts depend much less on contextual diversity, which is likely due to the fact that even in the most diverse regions immigrants still meet considerable numbers of native Germans, whereas the reverse is not true for German natives living in homogeneous regions, who may hardly meet any immigrants in their daily lives. Indeed, our data show that only 20 percent of immigrants report that they rarely or never encounter Germans in their neighborhood, whereas among natives there is a wider range of variation, with 43 reporting that they rarely or never encounter immigrants. The only significant relationship with ethnic diversity that we do find for immigrants is negative: immigrants in ethnically diverse regions report significantly fewer native German neighbors that they know by name and with whom they talk regularly.

The next necessary step to establish whether interethnic contacts mediate diversity effects on trust is to investigate whether interethnic contact of various types affects levels of trust in neighbors. We do so in multivariate regression models that build on those of Table 2, but add the contact variables. The first column of Table 4 shows that for all respondents taken together, three of the four interethnic contact types have significant effects on trust. People who have strongly positively valued interethnic contacts in the form of out-group friends are more trusting towards their neighbors, whereas those who report unpleasant contacts with out-group members display lower trust that their wallets would be returned to them. Had the dependent variable been one that measured attitudes towards out-groups, such a result would not have been surprising and close to tautology. However, our trust measure does not refer to trust in out-group members but in people in the neighborhood in general. Nevertheless, the possibility of reverse causation cannot be excluded, especially in the case of interethnic friendships, which people with higher trust levels may be more open towards. Unpleasant experiences with out-group members are less easily interpreted as a result of low trust levels, although to the extent that such experiences are based on perceptions, distrustful people may be more likely to interpret others' behavior as unfair. Reverse causation seems least plausible when we consider the third significant effect, that of casual encounters with out-group members in the neighborhood. People who report many such encounters tend to be more distrusting of other people in their neighborhood. Given the fact that our question about these encounters entailed no evaluative aspect, and because the effect persists even when we control for measures of interethnic contact that do have a positive or negative value (friends, acquaintances, and unpleasant experiences) this result is best interpreted as an effect of experiences with diversity in local micro-spaces per se. Net of those instances in which diversity leads to positive or negative experiences with out-group members, the sheer presence of ethnocultural others in the immediate social environment has a negative effect on trust.

However, these patterns differ somewhat between natives and immigrants, as the second and third columns of Table 4 show. For natives, positive interethnic contact does not have any effect on trust in neighbors, but casual encounters as well as unpleasant experiences with immigrants do have negative effects. For immigrants, both positive and negative interethnic contacts matter. Immigrants who have more German friends and acquaintances are more trusting of other people in the neighborhood. By contrast, immigrants who have made unpleasant experiences with Germans trust their neighbors less. Casual encounters with Germans without an evaluative aspect attached to them do not matter for immigrants.

If we combine the effects of ethnic diversity on interethnic contacts with the results regarding the effects of interethnic contacts on trust, we see that even though diversity affects interethnic contacts in different ways for natives and immigrants, these different paths both result in negative impacts on trust. For natives, the higher incidences in diverse contexts of immigrant acquaintances and friends remain inconsequential, because the frequencies of such contacts have no significant impact on trust. By contrast, the higher incidence in diverse regions of casual encounters and negative experiences with immigrants reduce trust in neighbors. Immigrants who report negative experiences with natives also report lower levels of trust, but since such experiences are as frequent for immigrants living in diverse as for those living in homogeneous regions dominated by natives; such experiences do not constitute a path between diversity and trust. The same is true for friendships with natives, which increase trust among immigrants, but are not any more or less frequent for immigrants in diverse or homogeneous regions. The only connection between diversity and trust that remains for immigrants is the one through native acquaintances in the neighborhood. These are less frequent when immigrants live in diverse regions, and because such acquaintanceships increase trust for immigrants, they constitute a negative path between context-level diversity and trust. Summing up, the data suggest that ethnic diversity affects trust negatively for natives because it is associated with higher frequencies of negative and casual contacts with immigrants, which tend to reduce trust. For immigrants, ethnic diversity also affects trust negatively, but in their case because it is associated with lower levels of positive contacts with native neighborhood acquaintances, which tend to increase trust.

Table 4
Interethnic contact and trust in neighbors.

