Racial and Ethnic Harassment in Local Communities[*]

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Abstract: This paper contributes to the emerging literature on racial and ethnic harassment by assessing the relationship between the characteristics of local communities and the propensity for outsiders to be victims of racial and ethnic hostility. Using unique data for a sample of active-duty military personnel captured in the Armed Forces Equal Opportunity Survey, we find that the racial composition of the local community is closely tied to racial and ethnic harassment. Moreover, economic vulnerability may lead to more racial and ethnic tension, though the effects are diverse across different minority groups and depend upon our definition of local communities.

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1. Introduction

There is growing interest in understanding the forces within local communities that give rise to conflict between racial or ethnic groups. Such conflicts impose large costs on society and may be associated with social exclusion and an inability to achieve the long-term integration of minority groups (see for example, Dustmann, *et al*., 2004; Gradstein and Schiff, 2004). Recent debate has focused on the role of ethnic and racial concentration, fragmentation, demographic change and social distance as central factors in the development of prejudice and hostility towards minorities (Krueger and Pischke, 1997; Green, *et al*., 1998; Dustmann and Preston, 2001; Dustmann, *et al*., 2004). Racial and ethnic tension is also seen to be the consequence of neighborhood heterogeneity (Sampson, 1984; DiPasquale and Glaeser, 1998) and increased ethnic fragmentation may result in reduced incentives for social capital investment (Alesina and La Ferrara, 2000; Glaeser, 2004) as well as a diminished capacity to reach consensus on social policies and the provision of public goods (Alesina, *et al*., 1998, 1999, 2004; Alesina and La Ferrara, 2003; Brasington, 2003; Poterba, 1997). On a global scale there are concerns that societies divided along ethnic and racial lines may be more likely to experience violent civil conflict (Collier, 2001; Caselli and Coleman, 2002) and have slower economic growth (Easterly and Levine, 1997).

Our interest in ethnic and racial conflict stems from a particular desire to better understand racial and ethnic harassment. While economists have historically had a great deal to say about the causes (and consequences) of racial discrimination, related concepts such as racial violence, fragmentation, prejudice, and harassment have only recently begun to be discussed in regard to economic models of inter-group behavior. These

distinctions appear to be quite important in furthering our understanding of many economic and social phenomena including civil unrest, racially motivated crime and the distribution of publicly provided goods. Psychologists studying prejudice argue, for example, that discrimination is often motivated by preferential treatment of in-group members rather than direct hostility towards out-group members (Brewer, 1999), suggesting that the determinants of discrimination and harassment are likely to differ. Moreover, racial harassment does not appear to be simply a stronger form of racial prejudice (Dustmann, *et al*., 2004) and may be better thought of as a dynamic process rather than a single event (Bowling, 1993).

Our goal is to contribute to the emerging literature on racial and ethnic harassment by assessing the relationship between the characteristics of local communities and the propensity for outsiders to be victims of racial and ethnic hostility. This focus on the geographic dimension of racial and ethnic intolerance complements previous work on employment-related harassment (Antecol and Cobb-Clark, 2004a, 2004b; Shields and Wheatly Price, 2002a, 200b), but requires a somewhat different conceptual framework. We are particularly interested in the following: First, what are the factors driving overall harassment levels in local communities? Second, how do individual characteristics affect the propensity to report community-specific harassment? Finally, what can we learn about alternative theories of the formation of community behavior towards outsiders? In answering these questions, we take advantage of unique data for a sample of active-duty military personnel captured in the Armed Forces Equal Opportunity Survey (AF-EOS). The AF-EOS provides us with large samples – even for minority groups – and very detailed information about individuals' experiences of ethnic and racial harassment.

Most importantly, as military personnel are assigned to (rather than select) their installations, we are able to avoid the selectivity bias typically associated with research on neighborhood effects.

Our results indicate that while an individual's family situation and living arrangements are unrelated to reports of offensive racial behavior, racial threats and discrimination depend on the nature of individuals' interaction with the local community. We also find strong support for the notion that the racial composition of the local community is closely tied to racial and ethnic harassment. In general, all groups face fewer racial threats and discrimination in communities in which their group is more heavily represented. Finally, economic vulnerability may lead to more racial and ethnic tension, though the effects are diverse across different minority groups and depend upon our definition of local communities.

In what follows we review the literature on racial and ethnic harassment within local communities focusing on two diverse issues; first, the demographic and economic forces that are thought to give rise to prejudice and hostility towards minority groups generally, and second, the unique history of racial interactions in military communities specifically. Section 3 lays out our estimation strategy including our conceptual framework and reduced-form estimation equation. Details of our data sample are provided in Section 4, while our results are presented in Section 5. We do a number of robustness checks in Section 6. Finally, our conclusions and suggestions for future research are discussed in Section 7.

2. Understanding Racial and Ethnic Harassment within Communities

A voluminous literature across the range of social science disciplines examines the role of race in interpersonal interactions in the United States, while the increasing representation of ethnic minorities in many European countries has focused attention on issues related to the social integration of ethnic minority groups.[1] At the heart of this literature is often a concern with understanding sources of inter-group conflict. In what follows, we review this literature with an eye towards drawing broad conclusions about the forces that might give rise to racial and ethnic harassment in the local communities surrounding military bases. We begin by considering what we can learn from the existing literature about the processes that lead to prejudice and hostility between racial and ethnic groups within local communities generally. We then turn to consider issues that are particularly salient for studying racial and ethnic tension in military communities in the United States.

2.1 Prejudice and Hostility towards Minority Groups

Two key questions shape much of the economics literature on conflict between racial and ethnic groups within local communities. In particular, how do macroeconomic conditions – in particular the economic vulnerability of the majority group – affect the relationship between racial and ethnic groups? Is the incidence of prejudice, harassment and violence higher in areas where ethnic and racial minorities are a larger or a smaller share of the total population?

Economists studying racial and ethnic tension often focus on the importance of competition over scarce resources for understanding the relationship between groups (see

for example, Frijters, 1998; Caselli and Coleman, 2002;).[2] Empirical studies exploring the effects of economic conditions on ethnic and racial tension, however, generally find relative economic position to be a secondary issue. Economic hardship–i.e., high unemployment, low wages or relative poverty–does not appear to be the primary factor underlying the incidence of violence against foreigners in Germany (Kreuger and Pischke, 1997), racially-motivated crime in New York (Green, et al, 1998), riots in Los Angeles (DiPasquale and Glaeser, 1998), attitudes towards and harassment of ethnic minorities in Britain (Dustmann and Preston, 2001; Dustmann, *et al*., 2004), or the geographic location of hate groups in the United States (Jefferson and Pryor, 1999).[3] To the extent that competition would be expected to be more intense in circumstances in which resources were scarcer, these results suggest that factors other than simple economic competition may also be important.[4]

In particular, sociologists often focus on the relationship between ethnic or racial composition and the incidence of inter-group conflict, though perhaps not surprisingly alternative theories often lead to conflicting hypotheses about the nature of this relationship.[5] On the one hand, larger minority populations may threaten the power or social distance enjoyed by the majority population thus increasing the potential for hostility towards minority group members. On the other hand, increased inter-group contact stemming from larger minority populations may diminish the power differentials

[1] Specifically, Bowling (1993) reviews the emergence of racial violence as a social problem in Britain.
[2] Darity, *et. al*. (2002) model racial identity as a form of capital asset or economic property.
[3] Dustmann, *et al*., (2004) find that local unemployment rates are positively associated with harassment in single-equation models, though this effect disappears in multi-equation models that take into account correlation in unobserved characteristics.
[4] In fact, Jefferson and Pryor (1999) argue that historical accident may be more important than economic or sociological explanations of the geographic location of hate groups in the United States.
[5] See Green, *et al*. (1998) who provide a particularly helpful categorization of sociological theories relating the size of minority populations to the incidence of racial conflict.

and negative misperceptions between groups leading to less hostility (see Green, *et al*., 1998; Dustmann and Preston, 2001; Dustmann, *et al*., 2004). Which effect dominates is then an empirical question.

Dustmann and Preston (2001) review the empirical evidence on the relationship between the representation of and negative attitudes towards ethnic minorities within local communities. Their review documents the complete failure of the empirical literature to achieve consensus on this issue – even when considering similar attitudes in the same country. A more limited literature suggests that acts of hostility – i.e., racial harassment or racially-motivated crime – are negatively related to the size of the minority group (Green, *et al*., 1998; Dustmann, *et al*., 2004), though there is also some evidence for the opposite (Krueger and Pischke, 1997).[6] Finally, racially-motivated crime in local neighborhoods also seems to be related to demographic change (Green, *et al*., 1998).

This divergence in empirical results – while frustrating for those interested in the design of public policy – is perhaps not surprising in light of the complexities of the underlying economic and social processes that give rise to inter-group conflict. At the same time, it is possible to take from this diverse literature two important lessons regarding the nature of racial and ethnic conflict in local communities. First, simple models of economic competition are not likely to be sufficient to fully capture the nature of racial harassment. Second, it is important to estimate models that are flexible enough to consider not only the size of various racial and ethnic groups, but also the extent of racial fragmentation, racial dominance, and demographic change within local communities.

