

## **Ethnic Diversity, Segregation and Ethnocentric Trust in Africa**

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### ABSTRACT

Ethnic diversity is generally associated with less social capital and lower levels of trust. However, most empirical evidence for this relationship is focused on *generalized trust*, rather than more theoretically appropriate measures of *group-based trust*. This article evaluates the relationship between ethnic diversity – at the national, regional and local levels – and the degree to which coethnics are trusted more than non-coethnics, a value referred to here as the ‘coethnic trust premium’. Using public opinion data from sixteen African countries, this study finds that citizens of ethnically diverse states express, on average, more ethnocentric trust. However, within countries, regional ethnic diversity is associated with less ethnocentric trust. This same negative pattern between diversity and ethnocentric trust appears across districts and enumeration areas within Malawi. The article then shows, consistent with these patterns, that diversity is only detrimental to intergroup trust at the national level when ethnic groups are spatially segregated. These results highlight the importance of the spatial distribution of ethnic groups on intergroup relations, and question the utility of micro-level studies of interethnic interactions for understanding macro-level group dynamics.

*Keywords:* intergroup trust; ethnicity; segregation; diversity; Africa

A growing literature has focused on how diverse contexts – neighborhoods, cities, states and countries – influence interpersonal trust. This literature is motivated by the desire to understand the origins of global differences in levels of trust, as well as to predict the long-term consequences of increased diversity resulting from globalization and immigration. Understanding how diversity influences trust is important, as low levels of trust have been associated with poorer economic performance,<sup>1</sup> more prevalent corruption<sup>2</sup> and a less robust social safety net.<sup>3</sup> In addition, ethnically circumscribed trust undermines economic integration<sup>4</sup> and civic engagement.<sup>5</sup>

While the empirical literature within political science and economics has tended to document a negative association between ethnic diversity and trust,<sup>6</sup> two different theoretical traditions make competing claims about what relationship we should expect to observe. Contact theory makes the optimistic prediction that diversity leads to interethnic tolerance and trust.<sup>7</sup>

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<sup>1</sup> Knack and Keefer 1997; Zak and Knack 2001.

<sup>2</sup> Uslaner 2002; Uslaner 2008.

<sup>3</sup> Bergh and Bjørnskov 2011.

<sup>4</sup> Robinson 2016a.

<sup>5</sup> Uslaner and Conley 2003.

<sup>6</sup> Alesina and La Ferrara 2002; Bahry et al. 2005; Knack and Keefer 1997.

<sup>7</sup> Allport 1954; Pettigrew 1998.

In contrast, conflict theory claims that intergroup contact will lead to an increase in conflict, as groups compete (or perceive themselves to be competing) over finite material resources.<sup>8</sup>

While most existing evidence is more consistent with conflict theory than contact theory, there has been a general mismatch between the construct of ethnocentric trust and the way in which it is typically measured. In particular, most studies of diversity and trust utilize the ‘generalized trust’ question, assuming – implicitly, if not explicitly – that the answer tells us something about trust across ethnic lines. In an attempt to remedy this inconsistency, I use more appropriate measures of ingroup and outgroup trust – and focus in particular on the gap between them, which I refer to as the coethnic trust premium – to explore the relationship between diversity and ethnocentric trust. I do so using public opinion data from sixteen African states, and evaluate the effects of diversity at both national and sub-national levels. In addition, I focus on a single country – Malawi – to further evaluate the effects of diversity in more localized contexts.

I find that, consistent with conflict theory, the gap between trust in coethnics and trust in non-coethnics – an indication of the degree of ethnocentric trust – is greater in ethnically diverse states. However, when evaluating this relationship *within* the same sixteen countries, the relationship is reversed: across regions in sixteen countries, and across both Malawian districts and localities, ethnic diversity is associated with less ethnocentric trust. These patterns imply that the adverse effects of national diversity on group-based trust are primarily driven by individuals living in relatively homogeneous sub-national regions. As a result, we should expect that a country’s diversity is only detrimental to trust when groups are spatially segregated from one another into ethnically homogenous regions. Consistent with this expectation, cross-national correlations show that the negative effects of diversity on trust are strongest when the level of ethnic group segregation is high. Taken together, these results suggest that national diversity *per se* does not undermine interethnic trust, but that diversity in combination with segregation is associated with greater ethnic trust discrimination.

This research confirms findings from a nascent literature showing more sanguine effects of diversity at sub-national levels,<sup>9</sup> most directly Kasara’s demonstration that local ethnic diversity and spatial integration in Kenya is associated with more trust in non-coethnics.<sup>10</sup> This article builds upon these studies, and advances our understanding of the relationship between diversity and intergroup trust in three ways. First, by utilizing a cross-national sample, the reported results are more generalizable than studies focused on a single country.<sup>11</sup> Second, the combination of cross-national and Malawi-specific data allows me to evaluate the relationship between diversity and ethnocentric trust at multiple levels of analysis. This turns out to be consequential, as we observe strikingly different patterns at national versus sub-national levels. While Gerring et al. find similarly contrasting correlations between diversity and human development at different levels, this article isolates ethnic segregation as the factor that accounts for these findings.<sup>12</sup> Thirdly, by utilizing survey questions that capture trust in non-coethnics separately from trust in coethnics, I am able to focus on how diversity is related to the degree to which trust is ethnically circumscribed.

These findings have important implications for understanding interethnic relations, as well as the policies we design to deal with weak intergroup trust. First, the results demonstrate that the

<sup>8</sup> Blumer 1958; Blalock 1967; Bobo and Tuan 2006.

<sup>9</sup> E.g., Gerring et al. 2015; Gibson and Hoffman 2013; Gisselquist, Leiderer, and Nino-Zarazua 2016.

<sup>10</sup> Kasara 2013.

<sup>11</sup> E.g. Gibson and Hoffman 2013; Gisselquist, Leiderer, and Nino-Zarazua 2016; Kasara 2013.

<sup>12</sup> Gerring et al. 2015.

observed relationship between diversity and interethnic trust depends crucially on the level of analysis. Similar patterns have been found for other outcomes, including race relations in the United States and human development around the world.<sup>13</sup> Together, these results call into question the common practice of studying micro-level relations between members of different ethnic groups in an effort to better understand how macro-level ethnic diversity influences political and economic outcomes. Secondly, policy makers must consider the potential for policies to have differential effects at different levels of political organization. For example, while proponents of conflict theory advocate the separation of ethnic groups, both spatially and politically, as a means to reduce conflict,<sup>14</sup> contact theory is regularly used to justify policies that promote ethnic and racial integration locally.<sup>15</sup> This study suggests, at a minimum, that appropriate policy solutions to ethnic antagonism and low trust across ethnic lines must appreciate the potentially countervailing effects of diversity at different levels of interaction.

#### ETHNIC DEMOGRAPHY AND ETHNOCENTRIC TRUST

Several theories have been put forth to understand the ways in which exposure to ethnic and racial diversity shapes intergroup attitudes and behavior, including intergroup trust. First, *conflict theory* anticipates that individuals in diverse settings will compete for scarce resources along group lines, thereby increasing the salience and relevance of existing ethnic differences.<sup>16</sup> While not always drawing explicitly on conflict theory, scholars of African politics often explain ethnic antagonisms and distrust as the product of competition over resources within the ethnically diverse national context, either through the rational pursuit of material goods<sup>17</sup> or the psychological response to group inequalities that result from such competition.<sup>18</sup> In addition to explaining variation across contexts with different levels of diversity, conflict theory also expects that ethnic differences will become more salient as levels of competition change over time, such as around national elections.<sup>19</sup>

In contrast, many psychologists have argued that exposure to diverse contexts should instead *reduce* the degree to which trust is ethnocentric. This expectation is predicated upon the assumption that negative beliefs about members of other groups are driven not by real or perceived competition, but by ignorance and lack of exposure to individuals from other groups. As a result, contact with non-coethnics is expected to ameliorate interethnic prejudice.<sup>20</sup> According to Forbes, the central tenant of *contact theory* is that 'more contact between individuals belonging to antagonistic social groups (defined by culture, language, beliefs, skin color, nationality, etc.) tends to undermine the negative stereotypes they have of each other and to reduce mutual antipathies'.<sup>21</sup> The mechanisms proposed to lead from intergroup contact to improved relations are learning, changing behavior, affective ties and in-group reappraisal.<sup>22</sup> While this theory has influenced both the scholarship and policy on racial integration in the United States, it has been applied less often to intergroup relations in developing countries in

<sup>13</sup> Gerring et al. 2015; Oliver and Wong 2003.

