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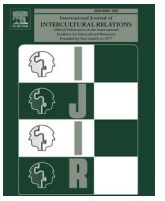

Ethnic diversity and intergroup relations among Nigerian adolescents: Testing intergroup contact and political deliberation theories

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ABSTRACT

In this study we investigate how local exposure to ethnic diversity is associated with intergroup attitudes and trust among adolescents in Lagos state, Nigeria, a context characterized by political tensions between ethnic groups. Drawing on an original large-scale survey (N = 3118) among final year secondary school students we find that exposure to diversity as such is not associated with stereotyping, but it is positively associated with reduced social distance. Diversity is, however, negatively associated with outgroup trust, ingroup trust, and generalized trust. In line with intergroup contact theory, cross-group friendships are associated with less stereotyping and social distance, and higher outgroup trust. Cross-group friendship also attenuates the negative relation between diversity and generalized trust. In line with political deliberation theory, diversity combined with exposure to political conversations is associated with more positive intergroup attitudes. Political exposure also weakens the negative relation between diversity and generalized trust. Our study contributes to the literature on diversity and its consequences by testing theories from different disciplinary angles (social psychology as well as political science) on multiple attitudinal variables for a unique youth sample in an understudied Sub-Saharan African setting. Our findings support the use of contact and deliberation as policy intervention tools aimed at improving intergroup relations in challenging multi-ethnic environments where diversity has often been associated with negative consequences including violence.

Introduction

In both developed and developing societies, exposure to ethnic and racial diversity and its impact on intergroup attitudes remains an important scholarly concern. A broad range of scholarship has indicated that diversity can have beneficial outcomes and foster tolerance and understanding if certain conditions are met, including equal status among groups, common goals, support from authorities for intergroup relations, and the existence of cross-group friendships (Allport, 1954; Dovidio et al., 2017; Paluck et al., 2019; Pettigrew & Tropp, 2006).

Yet, when such conditions are not met, diversity can be associated with negative intergroup attitudes, distrust, and exclusionary

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political behaviour. Especially in multicultural societies in Sub-Saharan Africa, ethnic diversity has been associated with ethnic voting (Dowd & Driessen, 2008) and even political violence across group lines in several countries (as recorded by the UCDP conflict programme, see Davies et al., 2024). This leads scholars and policymakers to question which types of interventions may reduce the probability of intergroup conflict in these societies and contribute to sustainable peace.

In this paper, we devote specific attention to youths and how they develop intergroup attitudes. Scholarship on developmental psychology has documented that group identity, biases, and discrimination already develop during childhood, with intergroup bias often increasing over time (Killen et al., 2022). Similarly, research on the political socialization of youths argues that it is during adolescence rather than adulthood that people develop political attitudes that remain relatively stable in the next phases of their lives (Neundorf & Smets, 2015). Studies have shown in particular that intergroup attitudes—once formed—have a tendency to stick (Hooghe et al., 2013; Rekker et al., 2015). These insights indicate that youths are a highly relevant demographic group to study in order to design interventions to improve intergroup relations. Interventions focusing on adults may be less effective in shifting intergroup attitudes as attitudes may have already hardened (Lee et al., 2017).

Recent scholarship on intergroup attitudes in Sub-Saharan contexts has for now mostly focused on adults. By drawing on an original large-scale survey among Nigerian school-going adolescents (on average 16 years old) we put the focus on the determinants of intergroup attitudes among this important—and sizeable— understudied demographic group. In addition, we advance both the literatures on developmental psychology and political socialization by testing whether theories on intergroup attitudes that have been developed predominantly in Western contexts are also supported in multi-ethnic Sub-Saharan African settings. Though the literature increasingly considers Global South cases (e.g. Barron et al., 2023), Africa remains relatively underrepresented in this scholarship.

We focus on insights from multiple disciplinary angles (i.e. social psychology and political science) and investigate the extent to which intergroup contact theory and political deliberation theory are supported in our observational analyses. Intergroup contact theory argues that positive contact between groups may reduce intergroup conflict by fostering positive intergroup attitudes (Allport, 1954; Dovidio et al., 2017; Paluck et al., 2019; Pettigrew & Tropp, 2006). Political deliberation theory holds that political discussion between members of opposing groups may reduce polarization and support a sense of commonality (Caluwaerts et al., 2023). We focus on different indicators of intergroup attitudes, including stereotyping, social distance, and trust, adding robustness and precision to our analyses. Overall, we find support for both sets of theories for our unique sample of youths in Lagos, Nigeria.

Theory and hypotheses

In this section we discuss three distinct sets of literatures that have developed on diversity and intergroup relations and then derive our hypotheses.

Diversity and intergroup contact

In contexts of ethnic and racial diversity, intergroup bias, prejudice, and discrimination can be reduced through positive contact between members of different groups. Allport (1954) originally defined the following four conditions for contact to be successful: (1) members of different groups have equal status within the situation, (2) they have common goals, (3) there is intergroup cooperation, and (4) authorities, law, or custom are in support of the interaction. Meta-analyses on the contact hypothesis have confirmed that intergroup contact generally has a (modest) positive effect on intergroup attitudes (Pettigrew & Tropp, 2006). This effect is stronger, but not exclusively, present if Allport's conditions are met. A more recent meta-analysis confirms the robustness of the contact hypothesis but also notes that ethnic and racial prejudice seem to be harder to overcome with contact than attitudes toward other social groups such as people with disabilities (Paluck et al., 2019). In addition, the authors are more cautious than Pettigrew and Tropp (2006) in asserting that Allport's four conditions are not necessary.

As Allport's conditions have proven difficult to measure empirically, scholars have focused on cross-group friendships specifically as this characteristic is considered to capture equal status, cooperation, and common goals—three of Allport's original conditions. Pettigrew (1998, p.76) even defined the following fifth condition for contact to work: The contact situation must provide the participants with the opportunity to become friends. This also implies that contact needs a certain longer-term duration (MacInnis & Page-Gould, 2015). A meta-analysis by Davies et al. (2011) confirms that cross-group friendship is associated with positive intergroup attitudes. For adolescents, the influence of cross-group friendship can be particularly strong as peer interaction becomes increasingly important for well-being (Brechwald and Prinstein (2011). Cross-group friendship in childhood and adolescence are indeed also associated with positive intergroup attitudes, which, as research expects, could persist over time (Killen et al., 2022; Tropp & Prenovost, 2008).

Cross-group friendship, as a powerful measure of positive intergroup contact, is expected to lead to positive intergroup attitudes through several processes (see Davies et al., 2011; Dovidio et al., 2017; Killen et al., 2022). Friendship may reduce anxiety about interactions with outgroup members and can, through intimacy and closeness, result in reduced prejudice, increased perspective taking, and empathy. Perceptions of commonality across group lines may shift constructed notions of group membership towards the inclusion of people initially perceived as an outgroup. Friendship can also increase moral reasoning about the unfairness of social exclusion. In addition, it can support the development of peer norms against exclusion and reduce the extent to which individuals

engage in same-group friendships that potentially expose them to social norms centered around bias and exclusion.

When individuals are exposed to diversity in ways that allows for the formation of positive contact including cross-group friendship, diversity is generally expected to be associated with positive intergroup attitudes.[3] Indeed, scholarship finds that high levels of ethnic and racial diversity in citizens' neighbourhoods and workplaces (e.g., Di Bernardo et al., 2022; Laurence et al., 2018) are associated with positive intergroup attitudes. For children and adolescents, schools are important settings where substantial time is spent. School diversity can be associated with positive intergroup attitudes because it increases the potential to build cross-group friendship, though school diversity as such may not be sufficient to achieve this (Echols & Graham, 2013; Thijs & Verkuyten, 2014; Tropp et al., 2022).

Most of the above-cited scholarship has focussed on Western societies, but the effects of diversity and intergroup contact have also increasingly been investigated in African settings. While multi-ethnic societies in Africa have tended to be associated with intergroup conflict, scholars have argued that highly localized exposure to ethnic diversity can support positive contact and similarly improve intergroup attitudes in these settings.

Robinson (2020), for instance, draws on Afrobarometer data and finds that while national-level diversity is associated with higher in-versus-outgroup trust (i.e., ethnocentric trust), local-level diversity is associated with less ethnocentric trust. Focusing on Kenya, Kasara (2013, 2014) finds that local diversity increases outgroup trust and reduces the probability of intergroup violence. Studies modelling positive contact explicitly by looking at cross-group friendship and marriage also find evidence that it improves intergroup trust and empathy (De Tezanos-Pinto et al., 2017; Swart et al., 2011), reduces ethnic voting (Dulani et al., 2021), and lowers ethnic violence (Demarest & Haer, 2022).

Studies that have investigated the impact of explicit interventions to promote positive intergroup contact and improve intergroup attitudes have been less promising, however (see also Paluck et al., 2019). Scacco and Warren (2018) conducted a contact intervention study in Kaduna, Nigeria, a context known for conflictuous relations across religious lines. They bring together young Muslim and Christian men for an educational course in which positive contact is supported. Contradicting Allport's contact hypothesis, they find that the intervention did not reduce stereotyping, but they do find that contact reduces discriminatory behaviour towards the other group. Focusing on national service schemes that aim to promote national unity in Ghana and Nigeria, Schroyens (2019) finds that cross-group friendships made during national service did not lead to reduced stereotyping, and only led to (marginally) reduced social distance in Ghana.

Diversity and trust

While exposure to ethnic and racial diversity may, through positive contact, increase outgroup trust on average, several scholars have argued that diversity is more likely, on average, to reduce outgroup trust, as well as in-group trust and generalized trust. Putnam (2007) initially argued that diversity negatively impacts social capital (i.e., social networks and their associated norms of reciprocity and trustworthiness) and as a result trust (even of one's own group) is lower. Inhabitants of diverse communities are argued to withdraw from public life as they feel they have less in common with those surrounding them—at least on the short term. Indeed, Putnam made his claims especially referring to new waves of immigration and their effects on the short term. A such, his argument is not antithetical to intergroup contact theory which stresses longer term positive contact (MacInnis & Page-Gould, 2015). Putnam's work does raise attention to a broader scope of attitudes to examine in the context of diversity. Besides out-group trust, in-group trust and trust in people in general are important to consider.