2.2 Race Relations in Military Communities

The U.S. military makes an interesting case for studying interracial interactions because it has historically been relatively integrated in comparison to other social institutions and consequently has provided a key source of socioeconomic mobility for black Americans (Ellison, 1992; Moskos and Butler, 1996).[7] Blacks have had a long history of U.S. military service acting as militiamen in the colonial period and fighting in all major conflicts since then.[8] More than one million blacks (approximately 10 percent of the total military force) fought in World War II in segregated combat units (Moskos and Sibley, 1996). However, the experiences of World War II lead military leaders to re-examine the role of black troops and in July 1948, President Truman issued Executive Order 9981 prohibiting racial discrimination and beginning the slow and often controversial process of desegregating the armed forces.

Desegregation proceeded unevenly occurring more quickly (and easily) on the base than off it. Minority personnel who enjoyed equal access to job assignments, training opportunities, housing and schools on the base, were expected to abide by local racial customs – including formal or informal segregation – when operating in the local community nearby. As a consequence, black personnel were often unable to access off-base restaurants, theatres, recreational facilities, schools and housing (Mershon and Schlossman, 1998).[9,10] Military commanders were reluctant to address the issue of

[6] In particular, Kruerger and Pischke (1997) find that in the former East Germany crimes against foreigners are positively associated with the percent of the population that is foreign-born, though no relationship exists in the former West Germany.

[7] See Foner (1974), MacGregor (1985), Mershon and Schlossman (1998), and Moskos and Butler, (1996) for historical accounts of black soldiers' service in the U.S. military and the process of desegregation.

[8] See Costa and Kahn (2004) who discuss the role of black slaves and freemen in the Civil War.

[9] The result was an odd disjuncture in on- and off-base interracial interactions. On the base, black and whites used the same recreational facilities, though establishments in local communities often continued to exclude blacks. Taxi drivers permitted blacks and whites to ride together while on the base, though at the

discrimination in the local community arguing that Executive Order 9981 did not apply off base. Civil rights leaders disagreed, however, noting that the Army already had a policy of declaring dangerous or immoral establishments off limits to soldiers and arguing that "… what is more dangerous or immoral in a democracy than racial intolerance?" (as quoted in MacGregor, 1981, pg. 504).

The growing pressure from civil rights leaders and an increasing recognition of the detrimental effect of off-base discrimination on military readiness and troop moral prompted the Department of Defense in 1963 to issue Directive 5120.36 stating that:

> "Every military commander has the responsibility to oppose discriminatory practices affecting his men and their dependents and to foster equal opportunity for them, not only in areas under his immediate control, but also in nearby communities where they may gather in off-duty hours."

Moreover, the directive authorized commanding officers to declare businesses, housing projects, and other establishments practicing racial discrimination to be off limits to military personnel. However, this power was to be used only with the explicit prior approval of the secretary of defense (Mershon and Schlossman, 1998, pg. 294). Debate about this policy continued for years and it was not until 1967 that sanctions against off-base discrimination were first authorized.[11] It took three more years before commanders were given the authority to – without prior approval – declare the housing surrounding U.S. bases off-limits if landlords practiced discrimination (Foner, 1974, pg. 220).

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gate one group or the other was expected to disembark in order to take a separate cab into the local community where segregation remained the norm (Nichols, 1954 as cited in Mershon and Schlossman, 1998, p. 254.)

[10] See Brown (2004) who reviews the process of school desegregation for military families.

[11] The case involved housing near Andrews Air Force base (Mershon and Schlossman, 1996, pg. 305).

Although full implementation of the military's policies to end off-base discrimination against military personnel proceeded slowly, today responsibility for ensuring equal opportunity rests squarely with commanding officers who have broad powers to deal with discrimination both on and off the base (Dansby and Landis, 2001, pg 16). A poor record on equal employment opportunity can be a barrier to promotion and grounds for removal from command (Foner, 1974, pg. 237).

Given this history, it is perhaps not surprising that sociologists estimate that there is significantly less racial segregation in military communities – a fact that they attribute in part to the influence of military commanders on the local housing markets (Farley and Frey, 1994). We will have little to say about the differences between military and nonmilitary communities given our data. Rather our interest is in understanding the extent to which the characteristics of local communities are important in explaining the disparity in community-level harassment across military communities.

3. Estimation Strategy

Our conceptual framework is based on economic models of victimization in which the propensity to experience crime depends upon the actions of victims and perpetrators who interact within a specific social context (see Markowitz, 2004). Both precautionary and risky behaviors affect the chances of becoming a victim, while the social context determines the costs and benefits of undertaking criminal behavior. Data are generally only available on actual perpetrators once a crime is committed. Consequently, most researchers estimate reduced-form models of victimization that include the characteristics of potential victims, aggregate measures of the propensity of others to commit crimes,

and dimensions of the social context. In the case of employment-related harassment the context is the workplace (see Antecol and Cobb-Clark, 2004a), whereas here the context is taken to be the local community.[12]

Community-level racial harassment is driven both by the amount of racially offensive (or discriminatory) behavior an individual is subjected to within the local community as well as his or her tolerance for (or perceptions of) harassing behavior. Thus, our model seeks to estimate the factors driving racial and ethnic intolerance within local communities, while at the same time accounting for those characteristics that might affect an individual's tendency to attribute his or her experiences to the effects of race or ethnicity. Of course a soldier's propensity to experience harassment depends also on the nature (and frequency) of his or her contact with the local community. Military personnel who live off base and have families are likely to have very different interactions with their civilian neighbors than do single personnel living on base.

We use the following reduced-form model to assess a soldier's propensity to experience community racial harassment H_{ij}^{*} :

$$\begin{aligned} H_{ij}^{*} &= \mathrm{Z}_j\phi + X_{ij}\beta + \varepsilon_{ij} \\ \varepsilon_{ij} &= \eta_i + \nu_{ij} \end{aligned} \tag{1}$$

where *i* and *j* indexes individuals and communities, respectively. Moreover, Z_j and X_{ij} (both discussed below) account for the factors driving community-level racial intolerance and the individual characteristics thought to capture both the nature of a soldier's interaction with the community and his or her perceptions of harassment. Finally, ε_{ij} is an

[12] Dustmann *et. al*., (2004), also follow this approach in estimating the effect of a neighborhood's ethnic concentration on harassment of ethnic minorities in the UK.

error term comprised of two components; unobserved individual heterogeneity (η_i) and a random error term (ν_{ij}).

The key methodological challenge in estimating models like that in equation (1) is to isolate the exogenous effects of local communities from the effects of unobserved individual characteristics that are correlated with location choice.[13] Specifically, since individuals typically choose where they live, the characteristics of the local community (Z_j) will be correlated with both the observable (X_{ij}) and unobservable characteristics (η_i) of individuals. This implies that $E(\varepsilon_{ij} \mid Z_j) \neq 0$ leading standard regression models to produce biased estimates of the neighborhood effects (ϕ).[14] A variety of econometric methods including instrumental variables and fixed-effects estimation have been used in the literature to deal with this problem. Other researchers have exploited policy experiments in which randomly chosen individuals are offered an incentive to move to a different neighborhood (Ludwig, *et al*., 2001; Katz, *et al*., 2001; Kling, *et al*., 2004).[15]

In our case, military personnel are assigned to (rather than choose) their military installations. Specifically, the military assigns individuals to bases without regard to race or ethnicity. Rather assignments are made on the basis of an individual's skills or training and an installation's specific needs. Though there is some scope for personnel to express a preference for duty locations as they advance in rank and gain military experience, it remains the case that military preparedness remains the single overriding

[13] In effect, this model fits into the class of models designed to estimate the effects of neighborhood characteristics on individual behavior. Sociologists refer to this as "contextual effects", while most economists follow Manski (1993) in referring to this as "exogenous" effects.
[14] See Plotnik and Hoffman (1996), Dietz, (2002), and Haurin, *et al*., (2002).
[15] In related research, Sacerdote (2001) and Foster (2004) use the random assignment of college students to dormitories to assess the importance of peer effects on individual outcomes.

factor in the assignment of personnel to specific locations.[16] This assignment procedure implies that unobserved individual characteristics affecting harassment will be uncorrelated with the characteristics of local communities so that $E(\varepsilon_{ij} \mid Z_j) = 0$.

The propensity to experience racial harassment is unobserved, so we create an indicator variable reflecting the presence or absence of reported harassment. Specifically,

$$H_{ij} = 1(H_{ij}^{*} > 0) = Z_j\phi + X_{ij}\beta + \varepsilon_{ij} \tag{2}$$

and we assume that $\varepsilon_{ij} \sim N(0,1)$.

4. The Armed Forces Equal Opportunity Survey

We use data drawn from the public-use 1996 U.S. Armed Forces Equal Opportunity Survey (AF-EOS) combined with a randomized variable extracted from the confidential file that allows us to identify separate military installations.[17] The ability to identify unique military installations is extremely important for our purposes as it allows us to match military bases to their surrounding communities.

We restrict our analysis to individuals with non-missing military installation codes so as to match individuals to their local communities. Unfortunately, installation codes are not generally available for overseas personnel and members of the Coast Guard and so these individuals have been excluded from the sample.[18] Moreover, we only

[16] For a discussion of military assignment procedures see http://usmilitary.about.com.
[17] More detailed information about all data sources is provided in the data appendix.
[18] Approximately 40 (70) percent of overseas personnel (members of the Coast Guard serving in the U.S.) have missing installation codes, while roughly 13, 6, 4, and 4 percent of members of the Army, Navy, Marine Corps, and Air Force serving in the United States, respectively, have missing installation codes.

consider installations for which we have a sample of at least 50 active-duty members.[19] These restrictions produce a final sample of 4,492 (white), 3,806 (black), 4,317 (Hispanic), and 3,211 (Asian) personnel with non-missing values for the key variables.[20]

4.1 The Extent of Community Level Racial Harassment

Personnel in the sample were asked which of 17 separate racial harassing incidents—initiated by civilians in the local community surrounding the military base—they had experienced in the previous 12 months. These incidents range from being subjected to offensive racist remarks and being told racist jokes, to being discriminated against for non-government housing because of race. We combine the responses to the 17 separate items in the 1996 AF-EOS into three broad categories: 1) offensive encounters, 2) threatening encounters, and 3) family service incidents. See Appendix Table 1 for a list of the specific behaviors that make up each type of racial harassment.