<sup>14</sup> Lijphart 1977.

<sup>15</sup> Forbes 2004.

<sup>16</sup> Blumer 1958; Bobo 1983; Bobo and Hutchings 1996; Glaser 2003; Quillian 1996.

<sup>17</sup> Bates 1983; Melson and Wolpe 1970.

<sup>18</sup> Horowitz 1985.

<sup>19</sup> Eifert, Miguel, and Posner 2010.

<sup>20</sup> Allport 1954.

<sup>21</sup> Forbes 2004, 70.

<sup>22</sup> Pettigrew 1998.

general, or in African contexts in particular, where ethnic diversity is perceived to be especially problematic. Two important exceptions are Dowd's documentation of how the spatial integration of religious communities facilitates intergroup co-operation and support for liberal democracy,<sup>23</sup> and Kasara's finding that local ethnic integration is associated with greater outgroup trust.<sup>24</sup>

Most empirical studies of the relationship between ethnic diversity and aggregate levels of trust find a robust negative relationship,<sup>25</sup> a pattern that is clearly inconsistent with the expectations of contact theory. However, most of this work has focused on the correlation between measures of ethnic or racial diversity and average levels of *generalized trust*. The standard measure of generalized trust asks respondents whether they feel 'most people can be trusted' or that 'you can't be too careful'. The use of this question has been heavily criticized for its lack of specificity on who 'most people' refers to, or the context(s) in which this trust should apply, making the comparability of answers across individuals and societies potentially problematic.<sup>26</sup> But more importantly for understanding diversity's impact on trust, it is a poor measure of the theoretically relevant construct – the degree to which trust is ethnically determined.<sup>27</sup> Conflict theory expects that diversity will increase the size of the *coethnic trust premium* – the degree to which coethnics are trusted more than non-coethnics – by making individuals more trusting of coethnics and less trusting of non-coethnics.<sup>28</sup> Even studies that focus explicitly on outgroup trust rather than generalized trust<sup>29</sup> may miss the divergent effects of diversity on trust in ingroup versus outgroup members, since the two are not necessarily related to one another.<sup>30</sup> In fact, in the United States, diversity is associated with less trust in both.<sup>31</sup> Putnam refers to this pattern as *constrict theory*, in which intergroup contact reduces social capital overall, but not necessarily through worsening intergroup relations or increased prejudices: diversity drives down trust in both coethnics and non-coethnics, having no effect on the size of the coethnic trust premium. For this reason, both conflict and constrict theories are consistent with a negative relationship between diversity and measures of *generalized* or outgroup trust. Thus, research on trust in coethnics vs. non-coethnics is necessary. Focusing on the differential trust in coethnics and non-coethnics has the added advantage of differencing out interpersonal differences in trust dispositions. Relationships between diversity and measures of coethnic trust or non-coethnic trust used alone are potentially conflated by the relationship between diversity and trust in general.

In addition, the vast majority of studies have focused on diversity measured at the national level. However, recent literature has shown that the 'diversity debit' hypothesis is less robust, or even reversed, at sub-national levels. In terms of trust, Kasara shows that diversity at a more localized level is associated with greater trust in outgroup members.<sup>32</sup> Gerring et al. find that

<sup>23</sup> Dowd 2015.

<sup>24</sup> Kasara 2013.

<sup>25</sup> Alesina and La Ferrara 2002; Bjørnskov 2007; Delhey and Newton 2005; Dincer 2011; Hooghe et al. 2009; Putnam 2007; Stolle, Soroka, and Johnston 2008.

<sup>26</sup> Bahry et al. 2005; Nannestad 2008.

<sup>27</sup> In some contexts, questions have been developed to measure particularized rather than generalized trust (e.g., Bahry et al. 2005; Robinson 2016b; Uslaner 2002).

<sup>28</sup> Throughout the manuscript, I use the terms coethnic and ingroup trust to indicate trust in members of one's own ethnic community, and non-coethnic or outgroup trust to denote trust in members of other ethnic communities within one's own country. Putnam refers to the former as 'bonding' trust and the latter as 'bridging' trust.

<sup>29</sup> E.g., Kasara 2013.

<sup>30</sup> Bahry et al. 2005.

<sup>31</sup> Putnam 2007.

<sup>32</sup> Kasara 2013.

while national-level ethnic and religious diversity are detrimental to human development, variation in diversity within countries is associated with better development outcomes.<sup>33</sup> Similarly, Gisselquist, Leiderer, and Nino-Zarazua and Gibson and Hoffman find that diversity among sub-national units in Zambia is associated with greater public goods provision and local government expenditures, respectively.<sup>34</sup> More broadly, scholars have noted differences in the relationship between diversity and intergroup relations at different levels of analysis;<sup>35</sup> lower-level analyses tend to show positive correlations, while more aggregated analyses reveal negative associations. While we may expect similar differential effects of diversity on intergroup trust at different levels, this has not been explored empirically.

If interethnic trust is indeed negatively associated with diversity at national levels, but positively correlated at sub-national levels, spatial segregation of ethnic groups in diverse contexts could be a crucial factor in understanding the relationship between ethnic demography and intergroup trust. In particular, a positive relationship between ethnic diversity and ethnocentric trust at the national level could be driven by individuals living in the homogeneous districts of diverse states. If this is the case, then the spatial segregation of ethnic groups within diverse states should be an important mediator in the link between ethnic diversity and ethnocentric trust in Africa. This expectation would be consistent with a vast sociological literature exploring the effects of ethnic and racial segregation in US cities. This literature has focused primarily on whether and how the residential segregation of African-Americans from their white counterparts in the United States contributes to long-term racial inequalities in education,<sup>36</sup> health<sup>37</sup> and employment.<sup>38</sup> In addition, Oliver and Wong find that neighborhood residential segregation increases prejudice toward members of racial outgroups, but only when those outgroups make up a large proportion of the greater metropolitan area.<sup>39</sup>

The effect of segregation on ethnocentric trust remains largely unexplored empirically, especially in sub-Saharan Africa, with a few exceptions. In a study based on cities in the United States and the United Kingdom, Uslaner starts with the observation that, across those cities, segregation and diversity are only weakly correlated.<sup>40</sup> He goes on to show that while diversity is generally detrimental to trust, in the absence of ethnic or racial segregation *and* the presence of diverse social networks, trust can thrive amid diversity. Alesina and Zhuravskaya link ethnic group segregation at the country level with the quality of governance in a worldwide sample, finding that segregation has a negative impact on political accountability, stability, government effectiveness, regulatory quality, rule of law and the restraint of corruption.<sup>41</sup> One of the mechanisms they put forward to account for the relationship between segregation and government quality is trust. They find that segregation is related to lower levels of trust, and that trust, in turn, is predictive of governance quality. Finally, in the only study focused explicitly on an African country, Kasara finds that neighborhood-level segregation counteracts the positive effect of local diversity on outgroup trust in Kenya.<sup>42</sup>

<sup>33</sup> Gerring et al. 2015.

<sup>34</sup> Gibson and Hoffman 2013; Gisselquist, Leiderer, and Nino-Zarazua 2016.

<sup>35</sup> Forbes 1997; Oliver and Wong 2003; Williams 1964.

<sup>36</sup> Cutler and Glaeser 1997.

<sup>37</sup> Kramer and Hogue 2009; Williams and Collins 2001; Yankauer 1950.