In a recent review, Dinesen et al. (2020) summarize the theoretical links explaining how ethnic diversity can undermine generalized trust. First, people are expected to infer the trustworthiness of others from their similarity to themselves. People who are visibly part of an outgroup and less similar are consequently perceived as less trustworthy. Generalized (and in-group) trust can be undermined as the number of negative cues an individual receives about the trustworthiness of others increases due to exposure to ethnic others. Second, as people tend to associate with people who look like them (homophily), the number of social ties in heterogenous contexts may be lower than in homogenous contexts (see Putnam, 2007). Lower social ties and less knowledge of the other may undermine generalized trust. Third, diversity may be associated with different preferences and a lack of common goals, undermining collaboration and, in turn, trust. Finally, diversity may lower trust as communication is undermined due to language barriers, and information flows are reduced.

Dinesen et al. (2020) show that a majority of studies finds that ethnic diversity is associated with lower trust, especially when measured at localized rather than aggregate levels. They also find that the negative effect of diversity tends to remain after controlling for positive contact, as can be expected. Interestingly, using contact as a moderator has been found to attenuate the negative relation between diversity and trust (e.g. Stolle et al., 2008). They also report that studies focusing on settings conducive to positive contact such as workplaces and schools tend to find a negative relation between diversity and trust as well (e.g. Janmaat, 2015).

Diversity and political exposure

In recent years, studies have increasingly investigated public deliberation and its potential beneficial effects on reducing political differences and polarization between citizens. Studies focusing on deliberation and polarization highlight several mechanisms

[3] Direct, face-to-face contact is expected to be most strongly associated with positive intergroup attitudes, but other forms of contact (indirect or extended contact, virtual contact) have also been studied (Dovidio et al., 2017).

explaining the causal relationship between them (Caluwaerts et al., 2023). Deliberation is a form of intergroup contact and may as such engender understanding for others' viewpoints and arguments, strengthen tolerance, help foster common ground, and contribute to the development of a common identity. Yet exposure to new political arguments and the weighing of different arguments as such may also lead people towards less extreme opinions of the public issue deliberated on as well as the outgroup associated with that issue.

Deliberation theory has received empirical support (e.g., Mutz & Mondak, 2006), though studies also warn for increased polarization as especially people who hold strongly opposing views may reject other arguments (e.g., Wojcieszak, 2011). (Caluwaerts et al. 2023) find in their meta-analysis that political science publications more often report that deliberation leads to a decrease in polarization while social psychology usually reports an increase in polarization. They relate this to different conceptualizations of both deliberation and polarization as well as methodologies.

One important conditional factor that could explain different findings in the literature is the frequency and depth of political deliberation, with short-term interventions generally less likely to be successful. Interestingly, scholarship on adolescents has found that open classroom climates that foster frequent discussion of arguments and encourage respectful assessment of other viewpoints can be particularly beneficial for youths' political development and may in particular foster tolerant attitudes towards other groups (Gniewosz & Noack, 2008). Miklikowska et al. (2022) even find that classroom discussions are associated with positive attitudes towards migrants up to two years after classes took place. Classroom experiences form only one dimension in youth socialization, however, and political exposure through parent-child discussions can continue to have an important impact on youth political development. When parents have high levels of prejudice and frequently discuss politics with their children, children will have higher prejudice as well (Meeusen & Dhont, 2015). Reversely, children of parents with low levels of prejudice will have lower prejudice themselves, especially if they frequently discuss politics.

Again, most of the literature on deliberation and youth socialization focuses on Western contexts, yet findings on political deliberation may be specifically relevant for African societies. Indeed, instrumentalist theories about the politicized nature of ethnicity in Africa argue that lack of positive contact is not the main factor leading to tensions but rather competition for access to economic resources in contexts of scarcity (Bates, 1983, Posner, 2005, Nathan, 2016). People may be on friendly terms with citizens from other ethnic groups but may still fear marginalization by other ethnic groups in the political realm. Leaders instrumentalize ethnicity in political discours to gain votes and political power, while voters respond to this instrumentalization because of the expectation of gaining access to economic goods.

There is evidence that local-level diversity can undermine such instrumentalist dynamics. On the side of politicians, studies have shown that in diverse neighbourhoods, politicians stress public goods provisions and inclusion rather than ethnicity-based clientelism in campaigns (Gadjanova, 2021; Klaus & Paller, 2017). On the side of citizens, residents of more diverse areas appear to hold more universal values and favour programmatic policies instead of clientelist ones (Nathan, 2016). Most recently, Kramon (2024) finds that exposure to political debates that include candidates from different sides makes citizens more likely to vote for a party not related to their ethnic group.

Hypotheses

Based on the above sets of literature, we derive several hypotheses. First, we consider the overall effect of diversity, without accounting for positive contact. Some scholarship has argued that settings conducive to positive contact, including schools, show on average positive associations between diversity and tolerant intergroup attitudes (Echols & Graham, 2013; Thijs & Verkuyten, 2014; Tropp et al., 2022), whereas other studies, especially those focusing on trust, find on average negative associations (Dinesen et al., 2020; Janmaat, 2015). Hence, we formulate two competing hypotheses:

H1a: Higher exposure to diversity, without accounting for positive contact, is associated with more positive outgroup attitudes (i.e. less stereotyping, less social distance, more out-group trust) and stronger in-group and generalized trust.

H1b: Higher exposure to diversity, without accounting for positive contact, is associated with more negative outgroup attitudes (i.e. more stereotyping, more social distance, less out-group trust) and weaker in-group and generalized trust.

The social-psychological literature on contact and the political science literature on trust specifically, generally agree that positive contact (in particular cross-group friendship) is associated with more positive outgroup attitudes (Allport, 1954; Davies et al, 2011; Dinesen et al., 2020; Dovidio et al., 2017; Killen et al, 2022; Paluck et al., 2019; Pettigrew & Tropp, 2006):

H2: Positive contact is associated with more positive outgroup attitudes (i.e. less stereotyping, less social distance, more out-group trust) and stronger in-group and generalized trust.

In addition, we expect that the effect of diversity, controlled for positive contact, will be on average negative, as this indicates a situation of diversity without the conditions leading to beneficial outcomes for intergroup relations:

H3: Higher exposure to diversity, controlled for positive contact, is associated with more negative outgroup attitudes (i.e. more stereotyping, more social distance, less out-group trust) and weaker in-group and generalized trust.

Our next hypothesis draws specifically on the literature on contact and generalized trust, which argues that contact attenuates a negative relation between diversity and trust (e.g. Stolle et al., 2008):

H4: More positive contact in diverse contexts is associated with higher out-group, in-group, and generalized trust.

Finally, we draw on political deliberation theory and hypothesize that:

H5: Higher political exposure in diverse contexts is associated with more positive outgroup attitudes (i.e. less stereotyping, less social distance, more out-group trust) and stronger in-group and generalized trust.

The case of Lagos state, Nigeria

Lagos is known as one of the largest urban agglomerations in Africa with an estimated population of 20 million (Lagos State Government, 2019). Most areas of Lagos state (see Fig. 1) are part of Lagos City, but others are more rural, in particular the Local Government Areas (LGAs) of Badagry, Epe, Ibeju-Lekki, and Ikorodu at the outskirts of the state. These four LGAs have lower population and population density numbers (Lagos State Government, 2019). These LGAs are also less diverse.

In-migration has resulted in high levels of diversity in Lagos City. Nigeria has been estimated to have between 150 and 500 distinct ethnic groups, many of which are represented in Lagos. The Yoruba (South-West region), the Igbo (South-East region), and the Hausa-Fulani (Northern region) form the largest groups in Nigeria, and in Lagos itself. The original inhabitants of Lagos have the Yoruba ethnicity. Given Lagos' attraction as the colonial capital, it experienced early migration from the Igbo group. The latter's relatively high levels of education and private business wealth raised tensions with the Yoruba over economic opportunities and political power (Diamond, 1983, pp.470–472). Such tensions have persisted in Lagos until today (e.g., Animasawun, 2016). While the Igbo can be considered a high status group from an economic angle, they are politically marginalized.

The Hausa-Fulani are another important group which have historically settled in Lagos state. More recent migration to the city has also been caused by insecurity in the North of Nigeria. In contrast to the Igbo group, Hausa-Fulani migrants often have a lower socio-economic status than the Yoruba. Hausa-Fulani can be considered a low status group due to both economic and political marginalization. Tensions between Yoruba inhabitants and Hausa-Fulani migrants have led to occasional, small-scale violent clashes in Lagos (Animasawun, 2016), but intergroup tensions do not reach the level of some other Nigerian cities such as Kaduna (Scacco & Warren, 2018) and Jos (Madueke & Vermeulen, 2018).

Documented intergroup tensions in Lagos may lead to the assumption that exposure to ethnic diversity will be associated with intergroup threat dynamics and negative outgroup attitudes (H1b). Yet as Madueke and Vermeulen (2018) show for the case of Jos, perpetrators of intergroup violence often reside in more segregated areas within a larger diverse city. Hence, even in contexts where intergroup relations show signs of tension, local exposure to diversity may still be positively associated with outgroup attitudes (H1a). In addition, threat dynamics may not be strongly present (yet) among adolescents who are less in competition with each other for access to jobs and resources. In schools specifically, we expect certain conditions of positive contact to be present: equal status, common goals, intergroup cooperation, and potential for friendship.