Overall, offensive encounters are the most frequently reported form of racially harassing behavior (65.2 percent), with threatening encounters (12.3 percent) and discrimination in services (10.6 percent) occurring less frequently (see Table 1). Reports of threatening encounters are roughly equal across racial groups, though discrimination in services varies substantially across racial groups, being highest for black personnel (28.5 percent) and lowest for whites (5.2 percent).

Histograms of the incidence of offensive encounters, threatening encounters, and discrimination in services across local communities are presented in Figures 1a, 1b, and

[19] This allows us to consider the effects of installation characteristics separately from community characteristics (see Section 5.4).

[20] Non-reporting leads to slightly smaller sample sizes for reports of community-level offensive and threatening encounters.

1c, respectively. These histograms illustrate that the average harassment levels reported in Table 1 hide a great deal of geographic variation in the incidence of community-level harassment. Specifically, the incidence of offensive encounters ranges from 35.6 to 95.1 percent, while the incidence of threatening encounters ranges from 0.0 to 34.1 percent, and the variation in discrimination in services is from 0.1 to 32.5 percent. This variation is largely unexplained by differences in the characteristics of those personnel serving in different communities. Specifically, we conducted a standard Oaxaca-Blinder decomposition of the disparity in the harassment rates of the five percent of installations with the highest level of harassment on the one hand and the five percent of installations with the lowest level of harassment on the other. Our results reveal that less than 5.2 percent of the gap in the incidence of racially offensive, threatening or discriminatory encounters can be explained by differences in the characteristics of personnel. The vast majority of the gap stems from differences across communities in the propensity for individuals with similar characteristics to report experiencing racial harassment.

4.2 Characterizing Local Communities

Our conceptual framework suggests that military personnel's perceptions of racial and ethnic harassment depend in part on the overall racial and ethnic intolerance in the local communities surrounding military bases. We begin to operationalize this idea by defining the 'local community' surrounding each of the 136 military installations identified in our estimation sample to be the set of individual towns, cities, or localities situated within a 10-mile radius of the specific installation. (We discuss alternative definitions of 'local community' in Section 5.4). Community-level characteristics (drawn

from Census data) are then matched to each individual city, town or locality within this 10-mile radius and aggregated up using a weighted average by population size to the 'local community' level.[21] Finally, the local community-level characteristics were then assigned to each active-duty member based on his or her installation. This procedure allows us to construct measures of racial and ethnic diversity and economic vulnerability which the literature suggests are likely to be related to community-level racial and ethnic intolerance. (See the discussion in Section 2.)

Racial and ethnic diversity is captured by the proportion of the population in group k (i.e., white, black, Asian, and other) in local community j (s_{kj}).[22] These measures allow us to assess how reported harassment responds to racial concentration generally. (We discuss alternative definitions of racial and ethnic diversity in Section 5.3.) We also control for three measures of economic vulnerability: the local unemployment rate, the local poverty rate, and local income inequality.[23] These variables allow us to examine the role that competition over scarce resources might play in furthering our understanding the relationship between racial groups.

The victimization literature also points to the importance of accounting for social context and the overall propensity of others to commit crimes. Given this, we also include controls for the level of crime,[24] relative community size[25], and whether the

[21] The data appendix describes the procedure for identifying the cities, towns and localities surrounding each installation and matching the Census data.
[22] Although our Census data does not separately identify Hispanics, Alesina, *et al*., (1999) argue that the 'other' category is a good measure of the Hispanic population. In addition, we include Native Americans in the 'white' category.
[23] Income inequality is measured as the log of the ratio of per capita income for the racial group with the highest income and the income of the racial group with the lowest income in a local community. In this case, we separately identify the 'white' category from the 'Native American' category.
[24] Specifically, we consider the level of violent crime. This is calculated as (the number of violent crimes/the fbi population)*100,000. Therefore, it measures – at the county level – crimes per 100,000 of the population.

community is located in the South. In addition, dimensions of the local housing market (i.e., home ownership rates and median mortgage values) are included in the model to specifically account for the possibility of discrimination in that market.[26] High home ownership rates are also associated with enhanced social networks (Haurin, *et al*., 2002) and less crime generally (Glaeser and Sacerdote, 1999). Finally, to take into account the fact that the branches of the military are not randomly allocated across communities, we also include dummy variables for service.

4.3 Characterizing Individuals

Military personnel differ in the nature of their interaction with local communities as well as in their tendency to attribute their experiences to the effects of race or ethnicity. Consequently, our estimation model includes an extensive list of individual-level characteristics that based on previous research on harassment would reasonably seem to be related to the propensity to report community-level racial harassment (see Antecol and Cobb-Clark, 2004a, 2004b; Shields and Wheatly Price, 2002a, 200b; Dustmann, *et al*., 2004). Specifically, we include demographic characteristics (indicator variables for female, currently married, interracial marriage, and the presence of children), education levels (indicator variables for a high school degree (or less), some college, and college degree), and job characteristics (indicator variables for years of service, officer status, and living off base).[27]

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[25] Specifically, we include the ratio of the active-duty population assigned to the specific installation (based on information from the *Directory of Military Bases Worldwide*, various years) to the total population in the local community (based on Census data).

[26] Summary statistics for all community-level variables are reported in Appendix Table 2.

5. Racial and Ethnic Harassment in Local Communities

We begin by using a probit model to estimate the reduced-form model of community-level harassment given in equation (2). Although the effects of both individual and community-level characteristics are estimated together, for convenience we present and discuss each separately.[28] We then turn to consider alternative measures of ethnic and racial diversity and 'local community' in reported community-level harassment. For ease of interpretation, we report marginal effects (evaluated at means) and standard errors (calculated using the delta method).[29]

5.1 The Effect of Individuals' Characteristics on Community-Level Harassment

While an individual's family situation and housing status are largely unrelated to reports of offensive racial incidents, white officers and female personnel are typically less likely to report experiencing offensive encounters in the local community (see Table 2). There are large gender differences in the reported incidence of threatening encounters with white, black and Hispanic women being less than half as likely to experience threats as their male colleagues. Moreover, there is evidence that being married and having children is also associated with fewer racial threats for some groups. This is perhaps not surprising if having a family leads one to engage in less risky behavior. Interestingly, living off the base is not associated with a greater propensity to experience threatening behavior in the local community.

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[27] Descriptive statistics are presented by race in Appendix Table 3.

[28] Specifically, the effects of individual-level variables are presented in Table 2 and discussed in Section 5.1, while the effects of community-level variables are reported in Table 3 and discussed in Section 5.2. In all models, we have accounted for clustering on communities when calculating standard errors.

[29] The marginal effects (evaluated at the mean) are calculated using a continuous approximation for continuous variables and changes from 0 to 1 for discrete variables.

Ones family situation and living arrangements are most closely associated with the propensity to experience discriminatory treatment in receiving services within the local community. Married personnel report between 15.5 (blacks) and 66.9 percent (Asians) more discrimination in accessing local services than do single personnel. This effect is more than doubled for whites in interracial marriages, although Hispanics who are married to non-Hispanics report only slightly more discrimination in receiving services than Hispanics who are not married. Whites report less discrimination when they reside in the local community, though blacks living off the base report almost 20 percent more discrimination in receiving services.

Taken together these results suggest that incidents of racial threats and discrimination are related to the nature of individuals' interaction with the local community and the extent to which they may engage in risky behavior.

5.2 The Effect of Community Characteristics on Community-Level Harassment

The racial and ethnic composition of the local community is generally unrelated to the extent to which minority personnel report experiencing racially offensive or threatening behavior, and is more closely related to discrimination in services. The exception is Asians who are 0.11 and 0.58 percent more report likely to report offensive or threatening encounters for every one percent increase in the black population. Asians also report more discrimination in services in communities in which they have a smaller presence, while blacks experience more discrimination in services in communities with larger white and Asian populations. Interestingly, the extent to which Hispanics report discrimination in services is unrelated to the demographic composition of the local community and

blacks' and Asians' reports of service discrimination are unrelated to the size of the Hispanic population. These results are broadly consistent with Green, *et al*., (1998) and Dustmann, *et al*. (2004) who find fewer racially-motivated crimes and less harassment of ethnic minorities in areas of higher minority concentration. Interestingly, white personnel also report fewer racial threats and less racial discrimination as the representation of other groups declines in the population. The incidence of harassment towards white personnel is particularly high in those communities where Asians comprise a larger share of the population. These results provide strong support for the view that the demographic composition of the local community is closely tied to racial and ethnic harassment. In general, both majority and minority groups face fewer racial threats and less racial discrimination in communities in which their specific group is more heavily represented.

At the same time, our review of the literature revealed no simple links between macro-economic conditions and the level of racially-motivated crime. When economic vulnerability matters it appears to be a second-order issue, with racial and ethnic diversity being more often cited as the main pathway through which inter-group conflict occurs. Our results also fail to confirm a straightforward link between economic conditions and harassment within military communities. There is evidence that increased economic vulnerability–i.e., more income inequality–leads whites to report more offensive racial behavior, though there are few apparent effects of economic vulnerability on the extent to which whites feel threatened or discriminated against. Hispanics do report more racial threats in those communities with higher unemployment rates, while blacks report more service discrimination in communities with higher poverty and unemployment rates.