<sup>38</sup> Cutler and Glaeser 1997; Jencks and Mayer 1990; Kain 1968.

<sup>39</sup> Oliver and Wong 2003.

<sup>40</sup> Uslaner 2011.

<sup>41</sup> Alesina and Zhuravskaya 2011.

<sup>42</sup> Kasara 2013.

While the first two of these studies put forward theories that operate through segregation's impact on intergroup trust, neither measures this construct directly, instead relying on the standard measure of generalized trust. Uslaner seems, implicitly, to take in-group trust for granted by assuming that generalized trust captures trust in out-group members only.<sup>43</sup> Alesina and Zhuravskaya are more explicit about this shortcoming, noting that because 'there are no data separately on between-group and within-group trust' they assume that 'measures of generalized trust place more weight on trusting people beyond the borders of local communities', although no argumentation is made to support this assumption.<sup>44</sup> Kasara does directly measure outgroup trust, but only at a very localized level in a single country (Kenya).<sup>45</sup> Her analyses also do not allow us to determine whether local diversity is affecting trust in non-coethnics only, or whether it also affects trust in coethnics. The present study adds to this nascent literature on ethnic segregation and trust by evaluating the relationship between ethnic diversity and interethnic trust directly at the national and sub-national levels across sixteen African countries, as well as across sub-national and local levels within Malawi.

#### DATA

To evaluate the effects of ethnic diversity on ethnocentric trust across different levels of analysis, I combine individual-level data on trust in coethnics and non-coethnics with ethnic demographic data from 185 regions within sixteen African countries, and across 143 localities within twenty-six districts in Malawi. The sixteen countries were chosen because they were included in the third round of the Afrobarometer survey data collection, and include: Benin, Botswana, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda and Zambia. Additional analyses focus on lower levels of aggregation within Malawi using census data on the spatial distribution of ethnic communities. In addition to the obvious benefits conferred by access to very fine-grained census data, Malawi is a reasonable choice for more focused analyses. While ethnicity is not so divisive to have ever formed the basis of organized violence, ethnically defined identities are both politically and socially salient.<sup>46</sup> Within the larger sample, Malawi is fairly typical in terms of ethnocentric trust, ethnic diversity and ethnic segregation.

This combination of data allows me to identify the effects of ethnic diversity at multiple levels of aggregation, from the country level down to enumeration areas. The specifics of the data and measurements are outlined below, and summary statistics for all variables are shown in Appendix Table A.1.

#### *Interethnic Trust*

Interethnic trust is measured using the third-round Afrobarometer public opinion survey, which is the only round that includes separate questions on trust in coethnics and trust in non-coethnics. This survey was administered in the sixteen African countries listed above in 2005 and 2006.<sup>47</sup> Respondents were asked to rate their level of trust in different groups of people –

<sup>43</sup> Uslaner 2011.

<sup>44</sup> Alesina and Zhuravskaya 2011, 1876.

<sup>45</sup> Kasara 2013.

<sup>46</sup> Chirwa 1998; Dulani and Dionne 2014; Ejdemyr, Kramon, and Robinson Forthcoming; Ferree and Horowitz 2010; Forster 1994; Kaspin 1995; Osei-Hwedie 1998; Posner 2004; Robinson 2016a; Robinson 2016b; Vail and White 1991.

<sup>47</sup> Afrobarometer 2006. Data for the third round was also collected in Cape Verde and Zimbabwe, but the trust questions were not asked in those two countries.

not at all, just a little, somewhat or a lot – including ‘people from your ethnic group’ and ‘[Ghanaians/Kenyans/Malawians] from other ethnic groups’.<sup>48</sup> Combining these two questions allows me to measure trust in coethnics relative to non-coethnics, which I refer to as the coethnic trust premium, in two ways. First, to capture the presence of a coethnic trust premium, I simply determine whether or not a respondent expresses more trust in coethnics than non-coethnics. According to this dichotomous measure of ethnocentric trust, 27 per cent of the cross-national sample exhibits a coethnic trust premium, ranging from 37 per cent in Mali to 13 per cent in Botswana. Malawi ranks twelfth of the sixteen countries, with 29 per cent trusting coethnics more than non-coethnics. Secondly, I capture the size of the coethnic trust premium by subtracting the degree of non-coethnic trust from the degree of trust in coethnics. Given the four-point trust scale for each trust question, the size of the coethnic trust premium can range from –3 (when non-coethnics are trusted ‘a lot’ and coethnics are trusted ‘not at all’) to 3 (when coethnics are trusted ‘a lot’ and non-coethnics are trusted ‘not at all’). The average coethnic trust premium across all sixteen countries is 0.31 ( $sd=0.79$ ), with Mali having the highest premium (0.51) and Botswana the lowest (0.12). While this second measure captures a full spectrum of relative trust, in practice very few (5 per cent) report trusting non-coethnics more than coethnics by any degree, and the modal response is equal trust (68 per cent). Thus the main difference between the first and second measures of ethnocentric trust is that the second captures the *degree* to which an individual trusts a coethnic more than a non-coethnic, with 19 per cent trusting coethnics one level more, 6 per cent two levels more and 2 per cent three levels more.

To connect ethnocentric trust to ethnic demography, I use the district or regional location of each respondent as recorded by Afrobarometer enumerators in cross-national analyses, and the enumeration area for analyses focused on districts and localities in Malawi.<sup>49</sup>

### *Ethnic Diversity*

I use the most common indicator of ethnic diversity – the degree of ethnic fractionalization – measured by:

$$F_u = 1 - \sum_{m=1}^M P_{um}^2$$

where  $F_u$  is the level of ethnic fractionalization in unit  $u$ ,  $m$  indexes ethnic groups, and  $P_{um}$  is the proportion of the population in unit  $u$  belonging to ethnic group  $m$ . Theoretically, ethnic

<sup>48</sup> While these questions certainly improve upon the more widely used generalized trust question in terms of comparability across respondents, we still cannot know which particular ethnic groups a respondent has in mind when referencing conationals from ‘other ethnic groups’, or the degree to which this varies across respondents within the same country.

<sup>49</sup> Unfortunately, the process of matching Afrobarometer respondents in Malawi to specific enumeration areas was not straightforward. Afrobarometer graciously shared the only locality data they have for Round 3, which includes district, a two- to three-digit enumeration area identification number, and a village or town name. The enumeration area identification numbers correspond to the 1998 census map, but do not include indicators for traditional authorities, the administrative unit below district within which enumeration areas are enumerated. When more than one enumeration area within a district had the same enumeration identification number (e.g., more than one traditional authority within a district had an enumeration area with the same identification number), respondents were matched to village names provided by the National Statistics Office of Malawi. Enumeration areas from the 1998 census were then spatially merged with the 2008 census enumeration areas to provide demographic data for each respondent’s enumeration area. This process resulted in local demographic data for 1,104 of the 1,200 Malawi respondents in Afrobarometer Round 3.



fractionalization ranges from zero, where all individuals are members of the same ethnic group, to one, where each individual belongs to his or her own ethnic group. Measured in this way, diversity is conceptualized as the likelihood that two randomly selected individuals within a given country are from different ethnic groups.