Nevertheless, some characteristics of schools may undermine positive contact. Schools that implement academic tracking may inadvertently contribute to segregation rather than exposure, for example (Killen et al., 2022). Tracking is not implemented in Lagos state schools, however. School authorities may also not be in favour of contact. Unfortunately, we cannot ascertain the extent to which school authorities support positive contact. While the federal government of Nigeria has adopted some initiatives to promote and foster positive intergroup contact among adolescents (e.g., National Youth Service Corps (NYSC), the creation of 100 'unity schools'), within the regular schooling system at the state level, which covers the majority of school-going youth, no specific policies appear to be in place to promote intergroup contact. This study focused on the regular schooling system.

School curricula and teaching methods are also not necessarily conducive to fostering positive intergroup attitudes. The subject of intergroup relations itself is not prominently featured in the curriculum. Moreover, most schools do not have open classroom climates and adopt teacher-centred methods of learning, leaving little room for collaborative group work or class discussion.

Methodology

Sampling design

For the purpose of our study, we aimed to obtain a sample of Lagos adolescents that experience different levels of diversity in their daily lives.[4] To achieve this, we purposively selected both urban and rural LGAs of Lagos state. Agege, Ajeromi/Ifelodun, Ikeja, Lagos Island, Lagos Mainland, Oshodi/Isolo are the urban LGAs selected; Badagry, Epe, and Ikorodu are the rural LGAs. Our final sample contains 70 % Yoruba, 16 % Igbo, 2 % Hausa-Fulani, and 10 % other minority group adolescents. These youths are exposed to varying degrees of diversity in their daily lives.

Within each LGA, we randomly sampled 2 public and 2 private secondary schools from school lists provided by the Lagos State Ministry of Education after obtaining permission to conduct the study. The questionnaire was a self-administered pen-and-paper survey. It was piloted twice, once in a public school and once in a private school. After piloting, it was administered to the 36 schools in our sample in the period September-October 2019.[5] Within each school, all final year secondary school students (Senior Secondary 3 or SS3) were invited to participate. The total sample size achieved is 3118.

Response rates at the school level were between 0.4 and 1. Lower response rates were due to noncontact. To establish the response rate, we asked school principals how many students they expected and compared this with the number of students present. Students may have not come to school for various reasons, including taking external examinations, illness or personal struggles, or change of schools. While refusal to participate was rare, students were free to submit partially completed surveys resulting in item nonresponse. Our analyses make use of list-wise deletion in case of item nonresponse.

The sampling design is not proportionate to population size but does allow sufficient variation to statistically compare youths living

[4] The study was approved by the institutional review board of the principal author's university.

[5] The pilot schools were not included in the final sample.

Fig. 1. Lagos state.

in various settings. An important drawback of the design is that out-of-school youths are excluded, even though they arguably form an important population.[6]

Variables

Main independent variables

Our first main independent variable is a student's *exposure to diversity*. This measure draws on youths' subjective perception of their school- and neighbourhood-level diversity (i.e., how often do you see people from other ethnic groups in your school/neighbourhood) as well as an objective measure of school-level diversity based on students' reported ethnic group (Simpson's index). We included subjective measures as ethnic differences in Sub-Saharan African settings are not necessarily visible to people (in contrast to Western settings). People do not always recognize someone as belonging to another ethnic group (Habyarimana et al., 2009). The recognition of diversity in school contexts may also be undermined by the use of uniforms and the presence of large classes. Nevertheless, the three variables are positively correlated. For our main analyses, we hence combine them in a single variable by using the first component extracted after Principal Component Analysis (PCA). Section A1 in Appendix provides more information on the eigenvalue, individual items, and item loadings. LGAs with lower levels diversity exposure include the rural LGAs of Badagry, Epe, and Ikorodu, as expected, but also the urban LGA of Lagos Island.

To test our hypotheses on positive intergroup contact, we use a variable asking adolescents about their extent of *cross-group friendships*. Our last main independent variable is *political exposure*, a measure that draws on survey questions asking how often students hear and talk about politics at home, in their neighbourhood, with friends, and at school. Political exposure is hereby measured at a local level, and we explicitly exclude exposure to politics through (national) media sources. We use the first principal component resulting from PCA with higher values indicating higher exposure (Section A1 in Appendix).

Main dependent variables

Our first measure concerns the extent to which adolescents *reject stereotyping* of other ethnic groups. Students were asked whether they agree or disagree with four statements reflecting stereotypes of other ethnic groups' honesty, proneness to violence, intelligence, and work ethos. Similar items have been used in prior research on Nigeria (Scacco & Warren, 2018; Schroyens, 2019). Two items were positively phrases, two items negatively. We use the first principal component resulting from PCA (Section A1 in Appendix) with higher values indicating stronger rejection of stereotypes.

We also look at the extent to which youths' experience *social distance* from ethnic others. We look at four measures of social distance, measured through agree-disagree items (Mather et al., 2017). Social distance measures have been used in prior studies on Nigeria (Schroyens, 2019), though we adapt the specific items for relevance to our adolescent sample. The items concerned preferences about the ethnicity of teachers, future employers, future marriage partners, as well as electoral candidates. The first principal component resulting from PCA (Section A1 in Appendix) is used with higher values indicating less social distance.

One thing that is important to note for the stereotyping and social distance measures is that the loadings of individual items are not always very strong (Section A1 in Appendix). We hence also report findings on the individual items in Appendix (Section A4 in Appendix). These analyses show more divergent associations with main predictors but generally do not undermine our overall conclusions. It is possible that the nature of diversity in our setting may undermine our measurement. While our items asked about stereotypes and social distance toward other ethnic groups in general, it is possible that the rejection of stereotypes with regard to one group (for instance, due to cross-group friendship), does not impact the persistence of stereotypes held of other groups. While some research has argued for secondary-transfer effects of positive associations with one group towards other groups (Tausch et al., 2010), scholarship has also shown the importance of friendship with one specific group to improve attitudes toward that specific group (Chen & Graham, 2015).

We also use several distinct measures of trust as dependent variables. These include trust in other ethnic groups (*outgroup trust*), trust in one's own ethnic group (*ingroup trust*), and *generalized trust* in people.

Our independent and dependent variables are standardized to make the regression coefficients in the analyses below comparable to

[6] Tooley (2005, p.13) estimated that the proportion of out-of-school primary children in Lagos amounted to 25 % of all children in the state.

each other. Section A2 in Appendix provides the descriptive statistics.

Control variables

Several control variables are added to the analyses. The first set of variables relates to students' economic position as this could be associated with intergroup threat perception (Riek et al., 2006; Stephan et al., 2009). Consequently, threat perception could influence subjective perceptions of diversity. Especially individuals in more vulnerable economic situations could see other groups as competitors for access to scarce goods. Socio-economic status (SES) is measured by the first principal-components factor of parental educational levels, private versus public schooling, the number of books at home, lack of food, and presence of a computer/tablet at home (Section A1 in Appendix). Higher values indicate higher status. We also add students' subjective perception of their economic position and how these conditions compare to others.

We also control for ethnic background. We take Yoruba as the reference category and include a dummy for the Igbo group, a dummy for the Hausa-Fulani group, and a dummy to capture other minority groups. Ethnic group serves as a control here given that ethnic identity may correlate with perceptions of diversity, one of our main predictors. In additional analyses reported on below we also investigate whether our findings differ depending on ethnic group. We also control for positive contact at the level of adolescents' parents with a mixed ethnicity indicator if parents are in an interethnic union. Finally, we control for age and gender.

Analyses

We use multilevel random intercept analyses with students nested in schools for all models.[7] All models include all control variables, though their results are not included in the coefficient plots. Full regression tables can be found in Section A3 in Appendix.

H1. Exposure to diversity without accounting for positive contact

We first investigate the associations between diversity and our attitudinal dependent variables without including positive contact in the models (i.e. control variables only). We find support for both H1a (diversity has on average beneficial effects) and H1b (diversity has on average detrimental effects) depending on the attitudinal variable under consideration (Fig. 2). We do not find an association between diversity and stereotyping but do find an on average positive association with reduced social distance though the effect is only significant at the 90 % confidence level. This supports findings from some studies that local levels of diversity in contexts with little competition between individuals (youth samples, school settings) see positive associations between diversity and out-group attitudes (Echols & Graham, 2013; Thijs & Verkuyten, 2014; Tropp et al., 2022).

For our trust variables, however, the reverse appears to hold. We find negative associations between diversity and trust, though the relation between diversity and out-group trust is not significant. These findings are in line with studies demonstrating that even in contexts conducive to positive contact, such contact is not a given and diversity has an on average negative relation with trust (Dinesen et al., 2020; Janmaat, 2015). Our findings indicate the importance of distinguishing between attitudinal variables as associations may differ and stress the importance of measuring and accounting for positive contact rather than assuming it will be present in certain contexts that, on the surface, appear conducive to it.

H2. Positive contact, positive outgroup attitudes, and stronger in-group and generalized trust

H2 hypothesized that positive intergroup contact in the form of cross-group friendships would be associated with more positive outgroup attitudes as well as stronger in-group and generalized trust. Fig. 3 shows that this is generally the case: cross-group friendships are associated with reduced stereotyping and social distance, and higher outgroup trust. There is no significant relation with in-group and generalized trust, indicating that positive associations between cross-group friendship and out-group trust do not strongly spill over to in-group and generalized trust.[8]

H3. Diversity without positive contact, negative outgroup attitudes and weaker in-group and generalized trust

Fig. 3 also shows that controlled for cross-group friendship, diversity has no relation with stereotyping and social distance and is negatively related to all trust measures. The latter is logical, as diversity without positive contact—and thus without the conditions present to result in beneficial outcomes— is likely to result in intergroup threat dynamics. As diversity without contact is not negatively related to the rejection of stereotyping and social distance, this also indicates that trust dynamics are quite distinct and do not necessarily follow the pattern of other intergroup attitudes. They may be more sensitive to diversity than other attitudes.