Asians, on the other hand, report fewer racial threats and less service discrimination as the poverty rate increases. On the whole, these results provide limited support for the view that economic vulnerability may lead to more racial and ethnic tension, though clearly the effects of macro-economic conditions are felt differently by various groups.

Home ownership rates and average house values are also unrelated to incidents of racial threats or discrimination in the provision of services. This is perhaps surprising given that Glaeser and Sacerdote (1999) find that crime levels are lower in U.S. cities with more owner-occupied housing perhaps suggesting a negative relationship between racial threats and home ownership. Moreover, housing represents a component of our discrimination measure and we might expect more housing discrimination in communities where there is less rental housing and home values are higher. At the same time, only 1.5 percent of personnel report experiencing housing discrimination (see Appendix Table 1) which is consistent with the view that military policy may have been effective in minimizing widespread, systematic discrimination in the local housing market (see Farley and Frey, 1994a). In contrast, our measure of discrimination is more about the service that personnel receive in the shops and restaurants in the local community. It is not surprising that this form of discrimination is unrelated to the nature of the local housing market.

The level of violent crime is not related to the incidence of racially offensive encounters in local communities, though there is some evidence that there is a relationship between violent crimes and military personnel's experiences of racial threats and discriminatory behavior in services within the local community. Interestingly, while the relationship between crime and harassment is occasionally positive for whites and

Hispanics, it is sometimes negative for blacks and Asians. This suggests that perhaps blacks and Asians may respond to high crime rates within the local community by reducing the extent to which they patronize local businesses. Moreover, these effects are not trivial. A one percent increase in violent crime is estimated to be associated with a 0.102 (0.222) percent decrease in the propensity for blacks (Asians) experience racial threats, for example.

Finally, racial and ethnic harassment does not appear to be closely related to other important dimensions of local communities. While blacks face more discrimination in communities with a smaller military presence, harassment levels are generally unrelated to relative community size, for example. Moreover, the incidence of racial threats is no higher in military communities in the South than elsewhere, though whites do report that they experience more offensive and discriminatory behavior in Southern communities.

5.3 Community Profiles

While the analysis in Section 5.2 provides a detailed assessment of the way in which specific community characteristics affect military personnel's experiences of racial harassment, it is also useful to consider what these results tell us about racial and ethnic tension more broadly. To do this, we construct profiles of two hypothetical communities—Community A and Community B—and calculate the expected incidence of racially offensive, threatening, and discriminatory encounters across all racial groups.[30] Community A is an Air Force community not in the South with the average

[30] To do this, we calculate a predicted probability of harassment for each individual using the race-specific coefficients presented in Tables 2 and 3, individuals' own characteristics, and assigning a hypothetical vector of community characteristics described below. We then average across individuals (using weights) to generate a community-level harassment rate. Finally, we take a simple average across communities.

demographic profile of the five percent of communities with the lowest rate of harassment. Community B is an Army community in the South with the average demographic profile of the five percent of communities with the highest rate of harassment. Other community characteristics are evaluated at either the 25^{th} or 75^{th} percentile of the characteristic's distribution depending on the expected effect on racial and ethnic harassment.[31] Community A is generally characterized by low levels of inequality, poverty, unemployment, and crime as well as a relatively strong housing market and a relatively small military population. In contrast, Community B is generally characterized by: relatively high levels of economic vulnerability, a higher crime rate, a weaker housing market, and a larger military population. The results of this calculation are shown in Figure 2.

If all military personnel were stationed at installations in communities like community A, we would expect that 60.4 percent would report experiencing offensive behavior in the previous year. At the same time, if these individuals were all stationed at bases in Community B, the propensity to report offensive behavior would rise to 73.1 percent. Community characteristics have an even larger impact on experiences of racially threatening and discriminatory behavior with harassment rates expected to be twice as high in communities like Community B. Specifically, the incidence of racial threats is expected to be 10.0 percent in community A and 18.3 percent in Community B,

[31] Specifically, community A is characterized by: percent white = 0.70; percent black = 0.20; percent Asian/Pacific Islander = 0.06; percent other = 0.04; income inequality = 0.59; poverty rate = 0.10; civilian unemployment rate = 0.06; (violent crimes per 100,000)/1000 = 0.29; home ownership rate = 0.46; Ln (median mortgage) = 6.95; and ratio of active duty personnel to community population = 0.03. Community B is characterized by: percent white = 0.57; percent black = 0.12; percent Asian/Pacific Islander = 0.26; percent other = 0.05; income inequality = 0.84; poverty rate = 0.16; civilian unemployment rate = 0.09; (violent crimes per 100,000)/1000 = 0.85; home ownership rate = 0.34; Ln (median mortgage) = 6.44; and ratio of active duty personnel to community population = 0.55.

while the incidence of discrimination in services increases from 8.1 to 18.0 percent as we move from Community A to Community B.

6. The Robustness of the Results

6.1 Alternative Measures of Racial and Ethnic Diversity

In equation (2), racial and ethnic diversity is captured by the proportion of the population in group *k* in local community *j* (s_{kj}). These measures allow us to assess how reported harassment responds to racial concentration generally. At the same time, the literature proposes a number of related concepts including community size, racial fragmentation, racial dominance, and polarization, which are also potentially important in understanding the way in which racial and ethnic diversity are related to inter-group conflict.

Specifically, there may be scale effects that imply that the overall size of various racial and ethnic groups is important in understanding racial and ethnic tension. Groups which are numerically large (as distinct to proportionately large) may develop social networks in the form of churches, employment enclaves, community organizations, etc. that alter the interaction with the broader community. We explore this issue by explicitly considering the size (measured in logs) of different racial and ethnic populations. Moreover, we may wish to consider the extent to which a community is made up of many different racial and ethnic groups. Racial fragmentation (R_j) is given by:

$$R_j = 1 - \sum_k s_{kj}^2$$

and measures the probability that two individuals randomly drawn from the population belong to different groups. Higher values of the index indicate more fragmentation.[32] At the same time, Collier (2001) argues that the United States is generally characterized by racial dominance rather than racial fragmentation and moreover, that this distinction has important implications for the effect of ethnic diversity on economic performance. Consequently, we follow Collier in creating a racial dominance measure which takes the value of 1 whenever $s_{kj} > 0.75$ for some group k in local community j. In our data, this measure defines communities in which whites are more than three fourths of the population. Finally we consider a measure of polarization. Alesina and La Ferrara (2003) argue that a polarized community with two equally size groups may be more unstable than one which is more racially fragmented because the two groups will often be in direct conflict with one another. This is conceptualized by an index of racial polarization (RQ) that takes the form:

$$RQ_j = 1 - \sum_k \left(\frac{0.5 - s_{kj}}{0.5} \right)^2 s_{kj}.$$

The index reaches a maximum when there are two groups of equal size.[33]

We re-estimated equation (2) substituting these alternative measures of racial and ethnic diversity for the set of population proportions. The resulting marginal effects (and standard errors) are reported in Table 4.

[32] This measure is widely used in the literature. See for example, Alesina, *et al.* (1998, 1999); Alesina and La Ferra (2000, 2004); Easterly and Levine (1997); and Collier (2001).

[33] There are two additional concepts that are occasionally used to characterize the extent of racial and ethnic diversity within a population. Green, *et al.* (1998) argue that it is the change in the representation of racial groups rather than overall population proportions which is important in understanding racially-motivated crime. Moreover, Caselli and Coleman (2002) discuss the importance of ethnic distance, i.e., the cost of assimilating into the dominant group, in understanding ethnic conflict. Unfortunately, our Census data did not provide us with sensible measures of either of these concepts.

Community size is most closely related to the extent to which white, and to a lesser degree Asian, personnel report experiencing racial harassment in the local community surrounding their military installations. Specifically, white military personnel report more racial harassment in communities in which the Asian population is larger, and less racial harassment as the size of the local white population increases. Moreover, there is a positive relationship between the extent to which Asian personnel report racial harassment and the size of the local black population. These results are both statistically significant and economically meaningful irrespective of the form of harassment considered. In addition, whites and blacks are somewhat less likely and Asians and Hispanics are somewhat more likely to report experiencing discrimination in services as the black population becomes larger.

Interestingly, racial fragmentation, dominance, and polarization are all unrelated to reports of offensive behavior within the local communities. This is perhaps not surprising given that offensive racial behavior is only loosely related to the demographic composition of the community more generally. Interestingly, these concepts are also not particularly useful in understanding the harassment of minority personnel, but are more relevant for whites. Specifically, white personnel experience more racial threats and discrimination in military communities that exhibit more racial fragmentation and polarization, while racial dominance reduces the chances that white personnel experience harassment, though the result is not always significant at conventional levels.[34] At the same time, minority personnel's experiences of harassment are largely unaffected by racial and ethnic diversity in the local population with the exception that Asian personnel

[34] Note that racial dominance indicates that whites make up more than 75 percent of the local population.

are subjected to 33.1 percent fewer racial threats when whites represent more than 75 percent of the local population.