To determine the level of ethnic diversity in each of the sixteen countries, I measure  $P_{um}$  as the proportion of the Afrobarometer sample in country  $u$  that belongs to ethnic group  $m$ . I similarly calculate an ethnic fractionalization index at the regional level using the proportion of each group by region for all 185 regions in the sixteen countries. Within Malawi, district and locality diversity are calculated using the 2008 national census,<sup>50</sup> which reports the numbers of individuals from each of the main ethnic groups across 12,567 enumeration areas within twenty-six districts.<sup>51</sup>

Ideally, all of the demographic information would be based on census data rather than survey samples. However, in the study of diversity at lower levels of analysis in Africa, survey samples are often the best data available and are widely utilized.<sup>52</sup> Sample-based measures may even have some benefits over census data: only a minority of African states include ethnicity questions on their census,<sup>53</sup> surveys allow individuals to self-identify their ethnicity rather than be ascribed one, and surveys are less susceptible to government manipulation of ethnic composition.<sup>54</sup> But these benefits are certainly outweighed by the costs of sample-based measures in contexts where the sample is non-random, or where samples are so small that even unbiased estimates of population shares are measured with significant error. Fortunately, Afrobarometer respondents comprise stratified random samples at all levels, making population estimates based on them unbiased: thus, the major concern with using Afrobarometer sample data to construct demographic measures is unbiased measurement error.<sup>55</sup>

To gauge the severity of such mismeasurement, I make three comparisons with non-sample-based measures. First, at the national level, I compare my sample-based measure to one of the most commonly used measures of ethnic fractionalization based on multiple country-specific sources and census data.<sup>56</sup> The correlation between these two measures is 0.77 ( $p < 0.01$ ), as shown in Figure 1. Secondly, I compare regional ethnic diversity based on Afrobarometer samples to diversity measures based on random subsets of census data for the thirty-seven regions within the five countries – Ghana, Malawi, Senegal, Uganda and Zambia – for which census data on ethnicity is available at sub-national levels. Figure 2 shows that the two measures are closely related ( $r = 0.51$ ,  $p < 0.01$ ). While the sample-based measure tends to underestimate the overall degree of diversity compared to census data, relative diversity among regions is largely preserved.<sup>57</sup> Again, it is worth noting that this mismeasurement simply makes it harder to observe any true relationship between diversity and interethnic trust: the randomized sampling procedure ensures that such mismeasurement is uncorrelated with characteristics of the regions or localities within them, at least in expectation. Thirdly, I compare survey- and

<sup>50</sup> National Statistics Office of Malawi 2008.

<sup>51</sup> On average, enumeration areas have 1,036 residents (SD = 550) and cover 6 km<sup>2</sup> (SD = 550).

<sup>52</sup> E.g., Alesina and Zhuravskaya 2011; Gerring et al. 2015; Nunn and Wantchekon 2011.

<sup>53</sup> Morning 2008.

<sup>54</sup> Goist and Livny 2016.

<sup>55</sup> Even at the levels of district and enumeration area, the sample proportions provide unbiased estimates of population share. However, with their much smaller sample sizes, these are measured with much less precision. For this reason, analyses of diversity at the sub-national level focus on regions instead of districts. Replications using district-level measures of sub-national diversity are shown in Appendix Table E.1.

<sup>56</sup> Fearon 2003.

<sup>57</sup> Two of the three Ghanaian regions where diversity is significantly underestimated are in northern Ghana, where Afrobarometer unfortunately aggregated many ethnic groups into ‘other northern’ groups.



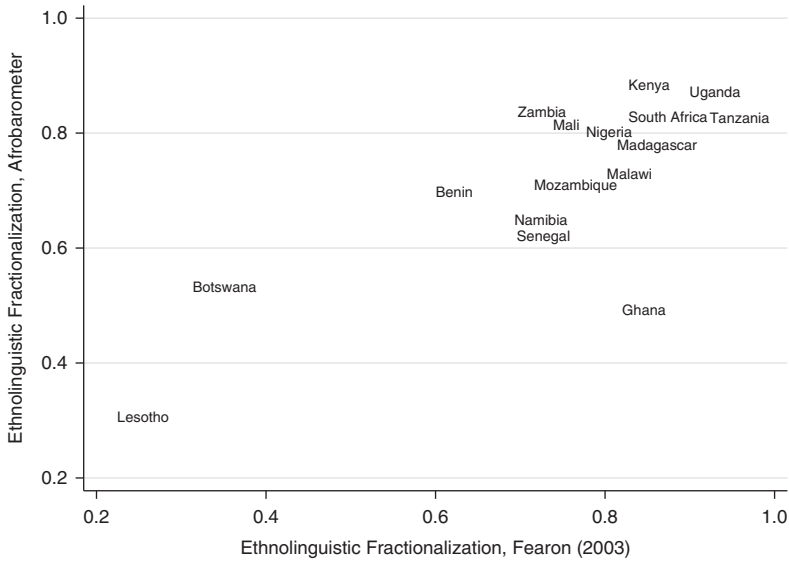


Fig. 1. The relationship between sample- and census-based measures of ethnic fractionalization across African states

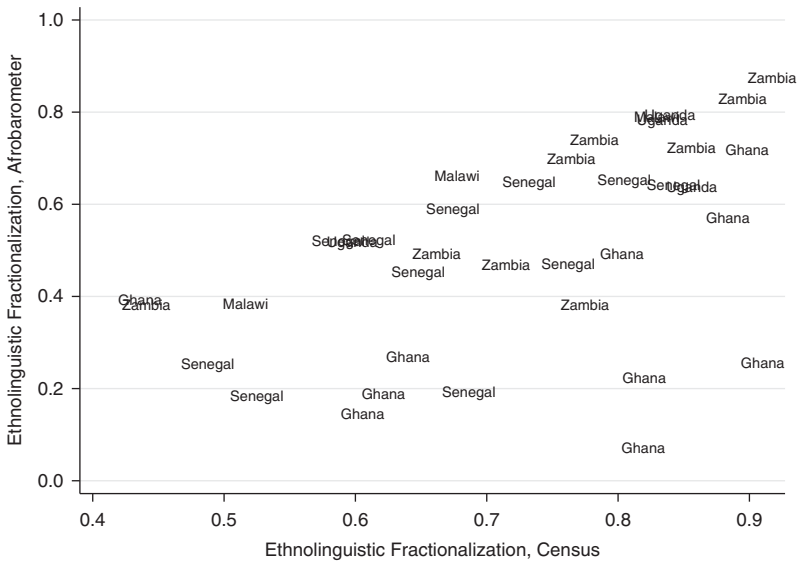


Fig. 2. The relationship between sample- and census-based measures of ethnic fractionalization across regions in five African states

census-based measures of diversity across Malawi’s twenty-six districts. Figure 3 shows that the degree of diversity across districts in Malawi is very strongly correlated with the measure based on Afrobarometer samples ( $r=0.61, p < 0.01$ ), and the relationship is even stronger ( $r=0.76, p < 0.01$ ) once Chitipa District, the most diverse district in the sample, is excluded. This suggests that the Afrobarometer-based measure is likely to underestimate the degree of diversity in highly diverse districts, because such diversity is harder to capture with limited samples.

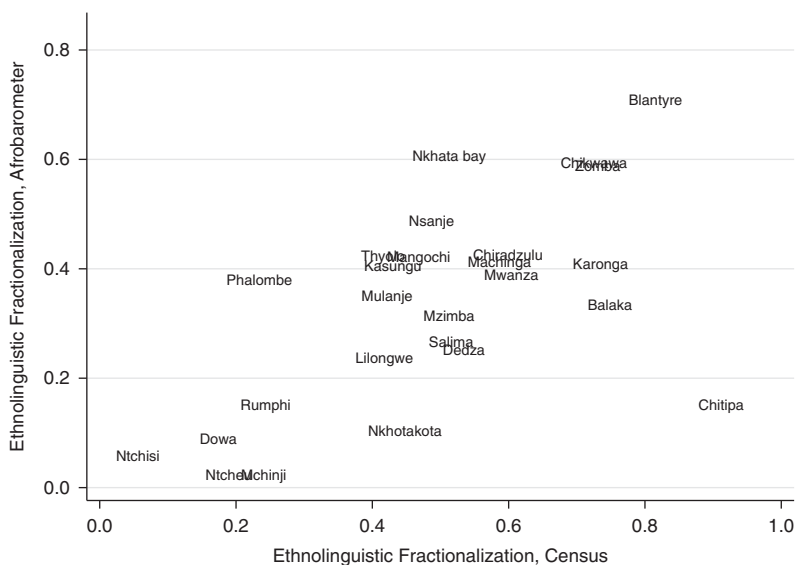


Fig. 3. The relationship between sample- and census-based measures of ethnic group diversity across districts within Malawi

Taken together, these comparisons demonstrate that while sample-based measures of ethnic diversity are not perfect, they are similar enough to more robust measures to justify the greater coverage they afford.