H4. Positive contact in diverse contexts and higher trust

Fig. 3 showed a positive association between cross-group friendship and out-group trust but not with in-group and generalized trust. We also test the interaction between diversity and friendship to investigate whether positive contact can have beneficial effects on trust in other ways. The results are displayed in Fig. 4. For out-group trust, we find the same net positive effect as found in Fig. 3, without an additional interaction effect. For in-group trust, the interaction coefficient is insignificant. For generalized trust, however, we do find a positive and significant interaction coefficient. To some extent, this is somewhat unexpected as theory assumes that

[7] We do not find consistent random effects for our main variables.

[8] Some research suggests that the positive relation between cross-group friendship and outgroup attitudes is specifically present among a majority group (Dovidio et al., 2017). We tested interactions between our friendship and ethnic group indicators but found no evidence of differential effects.

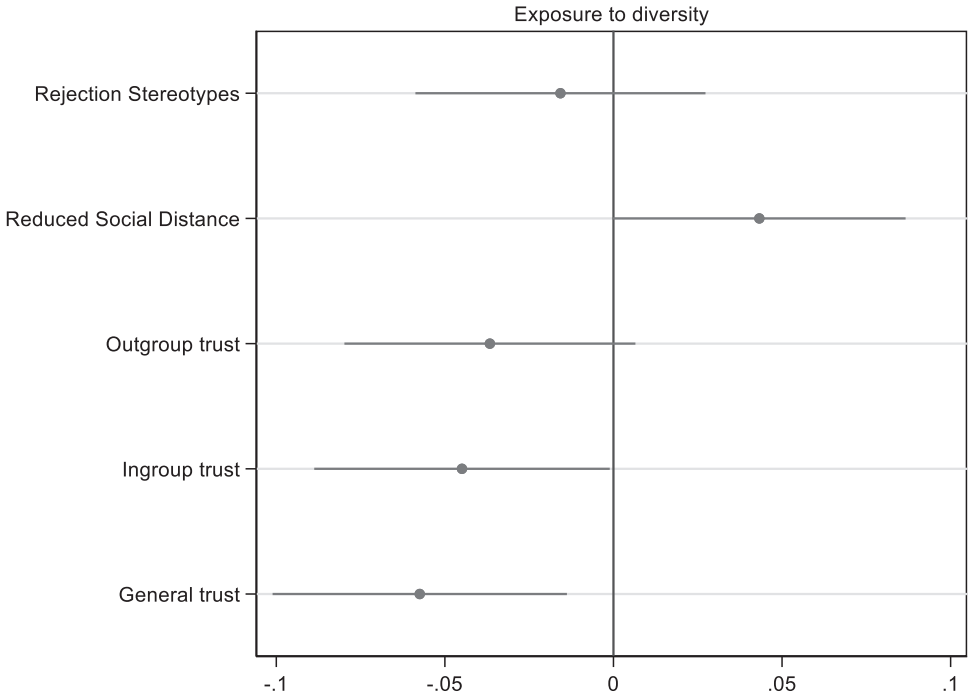

Fig. 2. Association between diversity and main dependent variables. Note: multilevel linear regression coefficients with 95 % confidence intervals via Stata 18 xtmixed. Control variables included in all models.

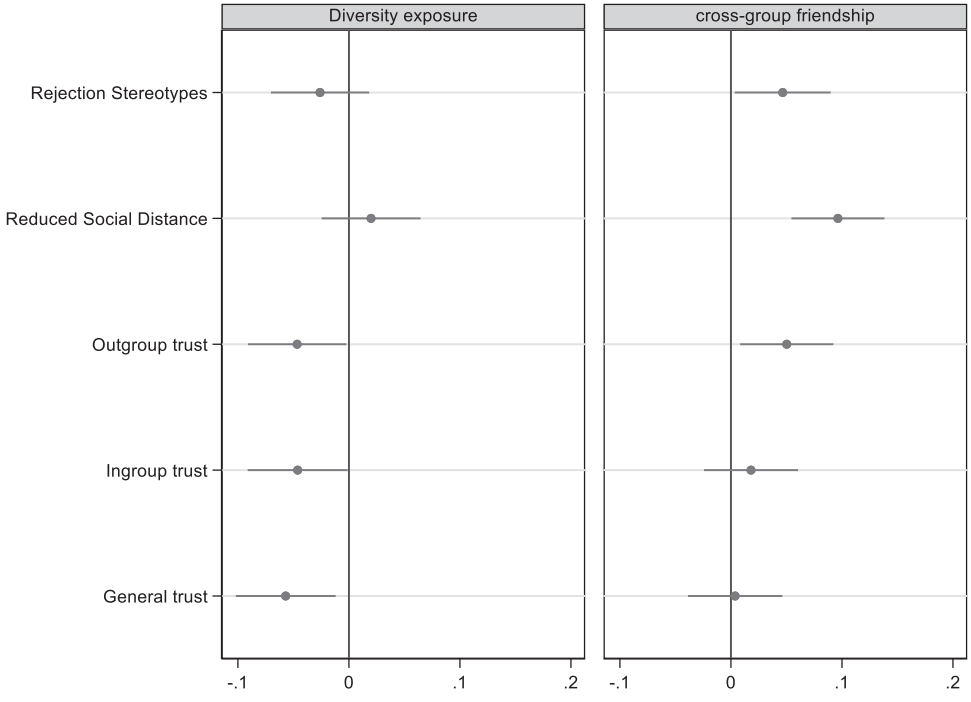

Fig. 3. Association between diversity, friendship and main dependent variables. Note: multilevel linear regression coefficients with 95 % confidence intervals via Stata 18 xtmixed. Control variables included in all models.

diversity undermines out- and in-group trust and consequently generalized trust (Putnam, 2007; Dinesen et al., 2020). Fig. 5 demonstrates the interaction effect: diversity is negatively related to generalized trust when cross-group friendship takes on low values. The negative relation with diversity disappears with high levels of cross-group friendship.

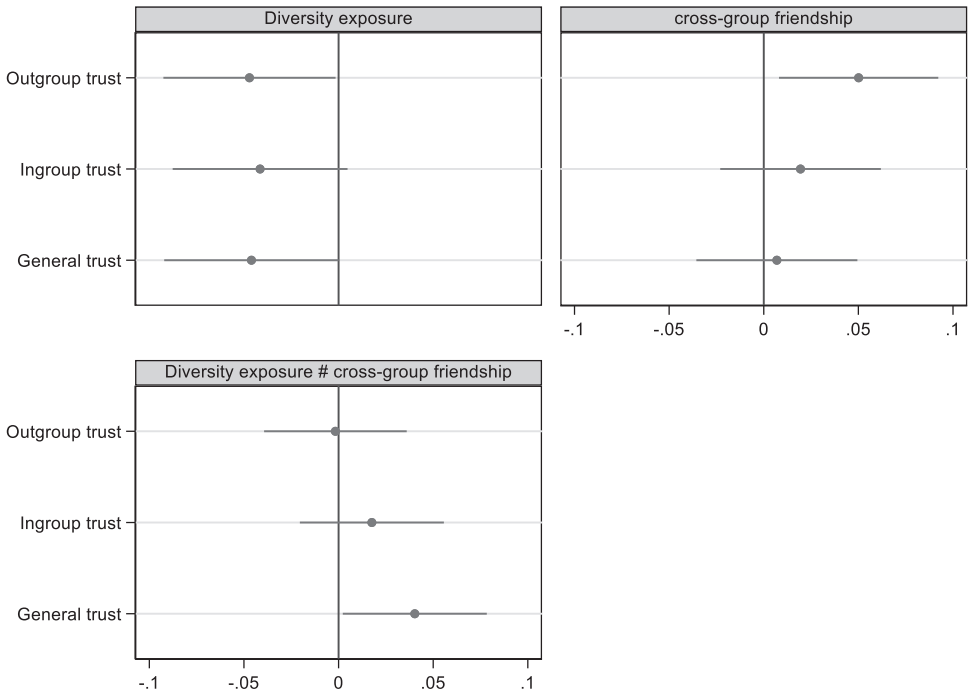

Fig. 4. Friendship as a moderator in the relation between diversity and trust. Note: multilevel linear regression coefficients with 95 % confidence intervals via Stata 18 xtmixed. Control variables included in all models.

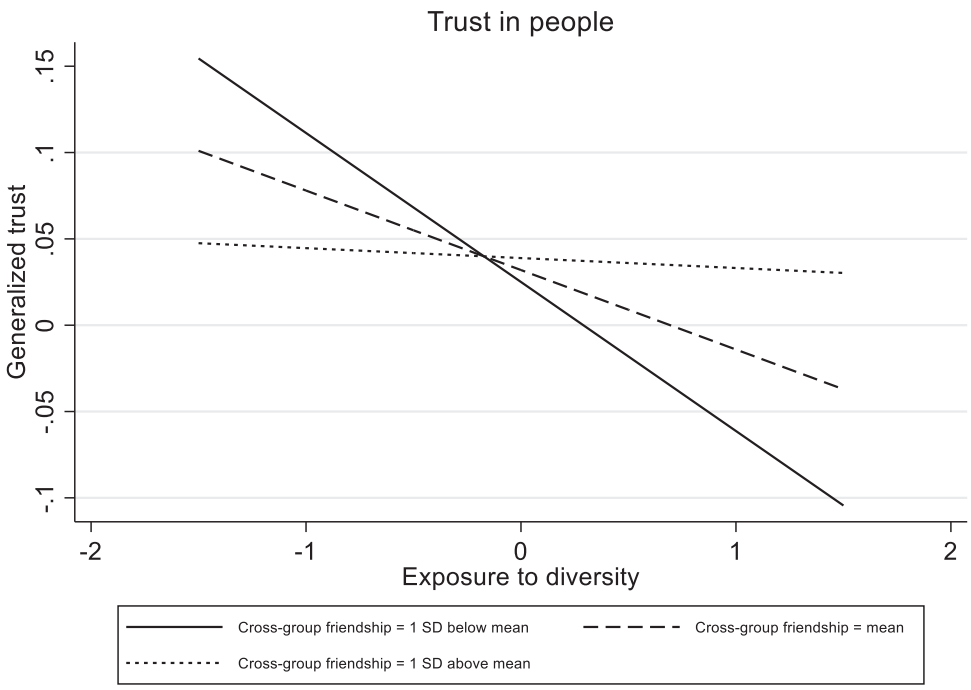

Fig. 5. Predicted score for generalized trust by diversity and cross-group friendship.