6.2 Alternative Notions of Local Communities

Our preferred notion of a 'local community' is the set of individual towns, cities, or localities situated within a 10-mile radius of the specific installation. This definition of a local community—while sensible—is also *ad hoc*, and it is important to test the sensitivity of our results to alternative definitions of what constitutes the local community surrounding a military base. We do this first by considering two alternative notions of local community; one that is narrower (towns, cities, localities within a 5-mile radius of the base) and one that is wider (the county in which the military base is located) than our current definition. Finally, we also consider the extent to which the 'local community' might be the military installation itself.

To identify the places situated within 5 miles of our military installations we followed a similar procedure to that outlined in Section 4.2 and in the data appendix. Depending on the location of the installation, this technique led to many fewer cities, towns, and localities being identified as constituting the local community of the military base. The characteristics of each individual place were then aggregated up using a weighted average by population size to the local community level for each of the 136 installations included in our analysis.

We also identified the county in which each of our 136 military installations is located using the procedure described in the data appendix. We then used Census

information at the county-level to characterize the local communities surrounding military installations.

Using these two alternative definitions of local communities, we re-estimated equation (2).[35] Most of our substantive conclusions remain unchanged. We continue to find that – with the exception of Asians – the racial and ethnic composition of the local community has little effect on the extent to which minority personnel report experiencing offensive behavior in the community, and is more closely related to incidents of racial threats or discrimination in services. Specifically, both majority and minority groups generally face fewer racial threats and less racial discrimination in communities in which their specific group is more heavily represented. Moreover, while crime levels are not related to the incidence of offensive behavior, there is some evidence that the extent to which minority personnel are subjected to racial threats and discriminatory behavior is related to the rate of violent crime in the local community, although this effect disappears when we define the community to be the entire county.

Altering our definition of local community does affect the relationship between economic vulnerability and housing conditions on the one hand with racial harassment on the other. The evidence that economic vulnerability (i.e., high income inequality) results in white personnel experiencing more offensive behavior is weaker when we use either alternative measure of the local community while the evidence that economic vulnerability (i.e., poverty) impacts reports of threatening encounters and discriminatory behavior in services tends to be weaker for Asians when we consider county-level definition of communities. Moreover, the nature of the housing market and the ratio of

[35] These results are not presented here, but are available upon request.

active-duty personnel to the total community population is much more closely tied to racial and ethnic tension when we consider locations within a 5-mile radius of the base.

Finally, our previous research indicates that measures of an installation's equal opportunity climate, demographic composition, and social prescriptions regarding inter-racial relations explain between 35 and 40 percent of the installation-specific variation in the on-base harassment of military personnel (Antecol and Cobb-Clark, 2004a). As there is a one-to-one match between installations and local communities, it seems reasonable to assess whether or not we are estimating the effects of the local communities *per se* or whether it is the case that community-level factors are simply reflecting the nature of the installations themselves.

We test this proposition by using a linear probability model to re-estimate equation (2) dropping our community-level variables and instead including a number of controls for installation-specific characteristics. Specifically, we estimate the effect of the installation's equal opportunity climate, social prescriptions, and demographic characteristics on reported incidents of community-level harassment. These installation-specific characteristics are described more fully in the data appendix and in Antecol and Cobb-Clark (2004a; 2004b). Moreover, we re-estimated an unrestricted version of equation (2) including only our individual characteristics and a full set of indicator variables for specific local communities. Given the one-to-one match between communities and installations this set of indicator variables also completely accounts for installations.

The results of this exercise are reported in Table 5. We find that while installation characteristics explain at most 14.0 percent of the variation in community-specific

harassment rates, the characteristics of local communities explain up to 45.1 percent of the variation in harassment rates across communities.[36] In every case, community characteristics are substantially more important than installation characteristics in explaining reported harassment within the local community. Thus, it appears to be the case that while on-base harassment is best explained by the nature of race relations on the military base, off-base harassment depends on the characteristics of the surrounding communities themselves. Furthermore, Breusch-Pagan (1980) tests indicate that any remaining (unobserved) effect of local communities themselves are unimportant in understanding harassment levels once the characteristics of those communities are controlled.[37]

7. Conclusions

This paper contributes to the emerging literature on racial and ethnic harassment by assessing the relationship between the characteristics of local communities and the propensity for outsiders to be victims of racial and ethnic hostility. We are particularly interested in the following: First, what are the factors driving overall harassment levels

[36] To gauge the predictive power of our community- and installation-specific controls, we used a linear probability model to estimate a base model that included individual characteristics only. (This is specification one in Table 5.) We then estimated an unrestricted model in which a complete set of indicator variables for communities/installations were added to the base model to control for fixed effects associated with installations and the surrounding communities. (This is specification two.) We then estimate two alternative restricted models, specifications three and four, in which we replace the complete set of indicator variables for communities/installations with installation-specific controls and community-specific controls, respectively. We compared the R-squared from this unrestricted model to both the base and two alternative restricted models as follows:

$$\% \text{ Explained by Characteristics } = \frac{(R_R^2 - R_B^2)}{(R_U^2 - R_B^2)}.$$

We used a linear probability model as opposed to a probit model due to the unstable nature of probit models when fixed effects are included.

[37] We investigated this issue by using an unweighted, linear probability model including an unobserved, community-specific effect in equation (2). We fail to reject the hypothesis that these community-specific effects are equal to 0 in all cases except for whites and Asians with respect to discrimination in services.

in local communities? Second, how do individual characteristics affect the propensity to report community-specific harassment? Finally, what can we learn about alternative theories of the formation of community behavior towards outsiders? In answering these questions, we use unique data for a sample of active-duty military personnel captured in the Armed Forces Equal Opportunity Survey. Results indicate that while family situation and living arrangements are unrelated to reports of offensive racial behavior, racial threats and discrimination depend on the nature of individuals' interaction with the local community. The racial composition of the local community is also closely tied to racial and ethnic harassment. Finally, economic vulnerability may lead to more racial and ethnic tension, though the effects are diverse across different minority groups and depend upon our definition of local communities.

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Data Appendix

A.1 Armed Forces Equal Opportunity Survey

We use data drawn from the public-use 1996 U.S. Armed Forces Equal Opportunity Survey (AF-EOS). The data generalize to personnel in the Army, Navy, Marine Corps, Air Force, and Coast Guard with at least six months of active-duty service who are below the rank of admiral or general. A non-proportional stratified random sample of personnel was drawn from the Defense Manpower Data Center's (DMDC's) April 1996 Active-duty Master File (ADMF). Data were stratified on the basis of service, location, pay level, and race/ethnicity. Minority groups were oversampled to ensure adequate numbers of minorities were available for analysis. Questionnaires were mailed to sample members between September of 1996 and January of 1997. From an initial eligible sample of 73,496 individuals[38], usable questionnaires were returned from 39,855 individuals for an overall response rate of 52.7 percent (Elig *et al*., 1997; Wheeless *et al*., 1997). [39]

The AF-EOS data provide us with information on reports of harassment, demographic and human capital characteristics, as well as a randomized variable extracted from the confidential file that allows us to identify separate military installations. The ability to identify unique military installations is extremely important for our purposes as it allows us to match military bases to their surrounding communities.

[38] Although the initial non-proportional stratified random sample consisted of 76,754 active-duty personnel, 3,258 were found to be ineligible for the target population because they had left military service (Elig *et al*., 1997; Wheeless *et al*., 1997).

[39] Fortunately, the AF-EOS data contains basic demographic information for non-respondents. These data show that while whites and Asians are disproportionately likely to be survey respondents, blacks are under-represented among respondents. Moreover, respondents are less likely to be in the Marines and more likely to be in the Air Force. These differences—while significant—are generally minor suggesting that the characteristics of the two groups are much the same.

A.2 Definitions of Local Communities

A.2.1 Measured within 10-miles of Installation

Our preferred definition of 'local community' includes all those towns, cities, and localities within a 10-mile radius of each installation. We determined if a community is within 10 miles of an installation using "ePodunk", which is a search engine that allows one to map the distance between locations.[40] In particular, ePodunk lists military installations by state and provides links to information about the base including the names of local communities near the installation.[41] Most importantly for our purposes, users can specify within how many miles of the installation the local community must be.[42] Depending on the location of the installation, this technique could lead to as few as one community within the 10-mile radius or to over 50 communities within 10 miles of the base.

We then matched the list of communities drawn from ePodunk to their community-level characteristics (discussed in the text) using Geolytics CensusCD and Maps 1990, henceforth referred to as CensusCD.[43] Specifically, we manually assigned each community in ePodunk the "areakey" from CensusCD and the "baseid" from the AF-EOS. Next, we merged the ePodunk data with CensusCD data by areakey. This

[40] ePodunk collects its information on communities from the 2000 U.S. census. For more information go to: http://www.epodunk.com/.

[41] ePodunk also provides information on, the branch of service, the installation website (if available), 4-year colleges in the area, school districts on or near the installation, and nearby recreational activities.

[42] Unfortunately, some of our military installations were not listed in ePodunk. For these installations we used zipcode as our starting point in ePodunk, and then selected communities within 10 miles of that zipcode.

[43] Some communities identified by ePodunk were not included in CensusCD. This was not extremely problematic in most cases because many of these communities were in fact already counted within other communities identified to be part of the same local community surrounding a given installation that were included in CensusCD. For example, ePodunk listed La Jolla as a community near one of our installations. While La Jolla is not included in CensusCD, San Diego is and La Jolla is represented in the San Diego counts. We were unable to find complete community-level information for two of our installations so these installations were dropped from our analysis leaving 136 installations in the estimation sample.

resulted in a data set that included community-level characteristics for all communities located within 10 miles of the military installations in the AF-EOS.[44] We then collapsed the community-level characteristics using population weights by baseid. This ensured that each installation is assigned the population weighted average characteristics of the communities that are within 10 miles of it, so if there is only one community within 10 miles of an installation than that installation is assigned the characteristics for that community only but if there are more than one community within 10 miles than the installation is assigned the population weighted average characteristics of those communities. Finally, we merged this data into the AF-EOS by baseid such that the local community-level characteristics were assigned to each active-duty member based on his or her installation.