Across the sixteen countries, the level of national ethnic diversity ranges from 0.31 in Lesotho to 0.89 in Kenya, with Malawi, at 0.73, falling between the mean (0.71) and median (0.76) of the full sample. Across the 185 regions nested within countries, ethnic diversity ranges from 0 (fully homogenous) to 0.90 with an average of 0.47. Across Malawi's twenty-six districts, the average ethnic diversity index is 0.49, ranging from 0.06 in Ntchisi to 0.91 in Chitipa. Finally, average diversity across the 143 Malawian localities in which Afrobarometer interviewed respondents is 0.34, ranging from full homogeneity to almost full heterogeneity.

### *Ethnic Segregation*

Next, I evaluate the degree to which members of different ethnic groups are regionally concentrated within countries. One way to do this is to look at the relationship between diversity measures at different levels. Figure 4 plots the relationship between national-level ethnic fractionalization and the average degree of ethnic fractionalization across all regions within that country. With the exception of Lesotho, all sixteen states in the sample are more diverse at the national level than they are regionally. While measures at these two levels are positively correlated ( $r = 0.58$ ,  $p < 0.05$ ), this is largely driven by the fact that more ethnically homogenous countries have less diverse regions. However, in more diverse countries, there is significant variation in the diversity of sub-national regions. For example, Mali is very heterogeneous nationally and is fairly integrated sub-nationally, with highly diverse regions, on average. In contrast, Nigeria, which is as diverse as Mali nationally, is much more homogenous at the regional level.

To capture variation in the degree of discrepancy between national and sub-national diversity, I measure ethnic group segregation, defined by Massey and Denton as the degree to which

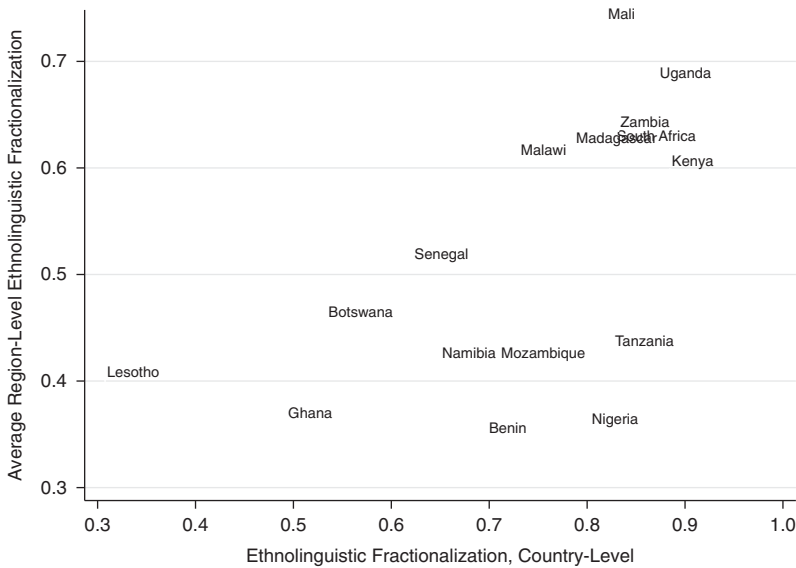


Fig. 4. National vs. regional ethnic diversity

groups live separately from one another.<sup>58</sup> At the state level, ethnic group segregation, like ethnic group fractionalization, is calculated using data on the ethnicity of respondents in the third round of the Afrobarometer survey. I operationalize ethnic segregation using the *generalized dissimilarity index* ( $D$ ), which captures the disproportionality in group proportions across districts by taking the mean relative deviation from proportionality across all ethnic groups within a country. The index is defined as:

$$D_c = \sum_{m=1}^m \sum_{j=1}^j \frac{t_{cj}}{2T_c F_c} |p_{cjm} - P_{cm}| \quad (1)$$

where  $D_c$  is the dissimilarity index for country  $c$ ,  $m$  indexes ethnic groups, and  $j$  indexes districts;  $t_{cj}$  and  $T_c$  are the total populations of district  $j$  and country  $c$ , respectively;  $F_c$  is the country's ethnic fractionalization; and  $p_{cjm}$  is the proportion of district  $j$  composed of members of group  $m$  and  $P_{cm}$  is that proportion for the whole country.<sup>59</sup> The index varies in theory from 0 to 1, and can be interpreted as the percentage of citizens that would have to move in order to equalize national and district proportions for all groups, divided by the percent that would have to move to get from a state of complete segregation to one of complete proportionality. Thus larger numbers designate greater segregation. Based on this measure of segregation, the least segregated country in the sample is Lesotho ( $D=0.12$ ) and the most segregated country is Nigeria ( $D=0.90$ ). Segregation in Malawi ( $D=0.71$ ) is just below the mean of all sixteen countries ( $0.72$ ,  $SD = 0.20$ ).

<sup>58</sup> Massey and Denton 1988.

<sup>59</sup> I use district rather than region proportions when measuring segregation in order to increase the number of units per country. However, country-level segregation measures across districts and regions are very strongly correlated ( $r = 0.92$ ,  $p < 0.01$ ).

## RESULTS

Given the hierarchical nature of the data, I model the relationships between ethnic demography and ethnocentric trust using a series of multi-level models. For the cross-national sample, I evaluate the relationship between the presence of a coethnic trust premium at the individual level, and ethnic diversity at the country and regional levels, using a three-level mixed-effects logistic regression with country and region random intercepts. When the outcome is the size of the coethnic trust premium, I use an ordered logistic link function to account for the ordinal nature of the variable. Both outcomes are also evaluated with respect to country-level segregation, but for these specifications I estimate district random effects rather than regional ones because segregation is measured with respect to districts. In evaluating the same relationships at lower levels of aggregation within Malawi, the models are the same except that the random intercepts are calculated for districts and enumeration areas instead of countries and sub-national units. All models include a vector of individual-level controls that may affect ethnocentric trust, including gender, age, age squared, and indicators for secondary education, being an agricultural worker, living in an urban area and feeling that ‘most people can be trusted’.<sup>60</sup>

### *Ethnic Diversity at Different Levels*

Table 1 shows that national-level ethnic diversity is positively related to the likelihood that a respondent will trust coethnics more than non-coethnics (Model 1), and to the size of the coethnic trust premium (Model 4).<sup>61</sup> Substantively, a one-standard-deviation increase from the mean in national ethnic diversity – roughly increasing national diversity from Malawi’s level to Kenya’s – is associated with a 4-percentage-point increase in the likelihood that citizens trust conationals from their own ethnic group more than those from other ethnic communities. This relationship is driven by a divergence in the average coethnic trust and the average non-coethnic trust at higher levels of diversity, as there is no statistically significant relationship between ethnic diversity and coethnic trust (Model 1 of Table D.1) or non-coethnic trust (Model 4 of Table D.1). However, the size of the coefficients suggests that national ethnic diversity increases ethnocentric trust primarily by increasing trust in coethnics rather than by decreasing trust in non-coethnics.<sup>62</sup> The positive correlation between ethnic diversity and ethnocentric trust across African states is more consistent with the predictions of conflict theory than the sanguine

<sup>60</sup> On average, the middle aged, the educated, those living in urban areas, those with more generalized trust, and those working in sectors other than agriculture are less likely to trust coethnics more than non-coethnics, and have, on average, smaller coethnic trust premiums. There is no consistent difference in ethnocentric trust by gender.

<sup>61</sup> Given that there are only sixteen countries in the sample, the national-level results could be sensitive to single cases. To evaluate the sensitivity to sample, Model 1 estimates are replicated when dropping each of the sixteen countries one by one. The results, presented in Appendix Tables C.1 and C.2, show that the estimates are fairly stable across samples.