H5. Political exposure in diverse contexts, positive outgroup attitudes, and stronger in-group and generalized trust

We now turn to our final hypothesis and add an interaction between diversity and political exposure to our models (Fig. 6). The analyses indicate consistent support for the view that political exposure in contexts of diversity strengthens positive outgroup attitudes and trust. The interactions between diversity and political exposure are positive and significant for all variables except in-group trust,

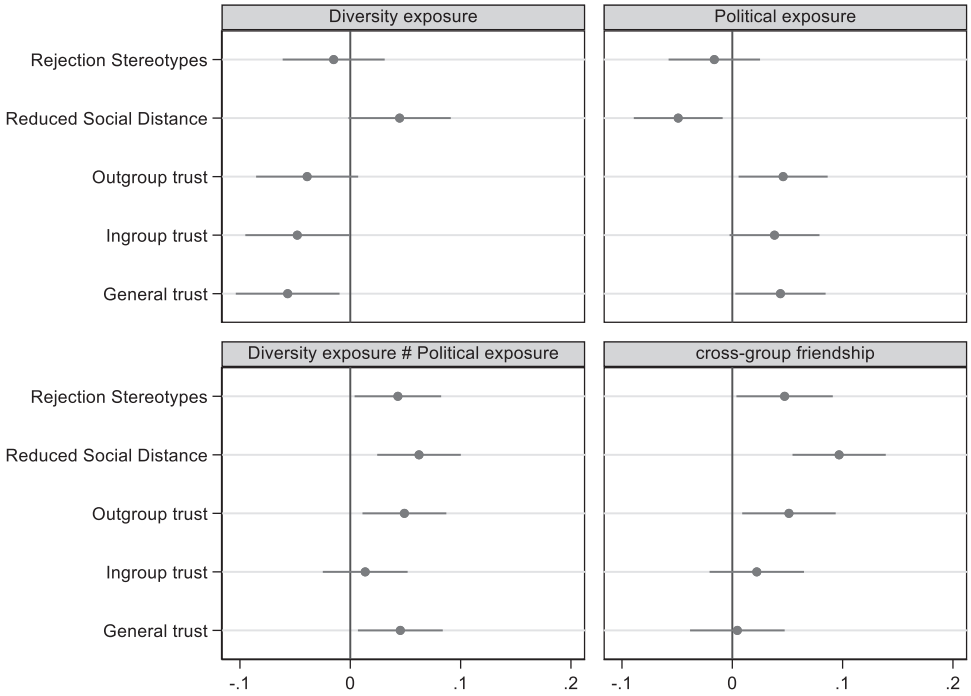

Fig. 6. Association between diversity, political exposure and main dependent variables. Note: multilevel linear regression coefficients with 95 % confidence intervals via Stata 18 xtmixed. Control variables included in all models.

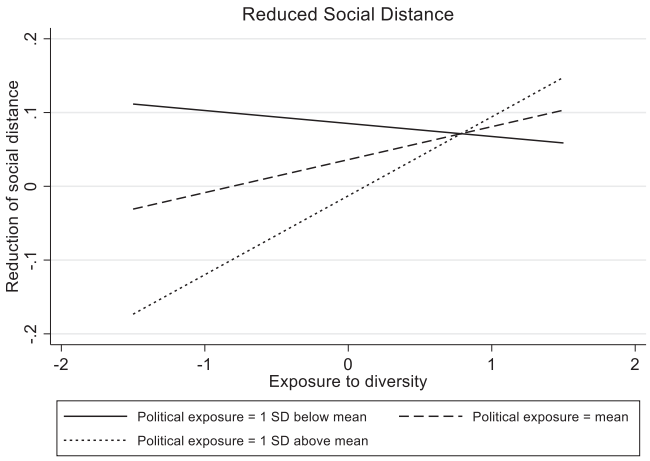

Fig. 7. Predicted score for social distance reduction by diversity and political exposure.

where this finding can perhaps be related to the specific nature of the variable focusing on in-group rather than out-group relations. While consistent, the effect sizes of our main predictors in all our analyses are small with partial eta squared values below 0.01 (see Section A5 Appendix).

We further illustrate the interaction between diversity and political exposure for two dependent variables: social distance reduction and generalized trust in people. A shown in Fig. 7, diversity has a negligeable relation with social distance when political exposure is low. However, at higher levels of political exposure, we see that in homogenous contexts, social distance is elevated (low scores for reduced social distance). In more heterogenous contexts, higher levels of political exposure contribute to the reduction of social

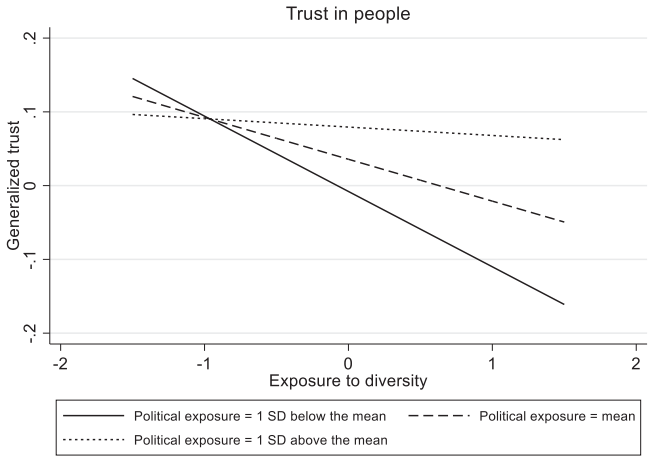

Fig. 8. Predicted score for generalized trust by diversity and political exposure.

distance. Fig. 8 shows that low political exposure in contexts of high diversity is associated with low levels of generalized trust. Yet as more political exposure takes place, this negative relation disappears.[9]

Additional findings

We now report on several additional findings from our analyses. Our analyses included control variables measuring objective and subjective socio-economic status (SES). We find that higher levels of objective and subjective SES are generally associated with more positive outgroup attitudes and higher trust levels, though the relations are not always significant (see Section A3 in Appendix). Rather surprisingly, however, subjective SES appears to be negatively related to social distance reduction. Subjective perceptions about one's living conditions compared to others in Lagos had no significant relation with our dependent variables.

Interestingly, in our analyses ethnic group was rarely significantly associated with our dependent variables. The only exception is that we find that in-group and generalized trust are on average lower among the Igbo group.

We also examined whether exposure to diversity on the religious Christian-Muslim dimension had similar associations with attitudes towards religious out-groups. While ethnicity has generally been more politicized in Lagos, there is evidence of growing religious divides in recent years (e.g. Vanguard, 2023). Yoruba can adhere both to Christianity and Islam, while Igbo are generally Christian. Our analyses indicate that findings for the religious dimension generally go in the same direction as findings for the ethnic dimension but are weaker and less significant (Section A6 in Appendix).

Conclusion

In this study, we have investigated how ethnic diversity is associated with intergroup attitudes and trust among a diverse group of adolescents in an understudied West-African context characterized by political tensions between ethnic groups (i.e. Lagos, Nigeria). Drawing on a unique original survey among final year secondary school students, we drew on multiple disciplinary theories and analysed the associational effects of exposure to diversity, positive intergroup contact, as well as political exposure on stereotyping, social distance, outgroup trust, ingroup trust, and generalized trust.

We found that exposure to diversity as such was not associated with the rejection of stereotypes but was positively related to lower social distance levels ($p < 0.1$). Diversity was negatively related to trust, though the relation with outgroup trust was not significant. Mixed findings for the relation between diversity and various outgroup attitudes is not uncommon in the literature and demonstrates the importance of distinguishing between attitudinal indicators as we did in our study. Our results also indicate that even in settings where we may expect diversity to be associated with positive contact, like in schools (e.g., localized exposure, non-competitive situations), and have on average beneficial effects on intergroup relations, such overall positive effects of diversity are not a given.

Findings for positive contact, as measured through cross-group friendships, were in line with intergroup contact theory. Friendship was positively and significantly related to the rejection of stereotypes, reduced social distance, and outgroup trust, but was not related to in-group and generalized trust. We did find that cross-group friendship attenuated the negative relation between diversity and generalized trust demonstrating beneficial effects of contact on generalized trust as well.

Diversity controlled for contact showed negative relations with our trust measures, as can be expected as conditions for contact are

[9] We also test results for two additional trust variables: the difference between out-group and in-group trust (following Robinson, 2020) and institutional trust (part of the original theorization of Putnam, 2007). Findings are available in Appendix Section A3. We do not find any significant relations when using out- versus in-group trust. Findings for institutional trust are similar to those for generalized trust.

not fulfilled. Diversity controlled for contact did not have a relation with stereotyping and social distance, however, showing that trust dynamics can be particularly sensitive to diversity in line with arguments from political science (Putnam, 2007).

Our findings also support political deliberation theory. The interaction between diversity and political exposure had a significant relation with all dependent variables except ingroup trust. Diversity has a positive relation with the rejection of stereotyping, reduced social distance and outgroup trust when adolescents are more frequently exposed to political discussions. Political exposure also attenuated the negative relation between diversity and generalized trust. When political exposure is high, this negative relation becomes insignificant.

Our results indicate that intergroup contact and political deliberation theories, developed primarily by relying on empirical evidence from Western societies, also travel to multi-ethnic societies characterized by tensions in the Global South. This is an important finding given that in such societies diversity has often been associated with ethnic conflict, and poverty and inequality can make intergroup threat dynamics all the more stark. In contrast, our results provide room for optimism as negative outcomes associated with diversity do not appear insurmountable.