All community-level characteristics are measured using the procedure described above with the exception of our crime measure. This characteristic is aggregated to the county level as the underlying data are not available at more disaggregated levels (see below for a more detailed discussion of our county level definition of local community).

A.2.2 Measured within 5-miles of Installation

To determine if a community was within 5 miles of a military installation we followed a similar procedure to that outlined for the 10-mile definition. Specifically, we used ePodunk to determine the communities that were within 5 miles of an installation and matched those communities to the community-level characteristics in CensusCD. Depending on the location of the installation, this technique could lead to as few as 1

[44] This process drops all other communities in the CensusCD that are not included in the AF-EOS data.

community within 5 miles to 12 communities within 5 miles.[45] This is in sharp contrast to the 10-mile definition where some bases had more than 50 communities within 10 miles. The characteristics by community were then aggregated up to the local community level using population weights for each of the 136 installations included in our analysis.[46] These local community level characteristics were then assigned to each active-duty member based on his or her installation.

A.2.3 Measured at the County Level

The county where the military installation is located is based on information from "ZIPCodeWorld", which is a search engine that allows one to input a zipcode and then gives the user detailed information about that zipcode, including, but not limited to, the name of the city, the name of the state, the name of the county, and the county fipscode attached to that zipcode.[47,48] To ensure accuracy we also went to each military installation's homepage (if available) to verify the county in which they state their installation is located. We did this for each of our 136 military installations and then matched the county to the community-level characteristics in CensusCD by countyfips codes. Finally, these local community level characteristics were then assigned to each active-duty member based on his or her installation.

[45] For the 25 installations with no communities within 5-miles, we used the next closest distance ranging from 6 to 9 miles.
[46] The number of installations is smaller for this measure of community because there were a number of bases (i.e., 25) that did not have a community within 5 miles of their location.
[47] For more information go to: http://www.zipcodesdatabase.com.
[48] ZIP Code information is derived from the United States Postal Service (USPS) ZIP Code Lookup tool (http://zip4.usps.com/zip4/welcome.jsp). Specifically, we used the Lookup a ZIP Code by City tool to find the ZIP Code of each military installation.

A.3 Installation-Specific Measures

We control for equal opportunity climate through the following aggregate measures: 1) the overall quality of race relations; and 2) the proportion of installation personnel who are white. These aggregate variables are calculated by assigning each individual the weighted average rate of the variable of interest of his or her installation.[49]

Moreover, we control for social prescriptions governing how different racial groups should interact with each other by creating an installation-level index based on information in the AF-EOS data. In particular, respondents reported the extent to which: 1) they felt pressure from service members belonging to their own racial group not to socialize with members of other racial groups; (2) people feel free to sit wherever they choose in the dining halls regardless of race; (3) people feel free to use any recreation facilities regardless of race; (4) members of a racial group are treated as if they are "trouble" when they get together; and (5) personnel prefer to socialize with members of their own racial group when they are off duty. Higher values of the index indicate fewer constraints on inter-racial interactions. The installation level index is then calculated by assigning to each individual the weighted average of the aggregate social prescriptions index of his or her installation.[50] Descriptive statistics for these measures are presented in Appendix Table 2.

[49] In calculating these measures we first created two indicator variables as follows: 1) positive race relations—equaling one if the respondent to a (very) large extent believes race relations are good on their installation/ship; and 2) white—equaling one if the respondent is white. In all other cases—including item non-response—these two indicator variables are coded as zero. Weighted, installation-specific averages are then calculated and assigned to each individual.

[50] Specifically, each question was answered on a 1 (not at all) to 5 (to a very large extent) scale. We rescaled (1), (4) and (5) in the opposite direction so that higher values reflect fewer constraints on inter-racial interactions. We then create an aggregate index ranging from 5 to 25 for each respondent by adding up the individual's responses to each of the five questions. If the respondent did not answer all 5 questions, then for the question(s) they missed they were given their mean response from the question(s) they did answer.

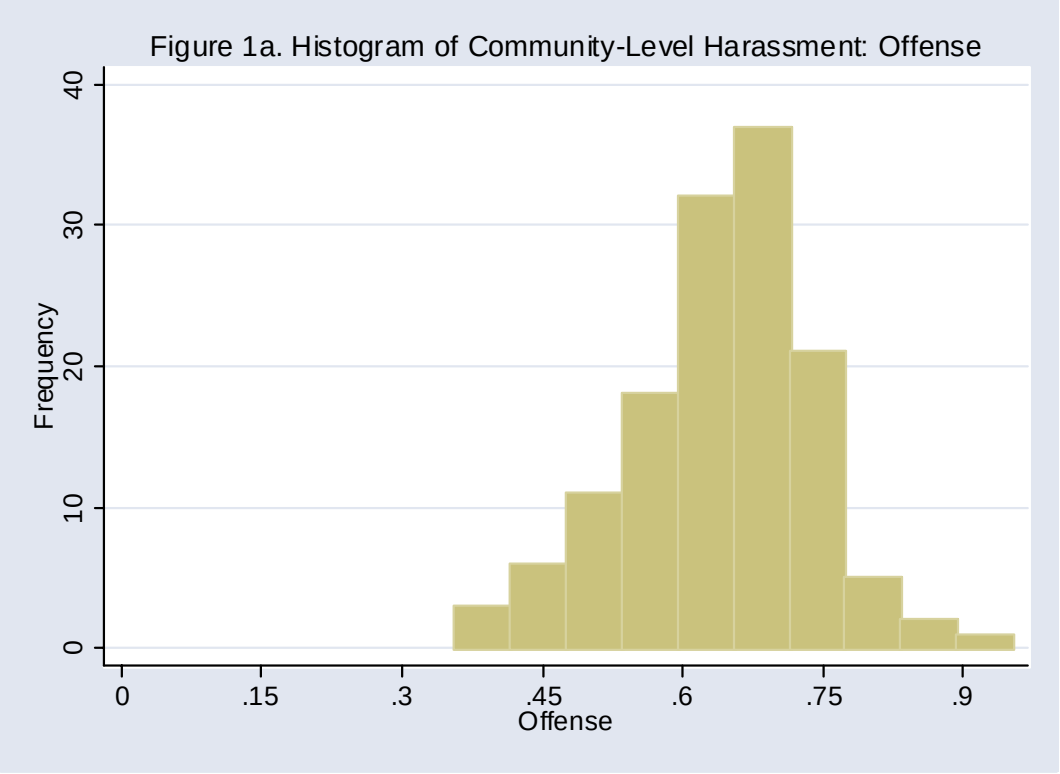


Figure 1a. Histogram of Community-Level Harassment: Offense
Frequency
0
10
20
30
40
0
.15
.3
.45
.6
.75
.9
Offense

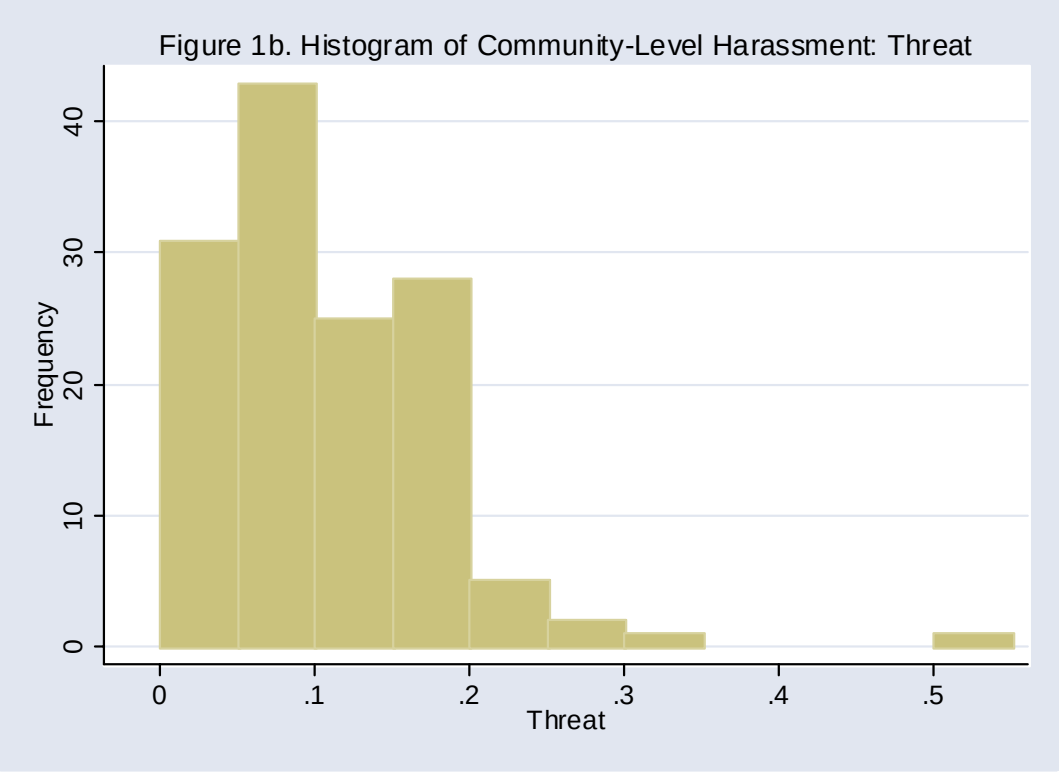


Figure 1b. Histogram of Community-Level Harassment: Threat
Frequency
0
10
20
30
40
0
.1
.2
.3
.4
.5
Threat