<sup>62</sup> The lack of precision in estimating the relationship between national-level ethnic diversity and trust in coethnics, as seen in Table D.1, may be due in part to the fact that interpersonal differences in coethnic trust are conflated with interpersonal differences in generalized trust, which is expected to have the opposite relationship with diversity. The main outcome used in this study, the coethnic trust premium, does not suffer from this problem, as generalized trust differences are differenced out by measuring the gap in trust due to shared ethnicity. I attempt to account for variation in generalized trust by including a control variable meant to capture it, but the generalized trust question in the Afrobarometer is dichotomous – ‘most people can be trusted’ vs. ‘you must be very careful’ – and exhibits very little variation, with the overwhelming majority (83 per cent) expressing low generalized trust.

TABLE 1 Diversity and Ethnocentric Trust Across Sixteen Countries and their Sub-National Regions

	I (Coethnic Trust > Non-Coethnic Trust)			Coethnic Trust – Non-Coethnic Trust		
	(1)	(2)	(3)	(4)	(5)	(6)
Country Diversity	1.391*** (0.472)		1.538*** (0.503)	1.091*** (0.402)		1.242*** (0.437)
Region Diversity		-0.281 (0.173)	-0.307* (0.171)		-0.290** (0.147)	-0.309** (0.145)
Constant	-1.464*** (0.359)	-0.329* (0.170)	-1.414*** (0.377)			
SD (Country)	0.055* (0.030)	0.117** (0.054)	0.064* (0.033)	0.040* (0.022)	0.085** (0.039)	0.050** (0.025)
SD (Region)	0.224*** (0.034)	0.215*** (0.033)	0.214*** (0.033)	0.156*** (0.024)	0.147*** (0.023)	0.146*** (0.023)
Individual-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countries	16	16	16	16	16	16
Regions	185	185	185	185	185	185
Individuals	21,559	21,559	21,559	21,559	21,559	21,559

Note: hierarchical logistic (Models 1–3) and ordered logistic (Models 4–6) regressions with country and region random-effects. Individual-level controls: gender, age, age squared, secondary education, agricultural worker, urban residence, and generalized trust. Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

expectations of contact theory. These findings on group-based trust suggest that generalized trust is lower in multi-ethnic countries because citizens have, on average, more non-coethnic compatriots *and* because the difference between the levels of trust in coethnics and non-coethnics is larger.

In contrast to the positive relationship between diversity and ethnocentric trust across states, regional diversity within states is associated with *less* ethnic trust discrimination. This negative relationship is not quite statistically significant at conventional levels ( $p = 0.105$ ) for the dichotomous indicator of trusting one's coethnics more than non-coethnics (Model 2 of Table 1), but is statistically significant for the size of the trust differential (Model 5) and for both outcomes once controlling for national ethnic diversity (Models 3 and 6).<sup>63</sup> Based on the results of Model 3, the estimates suggest that a one-standard-deviation increase from the mean in regional ethnic diversity – within a country with average ethnic diversity – is associated with a 2-percentage-point reduction in the percent of people trusting coethnics more than non-coethnics. By analyzing the relationship between regional diversity and trust in coethnics separately from the relationship between regional diversity and trust in non-coethnics, we can evaluate their relative contributions to the reduction of ethnocentric trust amid diversity. Appendix Table D.1 shows that regional diversity is negatively related to the size of the coethnic trust premium primarily because of increased trust in non-coethnics, which is consistent with findings reported by Kasara.<sup>64</sup>

<sup>63</sup> Appendix Table B.1 presents results for regional ethnic diversity in models with country-fixed effects, and shows even stronger negative effects on ethnocentric trust.

<sup>64</sup> Kasara 2013.

TABLE 2 *Diversity and Ethnocentric Trust across Districts and Localities in Malawi*

	I (Coethnic Trust > Non-Coethnic Trust)			Coethnic Trust – Non-Coethnic Trust		
	(1)	(2)	(3)	(4)	(5)	(6)
District Diversity	-1.457** (0.570)		-0.884 (0.605)	-1.073** (0.511)		-0.710 (0.549)
Locality Diversity		-0.989*** (0.334)	-0.782** (0.358)		-0.652** (0.302)	-0.483 (0.323)
Constant	1.540** (0.607)	1.126** (0.542)	1.493** (0.601)			
SD (District)	0.151 (0.094)	0.139 (0.091)	0.124 (0.086)	0.121* (0.073)	0.113 (0.073)	0.102 (0.068)
SD (Locality)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.088)	0.000 (0.000)
Individual-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Districts	26	26	26	26	26	26
Localities	143	143	143	143	143	143
Individuals	1,014	1,014	1,014	1,014	1,014	1,014

*Note:* hierarchical logistic (Models 1–3) and ordered logistic (Models 4–6) regressions with country and region random-effects. Individual-level controls: gender, age, age squared, secondary education, agricultural worker, urban residence, and generalized trust. Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

The results thus far demonstrate striking differences in the relationship between diversity and intergroup trust at the national and regional levels. I next use the Malawian sample to evaluate the same correlations across districts and very localized enumeration areas within them. The results of those estimations are presented in Table 2, which shows that, on the whole, diversity at both levels is associated with less ethnic trust discrimination. Based on Models 1 and 2, the substantive effect is equal to a 5-percentage-point increase in the likelihood of a coethnic trust premium for a one-standard-deviation increase from the mean in district or local ethnic diversity. However, because district and local diversity within Malawi are fairly strongly correlated, the effects are weaker when both measures are included in the same model (Models 3 and 6). This narrowing of the gap between trust in coethnics and non-coethnics is driven by increased trust in non-coethnics as district and, especially, locality diversity increases (Models 4–6 of Appendix Table D.2). This pattern is consistent with Kasara's findings, which show a positive relationship between local-level ethnic diversity and trust in non-coethnics within Kenya.<sup>65</sup> By using a relative measure of group trust, the results reported here confirm that this trust bump for non-coethnics in diverse areas is indeed confined to non-coethnics.

### *Ethnic Segregation*

The pernicious effect of diversity at the national level thus appears to be counteracted by positive effects of diversity at more localized levels. While diverse states tend to have higher levels of ethnocentric trust, which is consistent with conflict theory, diverse areas *within* states show the lowest levels of ethnic trust discrimination, as predicted by contact theory. Although there seems to be a contradiction in these findings, they are in fact consistent with other analyses

<sup>65</sup> Kasara 2013.



TABLE 3 Segregation and Ethnocentric Trust across Sixteen Countries

	I (Coethnic Trust > Non-Coethnic Trust)		Coethnic Trust – Non-Coethnic Trust	
	(1)	(2)	(3)	(4)
Country Segregation	0.749* (0.450)	-1.921* (1.131)	0.489 (0.377)	-1.380 (0.945)
Country Diversity		-0.260 (1.580)		0.581 (1.316)
Country Segregation × Country Diversity		3.005 (2.009)		1.580 (1.672)
Constant	-1.011*** (0.357)	-0.515 (0.738)		
SD (Country)	0.089** (0.036)	0.049** (0.022)	0.061** (0.025)	0.033** (0.015)
SD (District)	0.305*** (0.031)	0.305*** (0.031)	0.227*** (0.025)	0.226*** (0.025)
Individual-Level Controls	Yes	Yes	Yes	Yes
Countries	16	16	16	16
Districts	1,296	1,296	1,296	1,296
Individuals	21,559	21,559	21,559	21,559

Note: hierarchical logistic (Models 1–3) and ordered logistic (Models 4–6) regressions with country and region random-effects. Individual-level controls: gender, age, age squared, secondary education, agricultural worker, urban residence, and generalized trust. Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

of diversity and intergroup relations at different levels of analysis.<sup>66</sup> Given this pattern, we should expect that greater ethnic segregation at the national level should be related to more ethnocentric trust.