As our findings are observational, we cannot strictly determine causality. Nevertheless, our findings lend support to the future use of interventions focusing on intergroup contact and political deliberation to improve intergroup relations among adolescents in multi-ethnic Sub-Saharan settings. Studies in Western settings have already noted that addressing intergroup relations and diversity in classes rather than having adolescents simply experience diversity is more likely to lead to positive intergroup attitudes (Thijs & Verkuyten, 2014; Tropp et al., 2022). Political discussions have also been shown to improve tolerance toward out-groups (Miklikowska et al., 2022).

Such interventions can come with important caveats, however. Indeed, such policies can generally only be successful when teachers do not bring their own ethnic biases in the classroom (Kuppens et al., 2018) and have the necessary skills to deal with potentially polarizing topics (Hess, 2002). This may be difficult to ensure in low development settings where teaching training and educational resources are limited. To reduce risks, contact and political deliberation interventions may rather take more standardized forms through school and community theatre pieces, or through radio and television shows.

Future experimental research can investigate the impact of such interventions. In addition, longitudinal research with adolescents could investigate the extent to which early political attitudes remain present over time to support policy focus on youth-based interventions. While Sub-Saharan Africa has not been featured prominently in current scholarship on intergroup attitudes, and in particular on youths' development of intergroup attitudes, we encourage further research in this context. Indeed, encouraging new studies indicate positive intergroup attitudes may be associated with a stronger willingness to contribute to social change and encourage peacebuilding (Dovidio et al., 2017; McKeown & Taylor, 2017). Such change would be highly relevant for Sub-Saharan Africa given the persistence of ethnic conflict and violence in this region.

Ethics approval by

Ethics Review Committee of the Social Sciences of the Faculty of Social and Behavioural Sciences, Universiteit Leiden, 21 June 2019.

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CRediT authorship contribution statement

Demarest Leila: Writing – original draft, Visualization, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Langer Arnim:** Writing – review & editing, Methodology, Conceptualization.

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Appendix

Section A1: Principal Component Analyses

Exposure to Diversity (Eigenvalue = 1.685, N = 3065)

Item	N	Range	Mean	SD	Loading
Simpson Index	3118	0–0.747	0.428	0.190	0.502
How often do you see people from other ethnic groups (tribes) in your school [‘Never’ to ‘All the time’]	3073	0–4	3.194	1.148	0.857
How often do you see people from other ethnic groups (tribes) in your neighbourhood [‘Never’ to ‘All the time’]	3071	0–4	3.072	1.150	0.836

Exposure to politics (Eigenvalue = 2.511, N = 3008)

Item	N	Range	Mean	SD	Loading
How often do you hear people talk about politics and what the government does at home? [‘(almost) never’ to ‘(almost daily’]	3074	0–3	2.204	1.089	0.662
How often do you hear people talk about politics and what the government does outside of your home (e.g. in streets, shops, restaurants, canteens, church, mosque…)? [‘(almost) never’ to ‘(almost) daily’]	3063	0–3	2.109	1.118	0.638
How often do you talk about politics and what the government does at home? [‘(almost) never’ to ‘(almost) daily’]	3077	0–3	1.428	1.198	0.766
How often do you talk about politics and what the government does with your friends? [‘(almost) never’ to ‘(almost) daily’]	3082	0–3	1.262	1.152	0.758
How often do you talk about politics and what the government does in class at school? [‘(almost) never’ to ‘(almost) daily’]	3072	0–3	1.483	1.483	0.711

Stereotypes (Eigenvalue = 1.436, N = 3024)

Item	N	Range	Mean	SD	Loading
Some ethnic groups (tribes) are lazier than others [‘Strongly disagree’ to ‘Strongly agree’]	3050	0–4	2.036	1.152	−0.512
All ethnic groups (tribes) are equally smart [‘Strongly disagree’ to ‘Strongly agree’]	3053	0–4	2.117	1.177	0.688
Some ethnic groups (tribes) are more violent than others [‘Strongly disagree’ to ‘Strongly agree’]	3052	0–4	2.583	1.079	−0.418
All ethnic groups (tribes) are equally honest [‘Strongly disagree’ to ‘Strongly agree’]	3051	0–4	1.643	1.107	0.752

Social Distance (Eigenvalue = 1.357, N = 3006)

Item	N	Range	Mean	SD	Loading
I would like it if my teacher is from the same ethnic group (tribe) as me [‘Strongly disagree’ to ‘Strongly agree’]	3048	0–4	2.270	1.083	0.780
In the future, I would be happy to work for a boss who is from another ethnic group (tribe) [‘Strongly disagree’ to ‘Strongly agree’]	3044	0–4	2.037	1.102	0.023
I would prefer to marry someone from my own ethnic group (tribe) [‘Strongly disagree’ to ‘Strongly agree’]	3040	0–4	2.429	1.169	0.778
People should vote for someone from their own ethnic group (tribe) [‘Strongly disagree’ to ‘Strongly agree’]	3041	0–4	1.639	1.139	0.626

Socio-Economic Status (Eigenvalue = 1.985, N = 2689)

Item	N	Range	Mean	SD	Loading
What is the highest level of education completed by your father? [‘Never went to school’ to ‘ Finished advanced studies (e.g. university, polytechnic, college of education)’]	2829	0–4	3.307	0.815	0.719
What is the highest level of education completed by your mother? [‘Never went to school’ to ‘ Finished advanced studies (e.g. university, polytechnic, college of education)’]	2875	0–4	3.093	0.933	0.734
Private (vs. public) school [filled in by research team]	3118	0–1	0.163	0.369	0.563
About how many books are there in your home, give or take? (Do not count your own schoolbooks, newspapers, magazines or comic books.) [‘ None or very few (0–10 books)’ to ‘Enough to fill three or more bookcases (more than 200 books) ’]	3060	0–4	1.219	1.160	0.511
Do you have a computer or iPad at home? [‘Yes’ or ‘No’]	3105	0–1	0.289	0.453	0.594

Institutional trust (Eigenvalue = 2.847, N = 3025), see section A3

Item	N	Range	Mean	SD	Loading
How much do you trust the President of Nigeria? [‘Not at All’ to ‘Completely’]	3046	0–4	1.147	1.297	0.803
How much do you trust the Lagos State government? [‘Not at All’ to ‘Completely’]	3044	0–4	1.342	1.281	0.828
How much do you trust the Nigerian Army? [‘Not at All’ to ‘Completely’]	3042	0–4	1.914	1.458	0.686
How much do you trust the Police in Nigeria? [‘Not at All’ to ‘Completely’]	3045	0–4	0.688	1.031	0.696
How much do you trust political parties in Nigeria? [‘Not at All’ to ‘Completely’]	3044	0–4	0.883	1.084	0.749

Section A2: Descriptive Statistics Table

Variable	N	Range	Mean	SD
Main dependent variables				
Rejection of stereotyping	3024	−2.601 – 3.169	0	1
Reduced social distance	3006	−2.491 – 2.824	0	1
Outgroup trust	3061	−1.058 – 2.565	0	1
Ingroup trust	3056	−1.153 – 2.146	0	1
Generalized trust in people	3055	−1.071 – 2.426	0	1
Independent variables				
Diversity exposure	3065	−3.412 – 1.257	0	1
Intergroup friendship	3058	−1.635 – 1.641	0	1
Political exposure	3008	−2.081 – 1.630	0	1
Control variables				
SES	2.689	−3.308 – 2.387	0	1
Current living conditions (higher = better)	3092	−2.721 – 0.973	0	1
Living conditions compared (higher = better)	3071	−3.483 – 1.211	0	1
Age	3036	−3.307 – 5.253	0	1
Igbo	3078	0–1	0.164	0.370
Hausa-Fulani	3078	0–1	0.023	0.151
Other minority group	3078	0–1	0.108	0.311
Mixed ethnicity	3052	0–1	0.113	0.317
Female	3090	0–1	0.607	0.488

Section A3: Full Regression Tables

Rejection of Stereotyping

	Model 1	Model 2	Model 3
Diversity exposure	−0.016 (0.022)	−0.026 (0.023)	−0.015 (0.024)
Cross-group friendship		0.047 (0.022)*	0.047 (0.023)*
Diversity * Cross-group friendship			
Political exposure			−0.016 (0.021)
Diversity * Political exposure			0.043 (0.020)*
SES	0.067 (0.023)* *	0.063 (0.023)* *	0.067 (0.023)* *
Current living conditions	0.036 (0.020)	0.040 (0.020)*	0.042 (0.020)*
Living conditions compared	0.015 (0.026)	0.012 (0.026)	0.015 (0.026)
Age	−0.010 (0.017)	−0.010 (0.017)	−0.012 (0.017)
Igbo	0.017 (0.058)	0.005 (0.059)	−0.001 (0.059)
Hausa-Fulani	−0.109 (0.146)	−0.130 (0.146)	−0.144 (0.146)
Other minority group	0.048 (0.070)	0.020 (0.071)	0.014 (0.071)
Mixed ethnicity	−0.013 (0.067)	−0.010 (0.067)	0.003 (0.067)
Female	0.044 (0.045)	0.047 (0.045)	0.050 (0.045)
Constant	−0.025 (0.296)	−0.017 (0.297)	−0.005 (0.301)
N	2440	2422	2368