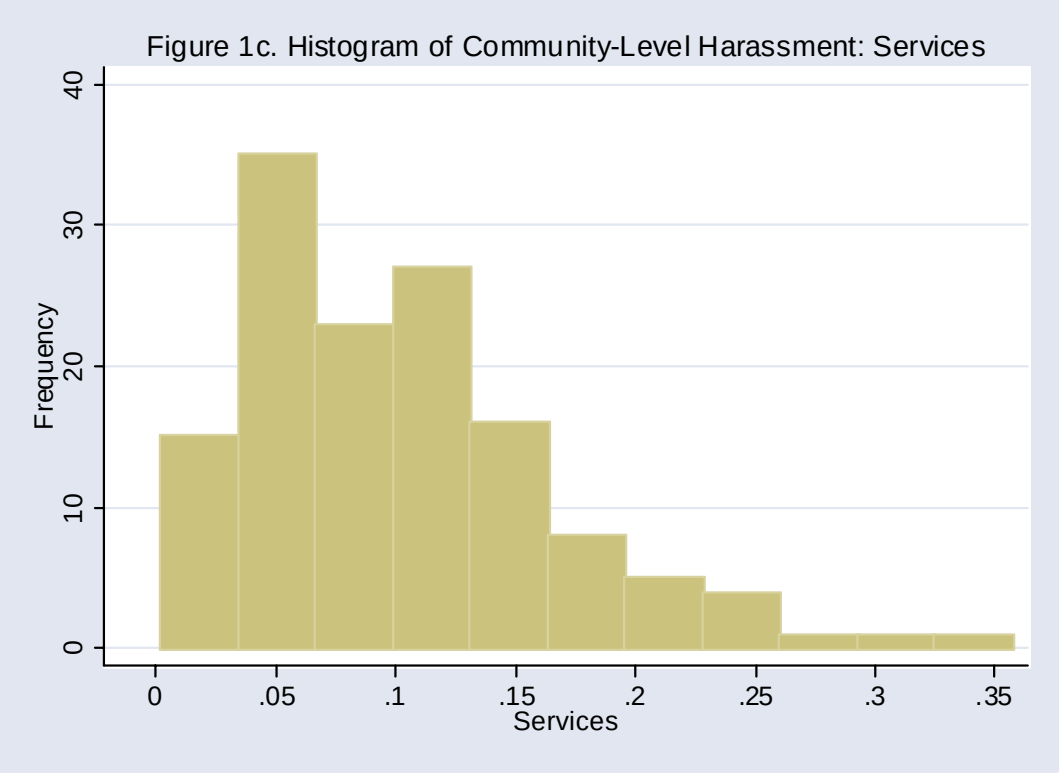
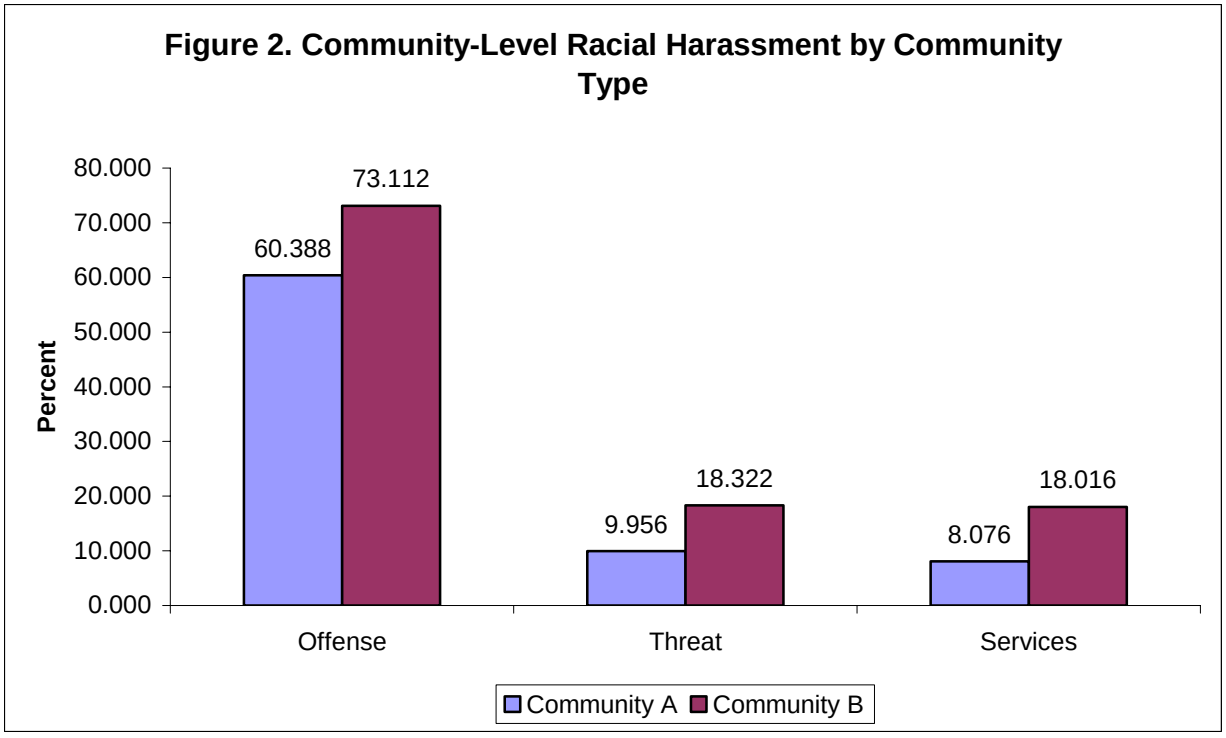


Figure 1c. Histogram of Community-Level Harassment: Services
Frequency
0
10
20
30
40
0
.05
.1
.15
.2
.25
.3
.35
Services



Note: Community A is characterized by: airforce = 1; south = 0; percent white = 0.70; percent black = 0.20; percent Asian/Pacific Islander = 0.06; percent other = 0.04; income inequality = 0.59; poverty rate = 0.10; civilian unemployment rate = 0.06; (violent crimes per 100,000)/1000 = 0.29; home ownership rate = 0.46; Ln (median mortgage) = 6.95; and ratio of active duty personnel to community population = 0.03. Community B is characterized by: army = 1; south = 1; percent white = 0.57; percent black = 0.12; percent Asian/Pacific Islander = 0.26; percent other = 0.05; income inequality = 0.84; poverty rate = 0.16; civilian unemployment rate = 0.09; (violent crimes per 100,000)/1000 = 0.85; home ownership rate = 0.34; Ln (median mortgage) = 6.44; and ratio of active duty personnel to community population = 0.55.

Table 1. Community-Level Racial Harassment by Race

	Offense	Threat	Services
Overall*	0.652	0.123	0.106
	(0.476)	(0.329)	(0.308)
	[15008]	[14983]	[16986]
White	0.635	0.121	0.052
	(0.482)	(0.326)	(0.222)
	[4114]	[4110]	[4492]
Black	0.709	0.131	0.285
	(0.454)	(0.337)	(0.452)
	[3203]	[3193]	[3806]
Hispanic	0.667	0.119	0.158
	(0.471)	(0.324)	(0.365)
	[3794]	[3789]	[4317]
Asian	0.654	0.130	0.136
	(0.476)	(0.336)	(0.343)
	[2876]	[2872]	[3211]

Sampling weights used. Standard deviations in parentheses. Sample size in brackets.
*Includes Native Americans.

Table 2. Determinants of Community-Level Racial Harassment: Individual Level Characteristics
(Probit Marginal Effects and Standard Errors)