DV: Trust in neighbors	Model 1 All b (se)	Model 2 Natives b (se)	Model 3 Immigrants b (se)
Ethnic diversity	-3.36*** (.89)	-3.14** (1.21)	-2.13* (1.17)
Out-group friends	.04* (.02)	.01 (.02)	.06*** (.02)
Out-group acquaintances	.03 (.02)	-.03 (.02)	.10*** (.02)
Out-group encounters	-.09* (.05)	-.17** (.06)	.08 (.07)
Negative interethnic experiences	-.28*** (.05)	-.29*** (.07)	-.25** (.08)
Observations	3532	2136	1396

Note: All control variables of Table 2 are included in the regression models, but not displayed for the sake of clarity.

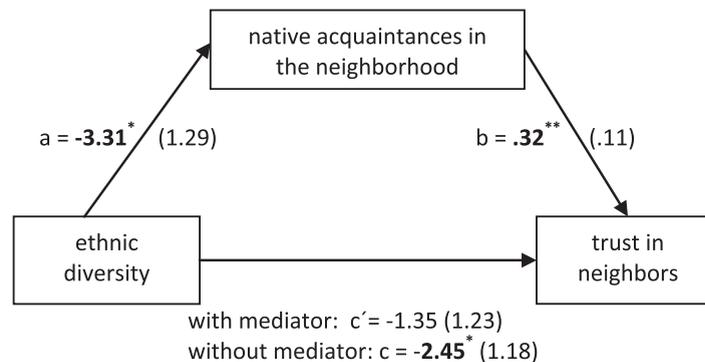
* $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$ (two-tailed).

Immigrants:



Sobel test statistic = -1.91[†] (SD=.55, $p=.056$)

Aroian test statistic = -1.85[†] (SD=.56, $p=.064$)

Goodman test statistic = -1.98* (SD=.53, $p=.048$)

Fig. 7. Native acquaintances as mediator between diversity and immigrants' trust.

However, because the relationship between diversity and trust crosses levels in our hierarchical models, we need to apply a more rigorous test to find out whether these mediating paths are statistically significant. We do so by rerunning the regression analyses displayed in Table 4, but this time we follow the suggestion of Zhang et al. (2009) to separate the within and between-group effects of the mediator. Therefore, we centered the contact variables on their regional means and included the means as additional predictors on the contextual level of analysis. For a significant cross-level mediation to be present, the coefficients of the regional means need to be significantly related to the dependent variable.

We find that for natives the regional mean values of casual encounters and negative experiences with immigrants are not significantly related to trust in neighbors. For natives, therefore, two conditions for a mediation effect are present – diversity significantly predicts causal encounters and negative experiences with immigrants, and these contact variables in turn significantly reduce trust – but this path is not strong enough to reach significance if we subtract the within-region part of the effect of interethnic contact on trust, which cannot be interpreted as part of the cross-level mediation path. For immigrants, by contrast, the regional mean of the number of native acquaintances has a significant impact on trust, which points towards a significant mediation path. This is confirmed in Fig. 7, which shows the results of a mediation test for immigrants' number of native acquaintances, and reveals a significant path between diversity and trust through the number of native acquaintances.¹⁴

¹⁴ Full results are available upon request from the authors. See the mediation test on the website of Preacher and Leonardelli: <http://quantpsy.org/sobel/sobel.htm>.

7. Conclusions

We pursued three research questions in this paper. First, we aimed to provide empirical evidence on the causal nature of the relationship between diversity and trust. Second, we investigated the role of interethnic contact in mediating the relationship between diversity and trust in neighbors. Third, we explored how the relationship between diversity, interethnic contact and trust differs between natives and people of immigrant origin.

We showed that in Germany ethnic heterogeneity and trust in neighbors are negatively related, and that this relationship holds for natives as well as immigrants. This finding is in line with a large body of previous empirical work. However, such correlative evidence may be spurious because of selection effects and unobserved heterogeneity. In order to move beyond these limitations, we implemented a survey experiment. We found that respondents who were exposed to experimental primes that made the ethnic and religious heterogeneity of their neighborhood salient reported significantly lower levels of trust than respondents in a control condition. Moreover, we found that this trust-reducing effect was specific to ethno-cultural diversity, since priming generational diversity had no noticeable effect. Again, the finding holds for natives as well as immigrants, although for the latter only the effect of priming religious diversity was statistically significant. With regard to our first research question we can therefore conclude that the cognitive salience of ethno-cultural heterogeneity indeed causally reduces trust in neighbors. When people come to perceive their neighborhood in terms of religious or ethnic differences, something is triggered that makes them less trusting of their neighbors.