Reduction of Social Distance

	Model 1	Model 2	Model 3
Diversity exposure	0.043 (0.022)	0.020 (0.023)	0.045 (0.024)
Cross-group friendship		0.096 (0.021)* **	0.097 (0.022)* **
Diversity * Cross-group friendship			
Political exposure			−0.049 (0.021)*
Diversity * Political exposure			0.062 (0.019)* *
SES	0.019 (0.024)	0.015 (0.024)	0.014 (0.024)
Current living conditions	−0.071 (0.019)* **	−0.067 (0.020)* *	−0.074 (0.020)* **
Living conditions compared	0.007 (0.025)	0.004 (0.025)	0.003 (0.025)
Age	0.022 (0.017)	0.020 (0.017)	0.013 (0.017)
Igbo	0.058 (0.057)	0.014 (0.058)	0.012 (0.058)
Hausa-Fulani	−0.126 (0.143)	−0.167 (0.143)	−0.169 (0.142)
Other minority group	0.215 (0.068)* *	0.157 (0.069)*	0.153 (0.069)*
Mixed ethnicity	0.400 (0.065)* **	0.400 (0.065)* **	0.385 (0.065)* **
Female	0.031 (0.046)	0.041 (0.046)	0.027 (0.046)
Constant	−0.222 (0.291)	−0.178 (0.292)	−0.042 (0.294)
N	2419	2403	2349

Outgroup trust

	Model 1	Model 2	Model 3	Model 4
Diversity exposure	−0.037 (0.022)	−0.047 (0.023)*	−0.047 (0.023)*	−0.039 (0.024)

(*continued on next page*)

(*continued*)

	Model 1	Model 2	Model 3	Model 4
Cross-group friendship		0.050 (0.021)*	0.050 (0.021)*	0.051 (0.022)*
Diversity * Cross-group friendship			−0.002 (0.019)	
Political exposure				0.046 (0.021)*
Diversity * Political exposure				0.049 (0.019)*
SES	0.064 (0.023)* *	0.059 (0.023)*	0.059 (0.023)*	0.056 (0.024)*
Current living conditions	0.050 (0.019)*	0.052 (0.019)* *	0.052 (0.019)* *	0.052 (0.020)* *
Living conditions compared	−0.018 (0.025)	−0.020 (0.025)	−0.020 (0.025)	−0.016 (0.025)
Age	0.025 (0.017)	0.023 (0.017)	0.023 (0.017)	0.020 (0.017)
Igbo	−0.072 (0.057)	−0.101 (0.058)	−0.101 (0.058)	−0.093 (0.058)
Hausa-Fulani	0.138 (0.143)	0.118 (0.143)	0.118 (0.143)	0.110 (0.143)
Other minority group	0.085 (0.068)	0.057 (0.069)	0.057 (0.069)	0.061 (0.069)
Mixed ethnicity	−0.067 (0.065)	−0.074 (0.065)	−0.074 (0.065)	−0.082 (0.066)
Female	−0.168 (0.045)* **	−0.160 (0.045)* **	−0.160 (0.045)* **	−0.171 (0.046)* **
Constant	−0.365 (0.292)	−0.324 (0.292)	−0.323 (0.282)	−0.307 (0.295)
N	2461	2451	2451	2396

Ingroup trust

	Model 1	Model 2	Model 3	Model 4
Diversity exposure	−0.045 (0.022)*	−0.046 (0.023)*	−0.041 (0.024)	−0.048 (0.024)*
Cross-group friendship		0.018 (0.022)	0.019 (0.022)	0.022 (0.022)
Diversity * Cross-group friendship			0.018 (0.019)	
Political exposure				0.038 (0.021)
Diversity * Political exposure				0.014 (0.020)
SES	0.042 (0.024)	0.039 (0.024)	0.039 (0.024)	0.038 (0.024)
Current living conditions	0.042 (0.020)*	0.045 (0.020)*	0.045 (0.020)*	0.049 (0.020)*
Living conditions compared	−0.041 (0.025)	−0.043 (0.025)	−0.043 (0.025)	−0.035 (0.025)
Age	0.019 (0.017)	0.017 (0.017)	0.017 (0.017)	0.019 (0.017)
Igbo	−0.132 (0.058)*	−0.142 (0.058)*	−0.142 (0.058)*	−0.142 (0.058)*
Hausa-Fulani	0.006 (0.146)	0.004 (0.146)	−0.004 (0.146)	−0.015 (0.146)
Other minority group	0.008 (0.068)	0.005 (0.069)	−0.009 (0.070)	−0.003 (0.070)
Mixed ethnicity	−0.086 (0.066)	−0.076 (0.066)	−0.078 (0.066)	−0.084 (0.066)
Female	−0.135 (0.046)* **	−0.125 (0.046)* *	−0.124 (0.046)* *	−0.129 (0.047)* *
Constant	−0.165 (0.294)* *	−0.144 (0.295)	−0.151 (0.295)	−0.202 (0.299)
N	2457	2448	2448	2394

Generalized trust

	Model 1	Model 2	Model 3	Model 4
Diversity exposure	−0.057 (0.022)*	−0.057 (0.023)*	−0.046 (0.024)*	−0.057 (0.024)*
Cross-group friendship		0.004 (0.022)	0.007 (0.022)	0.005 (0.022)
Diversity * Cross-group friendship			0.040 (0.019)*	
Political exposure				0.044 (0.021)*
Diversity * Political exposure				0.045 (0.020)*
SES	0.009 (0.023)	0.008 (0.024)	0.008 (0.024)	0.006 (0.024)
Current living conditions	0.047 (0.020)*	0.047 (0.020)*	0.047 (0.020)*	0.051 (0.020)*
Living conditions compared	0.014 (0.025)	0.014 (0.025)	0.014 (0.025)	0.018 (0.025)
Age	−0.029 (0.017)	−0.029 (0.017)	−0.029 (0.017)	−0.029 (0.017)
Igbo	−0.121 (0.058)*	−0.125 (0.059)*	−0.124 (0.059)*	−0.123 (0.059)*
Hausa-Fulani	0.162 (0.145)	0.159 (0.145)	0.158 (0.145)	0.146 (0.145)
Other minority group	−0.035 (0.069)	−0.039 (0.070)	−0.049 (0.070)	−0.033 (0.070)
Mixed ethnicity	−0.083 (0.066)	−0.078 (0.066)	−0.178 (0.046)	−0.089 (0.066)
Female	−0.187 (0.046)* **	−0.180 (0.046)* **	−0.178 (0.046)* **	−0.190 (0.047)* **
Constant	0.487 (0.294)	0.482 (0.295)	0.463 (0.295)	0.447 (0.299)
N	2456	2447	2447	2392

-Additional dependent variable: out- versus in-group trust

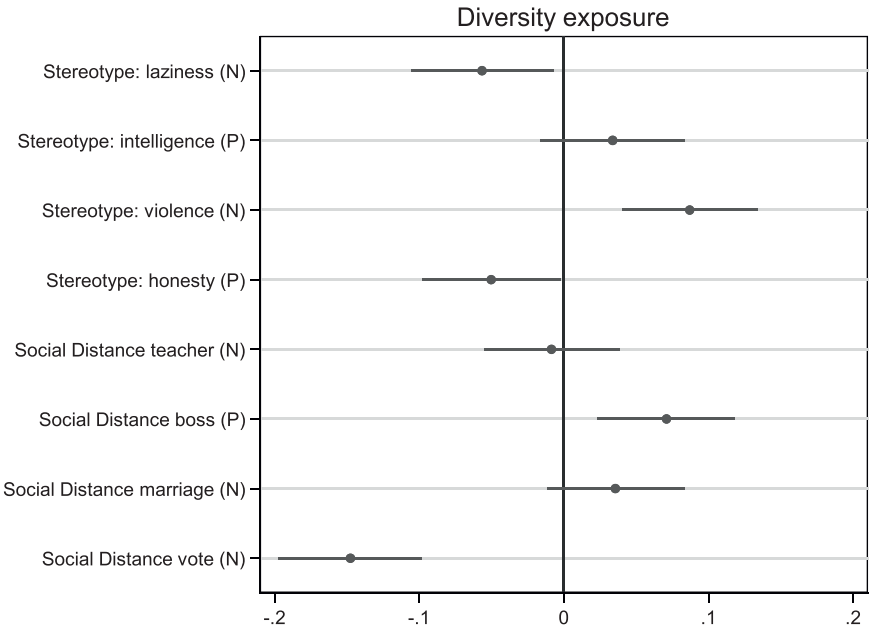
	Model 1	Model 2	Model 3	Model 4
Diversity exposure	0.013 (0.022)	0.002 (0.022)	−0.004 (0.023)	0.011 (0.023)
Cross-group friendship		0.037 (0.022)	0.035 (0.022)	0.034 (0.022)
Diversity * Cross-group friendship			−0.025 (0.019)	
Political exposure				0.009 (0.021)
Diversity * Political exposure				0.034 (0.020)
Control variables	Yes	Yes	Yes	Yes
N	2452	2443	2443	2389