As shown in Model 1 of Table 3, ethnic segregation is indeed positively related to the proportion that trusts coethnics more than non-coethnics, but this effect is only marginally statistically significant. However, we would not necessarily expect ethnic group segregation to have an impact on ethnocentric trust across all levels of ethnic diversity. Instead, given the results in the previous section, we would expect that ethnic group segregation is only the means through which national-level ethnic diversity influences intergroup trust. Thus we would expect a positive interaction between ethnic diversity and ethnic segregation. Model 2 of Table 3 shows the results of including this interaction, which is indeed positive and almost reaches standard levels of statistical significance ( $p = 0.12$ ). Figure 5 presents this result graphically, showing the change in the marginal effect of national diversity on ethnocentric trust as a function of ethnic segregation. The graph is consistent with the expectation that national-level ethnic diversity only increases the degree to which citizens trust coethnics more than non-coethnics when ethnic groups are highly segregated ( $D > 0.6$ ).

Table 4 reports these same analyses for Malawian districts. While segregation is positively correlated with ethnocentric trust, this effect is just shy of conventional statistical significance ( $p = 0.102$ ). Here, we would expect a positive interaction between district diversity and segregation (that is, district diversity should be less beneficial to intergroup trust as segregation

<sup>66</sup> Forbes 1997; Oliver and Wong 2003; Williams 1964.

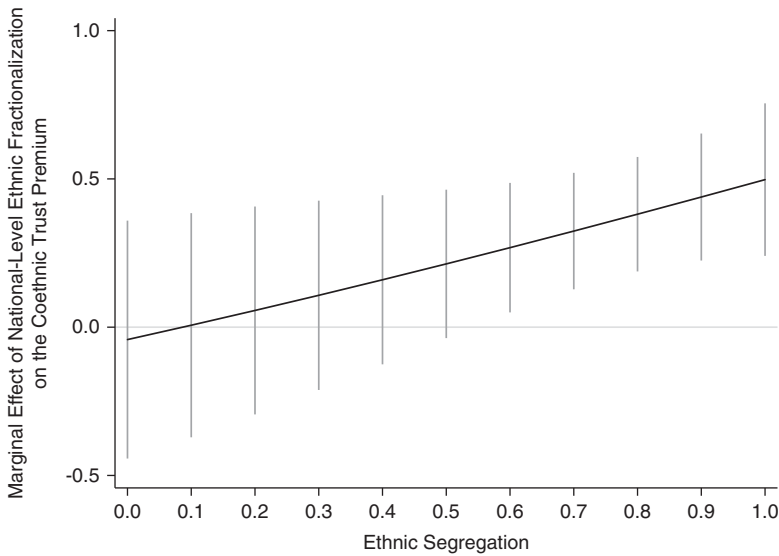


Fig. 5. The marginal effect of national-level diversity on the proportion trusting coethnics more than non-coethnics as a function of ethnic group segregation

increases), however the results of Models 2 and 4 in Table 4 are not consistent with these expectations. Thus, these results suggest that segregation at the national level is more consequential than more localized segregation.<sup>67</sup>

#### ALTERNATIVE EXPLANATIONS

The results provide evidence that individuals are more likely to trust coethnics more than non-coethnics when they live in more homogeneous areas of diverse states (that is, when ethnic groups are spatially segregated). While the results are based on observational data, my interpretation assumes that interethnic contact at more localized levels has a causal impact on individual attitudes about trust. However, a causal interpretation of these correlations is threatened by a number of potential sources of omitted variable bias.

#### *Selective Migration and Residential Sorting*

A first alternative explanation is that individuals who are more trusting of non-coethnics may choose to live in more diverse locales. If this were the case, then we would expect a negative association between local ethnic diversity and ethnocentric trust, but with causation running from attitudes to residential choice. This is a well-known problem for contact theory:<sup>68</sup> Pettigrew suggests that this problem is best overcome by focusing on intergroup contact where individual choice over intergroup contact is limited.<sup>69</sup> I would argue that, in much of sub-Saharan Africa, individuals live in or near the village where they were born, as access to land

<sup>67</sup> Consistent with results from Kenya (Kasara 2013), district segregation is negatively correlated with trust in non-coethnics (Appendix Table D.4).

<sup>68</sup> Forbes 2004.

<sup>69</sup> Pettigrew 1998.

TABLE 4 Segregation and Ethnocentric Trust across Districts in Malawi

	I (Coethnic Trust > Non-Coethnic Trust)		Coethnic Trust – Non-Coethnic Trust	
	(1)	(2)	(3)	(4)
District Segregation	1.089 (0.666)	0.669 (1.632)	0.720 (0.579)	0.781 (1.461)
District Diversity		-1.797 (1.358)		-0.991 (1.149)
District Segregation × District Diversity		0.800 (2.909)		-0.161 (2.507)
Constant	0.255 (0.640)	1.117 (0.947)		
SD (District)	0.195* (0.107)	0.120 (0.083)	0.148* (0.081)	0.103 (0.068)
SD (Locality)	0.000 (0.000)	0.000 (0.000)	0.004 (0.089)	0.000 (0.000)
Individual-Level Controls	Yes	Yes	Yes	Yes
Districts	26	26	26	26
Localities	143	143	143	143
Individuals	1,014	1,014	1,014	1,014

Note: hierarchical logistic (Models 1–3) and ordered logistic (Models 4–6) regressions with country and region random-effects. Individual-level controls: gender, age, age squared, secondary education, agricultural worker, urban residence, and generalized trust. Standard errors in parentheses. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

for subsistence farming is informally secured through inheritance, and is typically controlled by indigenous authorities via customary law. Thus in rural settings, it is difficult for individuals to sort internally based on preferences for or against contact with members of other ethnic groups. Thus, this reverse causation alternative is most likely to be a problem in urban areas, into which many urbanites have self-selected. However, all analyses control for urban residence, meaning that sub-national diversity is associated with less ethnocentric trust even after accounting for such differences.

To deal with any remaining omitted variable bias due to selective migration above and beyond urbanization, I replicate the main results based on a sample of likely non-migrants. While the Afrobarometer does not include an indicator for the migrant status of respondents or their ancestors, I leverage the historic association between ethnic groups and specific geographic homelands. In particular, I limit the sample to respondents who currently live in their own ethnic homeland, whom I refer to as *indigènes*.<sup>70</sup> Ethnic homelands are defined based on Murdock's map of the geographic extents of pre-colonial ethnic groups, and ethnic groups mapped by Murdock are matched to Afrobarometer ethnic groups using a concordance that builds on Nunn and Wantchekon.<sup>71</sup> I then use Nunn and Wantchekon's approximation of

<sup>70</sup> I am grateful to an anonymous reviewer for suggesting this empirical approach to dealing with the possibility of selective migration.

<sup>71</sup> Murdock 1959; Nunn and Wantchekon 2011. While Murdock (1959) is widely used to map the geolocation of ethnolinguistic communities pre-colonially, the map has well-known limitations. These include the difficulty in drawing discrete geographic borders around fluid ethnic communities, the neglect of overlapping and spatially integrated ethnic groups, and the fact that the data for the map was collected in the late colonial period, and therefore potentially reflects changes in ethnic group extents resulting from contact with Europeans.

Afrobarometer respondents' geolocations based on place names, placing respondents within or outside the historic homeland of their ethnic community.<sup>72</sup> Using this approach, I am able to classify 88 per cent of the cross-national sample as either *indigène* or non-*indigène*. Among this subsample, 43 per cent of respondents are *indigènes* in the area where they currently reside.<sup>73</sup>

Indeed, *indigènes* are slightly more likely to trust coethnics more than non-coethnics ( $t=2.01$ ,  $p<0.05$ ), and they trust coethnics to a greater degree than non-coethnics, on average ( $t=1.81$ ,  $p<0.05$ ). However, the relationship between sub-national diversity and interethnic trust is not driven solely by more tolerant individuals selectively migrating into diverse locales. Appendix Tables F.1 and F.2 show that the main results are robust to limiting the sample to *indigènes* only. While this robustness exercise does not rule out all possibilities of selective migration, as failing to migrate may also introduce selection, it does help rule out the possibility that interethnic trust is greater in diverse localities solely because of the tolerant attitudes expressed by in-migrants.