We found some indication – only for religious but not for ethnic diversity – that our manipulation of the salience of ethno-cultural diversity reduced trust more for residents of regions with low levels of diversity. This result fits the observation from previous research that the impact of media coverage of immigration – which similar to our experimental manipulation can be seen as raising the salience of ethno-cultural diversity – promotes anti-immigrant attitudes more in comparatively homogeneous contexts, where people have less personal experience with diversity (Schlüter and Davidov, 2013).

Our second research question focused on the mechanisms by which diversity is linked to trust, which have remained a black box in most previous research on the topic. The social capital literature has particularly emphasized the importance of bridging networks that cross ethnic boundaries. Dense interethnic networks may increase mutual trust by personal contact, but also by the enforcement of cooperative norms through social control. Therefore, we pursued the question whether interethnic contact mediates the relationship between ethnic diversity and trust. Unlike earlier studies, we not only considered positive forms of contact (friendships and neighborhood acquaintances), but also neutral (casual encounters) and negative contact experiences (unfair treatment, harassment, and abuse).

To investigate our third research question on differences in the mechanisms linking diversity to trust for native and immigrant residents, we analyzed the role of interethnic contacts separately for the native majority and for minorities of immigrant origin. We suspected that in view of the skewed population composition in which the native group is much larger than the population of immigrant origin the two groups' interethnic contact opportunities are related to contextual diversity in different ways.

We proceeded in three steps. First, we investigated how interethnic contact relates to contextual diversity. We find that natives experience all forms of interethnic contact more frequently when they live in diverse regions. While the increase in the frequency of positively valued contacts to friends and neighborhood acquaintances of immigrant origin is in line with the contact hypothesis, our results indicate that diversity also leads to more distant and negative contact experiences with minorities. Minorities' amount of contact to natives, by contrast, depends much less on levels of diversity, with the exception of the number of native acquaintances in the neighborhood, which is lower in diverse regions, where minorities' contacts are more strongly focused on the own ethnic group.

In the second step, we investigated whether interethnic contacts are significantly related to trust in neighbors. For natives, we found that negative experiences and distant, casual encounters with minorities are negatively associated with trust in neighbors, but minority friends and acquaintances have no positive effect. Thus, we do not find evidence that bridging social capital increases trust for natives. On the contrary, interethnic contact establishes a negative path between diversity and trust. Natives in diverse contexts have more distant encounters and negative experiences with immigrants, which in turn reduce trust. For immigrant minorities we likewise find a trust-reducing effect of negative experiences with natives, but also trust-enhancing effects of bridging social capital in the form of native friends and acquaintances. However, only the frequency of native neighborhood acquaintances constitutes a path between diversity and trust, because for immigrants the other two contact variables are not significantly associated with contextual diversity. Thus, for immigrants too, interethnic contact establishes a negative path between diversity and trust, because in diverse regions immigrants are less frequently exposed to the trust-enhancing influence of having many native neighborhood acquaintances.

In a third step, we applied cross-level mediation tests and found that only the mediation through neighborhood acquaintances for immigrants is statistically significant. It should be noted, however, that this procedure is conservative in the sense that it assumes that the intra-individual association between contacts and trust within regions is entirely unrelated to variations in contextual diversity. For lack of more fine-grained demographic data in Germany, we measured contextual diversity on the level of cities and regions, which may however harbor considerable variation of diversity on lower levels of spatial aggregation such as neighborhoods. It remains therefore a possibility that for natives casual and negative interethnic contacts are significant mediators between diversity and trust across such smaller spatial units.

To our knowledge, our study is the first to provide causal evidence of a cognitive link between ethno-cultural diversity and trust. This puts the research findings on the diversity–trust linkage on a firmer footing. We have also shown that inter-ethnic contacts play a mediating role between diversity and trust, but not in the positive ways predicted by the contact hypothesis. For natives, growing diversity means more contact to immigrants, but this includes distant and negative experiences, which are more consequential for reducing trust than the positive contacts are for increasing it. For immigrants, the contact hypothesis holds in the sense that more positive contact with natives increases trust, but such contact occurs more often in less diverse, native-dominated contexts than in diverse areas. These results highlight the importance of distinguishing positive, neutral, and negative forms of interethnic contacts, as well as of performing analyses on diversity effects separately for majority and minority groups. With the firmer evidence provided by our study that the relationship between ethnic diversity and trust is not an artifact of correlative designs, the further exploration of mechanisms should be a priority for further research, combining representative surveys with experimental designs.

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