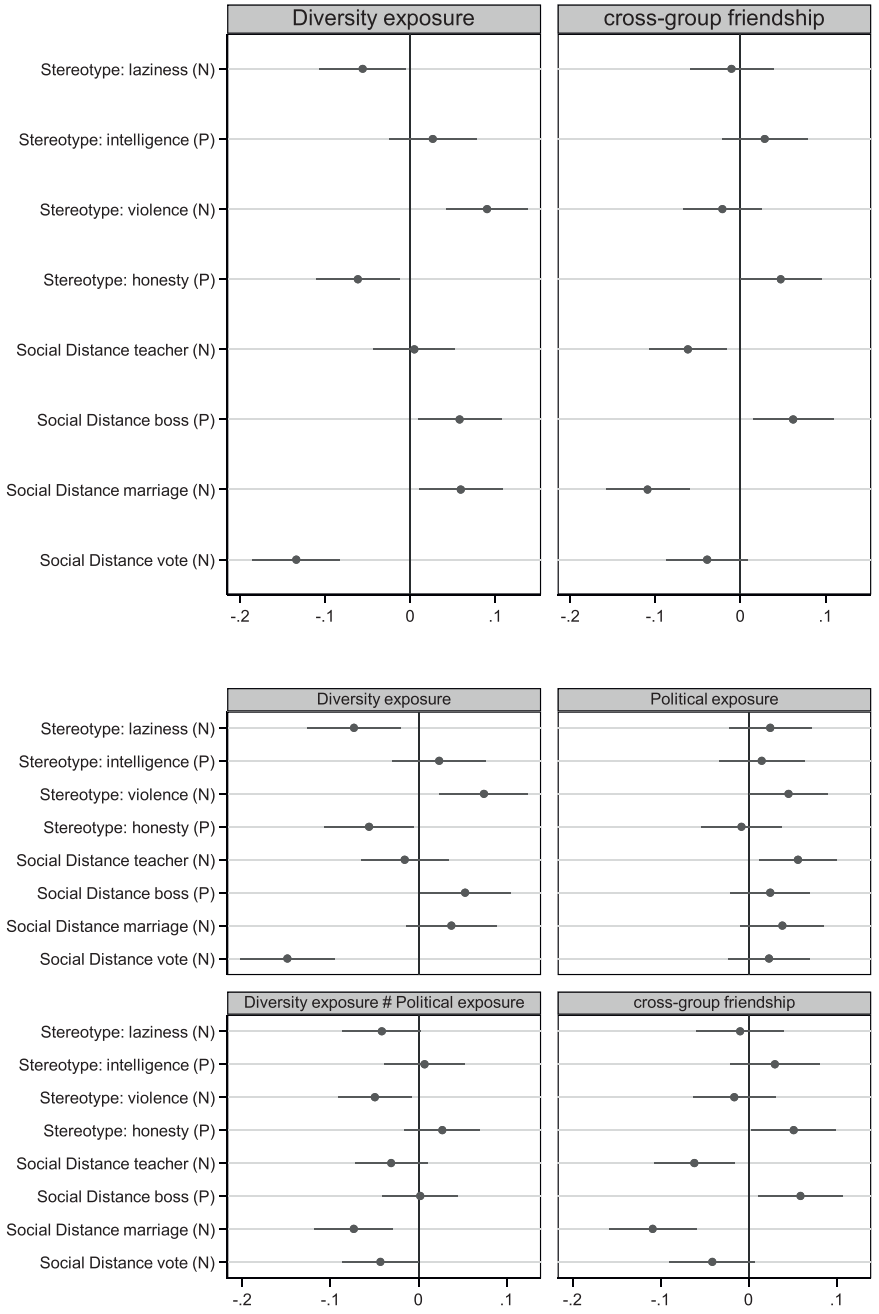
-Additional dependent variable: institutional trust

	Model 1	Model 2	Model 3	Model 4
Diversity exposure	−0.056 (0.022)*	−0.050 (0.023)*	−0.051 (0.024)*	−0.059 (0.024)
Cross-group friendship		−0.013 (0.021)	−0.013 (0.021)	−0.022 (0.022)
Diversity * Cross-group friendship			−0.002 (0.019)	
Political exposure				0.073 (0.020)* **
Diversity * Political exposure				0.044 (0.019)*
Control variables	Yes	Yes	Yes	Yes
N	2433	2412	2412	2359

Section A4: Separate items Stereotyping and Social Distance (analyses similar to Figs. 2, 3, 4, 6 **in main paper)**

Items with a (N) are negatively phrased: higher values indicate more stereotyping/social distance (measured on 5-point agree-disagree scale). Items with a (P) are positively phrased: higher values indicate less stereotyping/social distance (measured on 5-point agree-disagree scale).



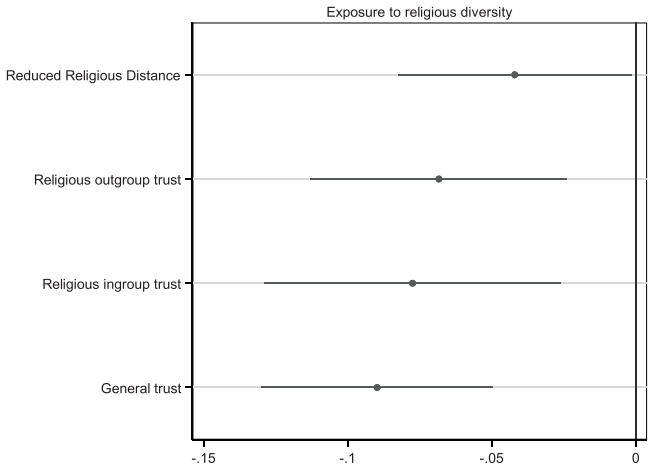


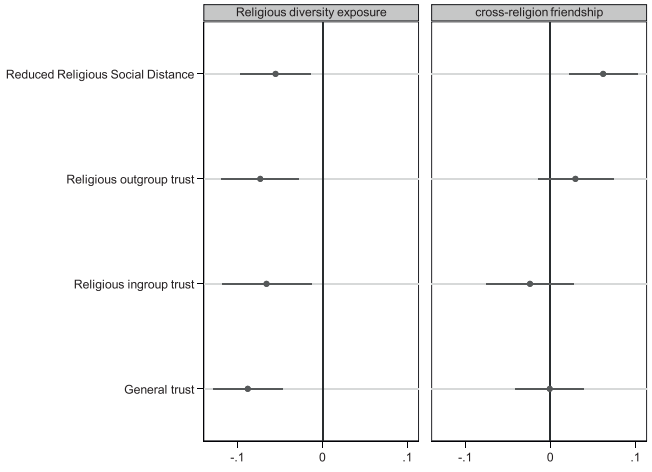
Section A5: Partial Eta Squared (η^2) of final models[10]

	Rejection stereotyping	Reduced social distance	Trust other group	Trust own group	Trust in people
Diversity exposure	0.0001	0.0036	0.0020	0.0021	0.0022
Cross-group friendship	0.0019	0.0085	0.0025	0.0004	< 0.0001
Political exposure	0.0003	0.0024	0.0016	0.0009	0.0012
Diversity * Political exposure	0.0018	0.0044	0.0029	0.0003	0.0024

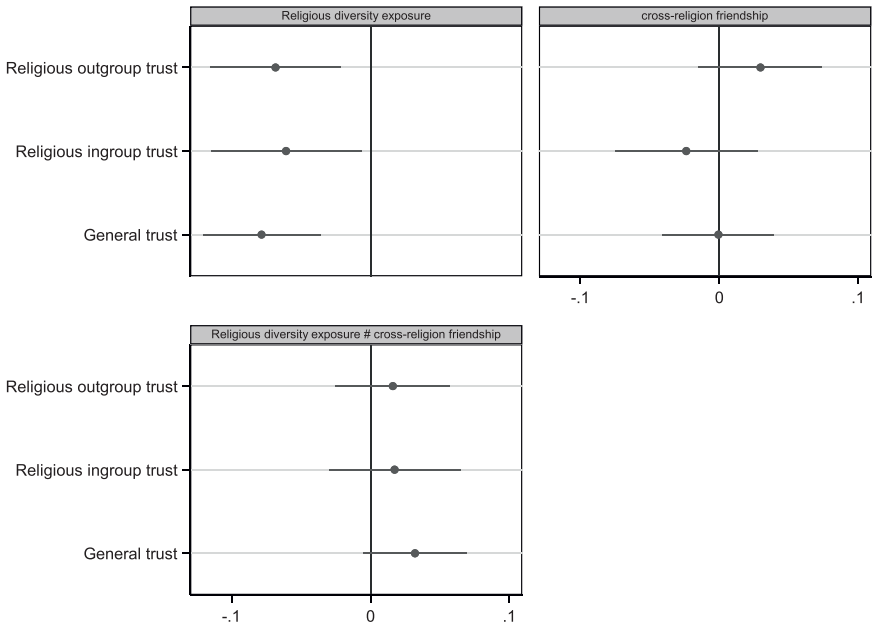
[10] Calculated based on single level linear regression models for ease of interpretation and given low levels of variance at school level. All control variables included.

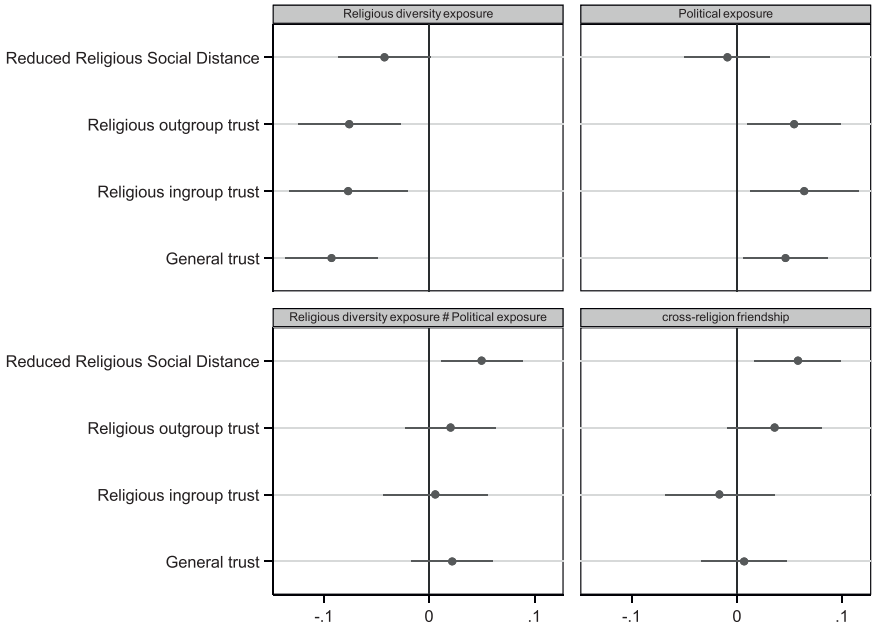
Section A6: Religious diversity and attitudes toward religious outgroups (analyses similar to Figs. 2, 3, 4, 6 **in main paper)**[11]





[11] We did not include items on stereotypes about other religious groups





Data availability

Dataset and syntax will be made openly available with Harvard Dataverse upon acceptance of the paper.

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