### *Minority Group Status*

A second possible alternative explanation for the negative sub-national associations between ethnic diversity and ethnocentric trust is that members of ethnic minorities are both less ethnocentric in their trust and more numerous in diverse regions. Indeed, members of countries' largest ethnic groups are more likely to express a coethnic trust premium ( $t=4.08$ ,  $p<0.01$ ). However, Appendix Tables G.1 through G.4 show that the results are robust to the inclusion of indicators of plurality group membership.

### *Social Desirability Bias*

A third alternative explanation for the relationship between ethnic segregation and increased ethnocentric trust relates to the data collection process. In particular, ethnic demography may be related to the nature and degree of social desirability bias in two different ways. First, respondents may be more likely to express trust in non-coethnics when being interviewed by a non-coethnic. If individuals living in ethnically diverse locales are more likely to be interviewed by a non-coethnic Afrobarometer enumerator, which Adida et al. show is the case, then this social desirability bias may be driving the relationship between local diversity and ethnocentric trust. Indeed, respondents interviewed by coethnics are much more likely to report trusting coethnics more than non-coethnics ( $t=4.75$ ,  $p<0.01$ ).<sup>74</sup> To make sure that the main findings of this article are robust to considering enumerator ethnicity, Tables H.1 through H.4 replicate the main results with the inclusion of an indicator for being interviewed by a coethnic interviewer. Despite quite a large reduction in

(*F*note continued)

Nevertheless, the Murdock map offers one of the only continent-wide measures of ethnic group geolocations, and I thus utilize it as an imperfect indicator of historic ethnic homelands.

<sup>72</sup> Nunn and Wantchekon 2011. Based on my own coding of place names in Malawi using census data, Nunn and Wantchekon's geolocation data is measured with significant error. However, it is the only source of comprehensive information on the location of Afrobarometer Round 3 respondents.

<sup>73</sup> This is likely to be an underestimate, as Murdock's map does not allow for overlapping homelands.

<sup>74</sup> Adida et al. (2016). Adida et al. introduce a new dataset on Afrobarometer enumerator ethnicity, which is used here to code for the ethnic match between enumerator and respondent. Unfortunately, enumerator ethnicity data is not available for four countries in Afrobarometer Round 3 – Lesotho, Madagascar, Mozambique and Tanzania – and, thus this variable is only available for three quarters of the total sample.

sample size – due to the lack of data on enumerator ethnicity for some countries – the results are remarkably robust.

The second way in which social desirability bias could be driving the negative correlation between sub-national diversity and ethnocentric trust is that local diversity could affect the degree to which expressing distrust in outgroups is socially taboo. If this were the case, we would observe less ethnocentric trust in diverse localities even if diversity were unrelated to true levels of trust.<sup>75</sup> However, I would argue that different norms about intergroup relations could be one mechanism through which local diversity translates into better interethnic relations, so long as such norms also shape behavioral decisions. Nevertheless, in an effort to rule out this alternative explanation, I evaluate the relationship between local diversity and an alternative, plausible indicator of social desirability bias – the rate of non-response to questions about trust in coethnics and non-coethnics.<sup>76</sup> In particular, I look at the correlation between diversity and the rate of non-response at each level – country and region across the sixteen countries, and district and locality within Malawi. While rates of non-response to the questions on trust in coethnics and non-coethnics were quite low, at only 1 and 2 per cent, respectively, they are not systematically correlated with diversity at any level. To the degree that non-response indicates the presence of social norms concerning a question's content, these patterns reduce concerns that the nature and strength of social norms about ethnocentric trust vary systematically with diversity.

Taken together, these robustness tests strengthen our confidence that the observed relationship between local-level ethnic diversity, and ethnic segregation in general, and reduced ethnic trust discrimination is driven by the positive impacts of intergroup contact on interpersonal trust decisions.

#### CONCLUSION

There has been an explosion of scholarship over the last decade on the ways in which interethnic contact, and ethnic and racial diversity more broadly, influence social capital, especially trust. However, while much of this work deals theoretically with trust discrimination along group lines, most empirical studies rely on a poorly understood measure of generalized trust.

This article contributes to our understanding of the relationship between cultural heterogeneity and trust by evaluating the impact of diverse contexts – both nationally and sub-nationally – on trust within and across ethnic groups. The study focuses on ethnic diversity in Africa, where extreme levels of diversity at the state level belie local-level ethnic homogeneity, making the importance of exploring the relationship between diversity and trust at different levels of analysis all the more important. Using public opinion data on trust in coethnics and non-coethnics from sixteen African countries, I find that ethnic diversity is positively related to ethnocentric trust across countries, but negatively related to ethnocentric trust within countries. In other words, individuals are more likely to trust their coethnics more than non-coethnics in diverse countries, but this pattern is driven by individuals living within homogeneous areas of diverse states. Analyses at more local levels – districts and enumeration areas – within a single country, Malawi, confirm that ethnocentric trust decreases with increasingly localized diverse contexts.

These patterns suggest that national-level ethnic diversity is most problematic when members of different ethnic groups are geographically segregated. When a measure of ethnic group segregation is interacted with national ethnic diversity, I indeed find that ethnic diversity at the national level leads to ethnic trust discrimination only when there are high levels of ethnic

<sup>75</sup> I thank an anonymous reviewer for pointing out this possibility.

<sup>76</sup> Tourangeau and Yan 2007.

segregation. Thus, existing work that focuses on state-level ethnic diversity alone, without considering how members of different ethnic groups are distributed across that state, has overlooked an important component of the link between diversity and trust.

A major implication of the fact that ethnic diversity has differential impacts at different levels of aggregation is that we must exercise caution in connecting findings at different levels of analysis. This is especially true in comparative politics, where the increased use of experimental methodologies has led to a greater focus on political phenomena at the micro level. Such micro-level studies are often motivated by a desire to understand the mechanisms that give rise to macro-level patterns. For example, Habyarimana et al. use individual-level experimental studies of co-operation among diverse groups to draw inferences about why co-operation fails at the neighborhood and country levels.<sup>77</sup> However, such an approach is inappropriate in contexts where the level of analysis changes the relationship of interest. In short, the results of this article strongly suggest that we cannot necessarily use patterns observed in ethnically diverse laboratories, neighborhoods, communities or cities as evidence of the mechanisms relating state-level diversity to political and economic outcomes.

This raises the question of where we can appropriately link micro-level mechanisms to macro-level patterns. In particular, the finding that diversity at lower levels of analysis does not undermine intergroup trust in Africa, and in fact improves it, is at odds with other research that finds a negative relationship between diversity and a whole host of political and economic outcomes. For example, failures of co-operation and low levels of trust in diverse localities have been documented across US cities,<sup>78</sup> Canadian and American neighborhoods,<sup>79</sup> and Ugandan neighborhoods.<sup>80</sup> A possible explanation for this discrepancy is based on the source of the diversity. In particular, diversity in Western cities and African capitals is often driven by immigration, from other countries in the former case, and from rural regions in the latter. It is therefore plausible that the kinds of positive intergroup relations that I suggest result from interethnic contact in rural Africa only develop over longer periods of time. Much of the variation in local-level diversity across African regions, for example, is driven by proximity to historical borders between different ethnic communities, rather than through internal or international immigration. Consistent with this intuition, Gundelach indeed finds that while long-standing diversity is associated with greater trust in outgroups, this positive impact does not hold when diversity is the product of recent migration.<sup>81</sup>

#### SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit <https://doi.org/10.1017/S0007123417000540>.

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<sup>77</sup> Habyarimana et al. 2009.

<sup>78</sup> Alesina and La Ferrara 2005.

<sup>79</sup> Stolle, Soroka, and Johnston 2008.

<sup>80</sup> Habyarimana et al. 2009.

<sup>81</sup> Gundelach 2014.



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