	Offense				Threat				Services			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
Family Situation												
Married	0.037	0.013	-0.004	0.036	-0.009	-0.050**	-0.042*	-0.001	0.024***	0.044*	0.092***	0.091***
	(0.027)	(0.026)	(0.039)	(0.049)	(0.018)	(0.025)	(0.023)	(0.030)	(0.009)	(0.025)	(0.024)	(0.033)
Mixed Marriage	-0.010	-0.034	-0.034	0.068	0.001	0.030	0.021	0.026	0.063***	-0.040	-0.075***	-0.012
	(0.036)	(0.035)	(0.033)	(0.042)	(0.020)	(0.027)	(0.023)	(0.035)	(0.023)	(0.031)	(0.023)	(0.025)
Presence of Kids	-0.010	-0.031	-0.075**	-0.042	-0.028**	-0.003	0.012	-0.031	0.002	-0.029	-0.051*	-0.060***
	(0.023)	(0.027)	(0.038)	(0.045)	(0.014)	(0.018)	(0.020)	(0.027)	(0.008)	(0.021)	(0.027)	(0.022)
Education												
Some College	0.016	0.076**	0.103***	-0.062	0.005	0.046**	0.060***	-0.071*	0.018**	0.036	0.032	-0.072*
	(0.028)	(0.032)	(0.037)	(0.045)	(0.017)	(0.022)	(0.020)	(0.038)	(0.008)	(0.027)	(0.021)	(0.037)
College	0.029	0.061	-0.025	-0.030	-0.024	0.023	0.025	-0.060	-0.007	-0.018	0.034	-0.085**
	(0.041)	(0.050)	(0.061)	(0.054)	(0.029)	(0.051)	(0.047)	(0.040)	(0.014)	(0.048)	(0.035)	(0.035)
Female	-0.090***	-0.092***	-0.086*	0.023	-0.064***	-0.092***	-0.064***	-0.009	0.021*	-0.053**	-0.025	0.038
	(0.030)	(0.035)	(0.052)	(0.050)	(0.014)	(0.014)	(0.019)	(0.039)	(0.012)	(0.024)	(0.030)	(0.036)
Years of Active Service												
7-11	-0.010	0.012	0.023	-0.034	-0.017	-0.026	-0.042*	-0.011	-0.006	0.028	-0.032	0.020
	(0.030)	(0.038)	(0.048)	(0.044)	(0.016)	(0.019)	(0.022)	(0.021)	(0.009)	(0.030)	(0.028)	(0.025)
12-19	-0.056***	-0.008	0.050	-0.050	-0.016	-0.029*	-0.026	-0.019	-0.009	-0.014	-0.064***	-0.043
	(0.021)	(0.028)	(0.034)	(0.054)	(0.017)	(0.017)	(0.025)	(0.024)	(0.007)	(0.025)	(0.019)	(0.029)
20+	-0.023	-0.083**	-0.010	-0.027	-0.014	-0.011	-0.019	-0.033	-0.027***	-0.083**	-0.052**	-0.008
	(0.033)	(0.040)	(0.049)	(0.056)	(0.019)	(0.027)	(0.033)	(0.030)	(0.007)	(0.034)	(0.025)	(0.035)
Officer	-0.083**	0.021	-0.005	-0.069	-0.036	-0.021	-0.072***	-0.049	0.001	0.041	-0.071***	-0.017
	(0.038)	(0.046)	(0.064)	(0.059)	(0.024)	(0.031)	(0.021)	(0.031)	(0.012)	(0.038)	(0.023)	(0.028)
Lives Off-Base	0.025	0.034	-0.038	-0.038	0.002	0.006	0.001	-0.014	-0.015**	0.053**	0.003	-0.024
	(0.022)	(0.025)	(0.030)	(0.035)	(0.016)	(0.021)	(0.021)	(0.026)	(0.007)	(0.027)	(0.020)	(0.025)
Observations	4114	3203	3794	2876	4110	3193	3789	2872	4492	3806	4317	3211

Notes: ***, **, and * indicate significant at the 1, 5, and 10 percent level, respectively.

Table 3. Determinants of Community-Level Harassment: Community-Level Characteristics (Probit Marginal Effects and Standard Errors)

	Offense				Threat				Services			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
Racial/Ethnic Diversity												
Percent White		0.066	0.061	0.136		-0.005	0.255	0.023		0.209**	0.268	0.164***
		(0.108)	(0.460)	(0.104)		(0.090)	(0.244)	(0.062)		(0.085)	(0.250)	(0.061)
Percent Black	0.000		0.296	0.369***	0.148**		0.193	0.273**	0.046		0.378	0.393***
	(0.098)		(0.379)	(0.141)	(0.059)		(0.203)	(0.126)	(0.037)		(0.235)	(0.131)
Percent Asian/Pacific Islander	0.482***	0.017	0.124		0.295***	-0.017	0.383		0.211***	0.284**	0.244	
	(0.086)	(0.128)	(0.438)		(0.047)	(0.095)	(0.235)		(0.030)	(0.112)	(0.258)	
Percent Other	0.565***	0.179		-0.593	0.591***	0.232		-0.022	0.149	-0.231		0.275
	(0.215)	(0.246)		(0.461)	(0.145)	(0.221)		(0.253)	(0.110)	(0.200)		(0.187)
P-Value of Joint Test	0.000	0.714	0.326	0.027	0.000	0.743	0.087	0.135	0.000	0.028	0.230	0.006
Economic Vulnerability												
Income Inequality	0.060**	0.058	-0.022	0.096*	0.036	0.019	0.046	0.052	0.008	0.126***	-0.014	0.006
	(0.030)	(0.038)	(0.066)	(0.053)	(0.026)	(0.031)	(0.047)	(0.034)	(0.014)	(0.036)	(0.045)	(0.047)
Poverty Rate	0.046	0.519*	0.279	0.512	-0.040	0.264	0.185	-0.671***	0.045	0.281	0.020	-0.700***
	(0.262)	(0.303)	(0.518)	(0.428)	(0.198)	(0.238)	(0.312)	(0.209)	(0.082)	(0.247)	(0.309)	(0.261)
Civilian Unemployment Rate	0.454	-0.279	-0.815	0.384	-0.187	-0.067	1.478***	-0.108	0.213	1.364***	0.725	0.399
	(0.442)	(0.565)	(0.920)	(0.768)	(0.363)	(0.444)	(0.497)	(0.420)	(0.230)	(0.481)	(0.553)	(0.620)
P-Value of Joint Test	0.156	0.003	0.822	0.086	0.278	0.341	0.006	0.004	0.659	0.001	0.327	0.027
Crime^, ^^												
Violent Crimes	-0.027	-0.019	-0.019	-0.009	-0.004	0.002	0.061***	-0.004	0.019**	-0.045**	0.003	-0.046**
per 100,000 Population	(0.022)	(0.026)	(0.029)	(0.032)	(0.016)	(0.019)	(0.021)	(0.021)	(0.008)	(0.018)	(0.022)	(0.022)
Housing Market												
Home Ownership Rate	0.227	0.095	-0.226	0.230	0.078	-0.031	0.144	0.154	0.023	0.082	0.169	0.073
	(0.146)	(0.173)	(0.291)	(0.192)	(0.098)	(0.134)	(0.141)	(0.130)	(0.049)	(0.137)	(0.163)	(0.134)
Ln(Median Mortgage)	0.012	-0.129**	-0.095	0.012	0.025	0.031	0.053	-0.050	-0.016	-0.051	0.046	-0.024
	(0.045)	(0.054)	(0.103)	(0.046)	(0.028)	(0.050)	(0.057)	(0.035)	(0.015)	(0.051)	(0.057)	(0.036)
P-Value of Joint Test	0.249	0.047	0.346	0.407	0.372	0.812	0.366	0.305	0.545	0.474	0.395	0.750
Social Context												
South	0.061**	-0.027	-0.033	-0.073	0.013	-0.001	0.025	-0.015	0.022**	0.006	-0.036	-0.021
	(0.026)	(0.027)	(0.043)	(0.046)	(0.017)	(0.026)	(0.033)	(0.029)	(0.011)	(0.023)	(0.028)	(0.023)
Active Duty Personnel/	0.010	-0.014	-0.011	-0.005	-0.008	0.000	-0.017	0.004	-0.001	-0.045***	0.003	-0.016
Community Population	(0.007)	(0.010)	(0.015)	(0.009)	(0.009)	(0.011)	(0.020)	(0.007)	(0.004)	(0.012)	(0.011)	(0.010)
Observations	4114	3203	3794	2876	4110	3193	3789	2872	4492	3806	4317	3211

Notes: Based on results presented in Table 2. Specification also includes controls for service (army (omitted category), navy, marines, airforce). ^ Measured at the county level. ^^All crime variables are included in the probit as crime/1000. ***, **, and * indicate significant at the 1, 5, and 10 percent level, respectively.

Table 4. Community-Level Racial Harassment: Alternative Measures of Racial/Ethnic Diversity (Probit Marginal Effects and Standard Errors)

	Offense				Threat				Services			
	White	**Black**	**Hispanic**	**Asian**	**White**	**Black**	**Hispanic**	**Asian**	**White**	**Black**	**Hispanic**	**Asian**
Specification A												
Ln(White Population)	-0.054**	0.012	-0.012	-0.014	-0.039***	0.015	0.014	-0.003	-0.030***	0.015	-0.014	0.000
	(0.022)	(0.024)	(0.043)	(0.029)	(0.015)	(0.021)	(0.022)	(0.020)	(0.007)	(0.023)	(0.021)	(0.019)
Ln(Black Population)	-0.018	0.003	0.011	0.038**	0.004	0.002	-0.009	0.030**	-0.006*	-0.017*	0.019*	0.030**
	(0.012)	(0.014)	(0.019)	(0.018)	(0.008)	(0.010)	(0.011)	(0.015)	(0.003)	(0.010)	(0.010)	(0.014)
Ln(Asian/Pacific Islander	0.045***	0.009	0.010	-0.021	0.031***	0.003	0.014	-0.015	0.024***	0.014	-0.008	-0.029***
Population)	(0.013)	(0.015)	(0.023)	(0.016)	(0.008)	(0.012)	(0.010)	(0.009)	(0.004)	(0.013)	(0.011)	(0.009)
Ln(Other Population)	0.018*	-0.005	-0.007	-0.019	0.010	0.001	-0.019*	-0.002	0.004	-0.017	-0.003	0.007
	(0.010)	(0.015)	(0.020)	(0.020)	(0.008)	(0.010)	(0.011)	(0.011)	(0.004)	(0.011)	(0.012)	(0.010)
P-Value of Joint Test	0.000	0.608	0.955	0.053	0.000	0.275	0.350	0.122	0.000	0.232	0.358	0.008
Specification B												
Racial Fragmentation	0.125	0.070	0.230	-0.032	0.230***	0.041	-0.029	0.064	0.124**	-0.156	0.062	0.047
	(0.118)	(0.136)	(0.187)	(0.161)	(0.077)	(0.128)	(0.113)	(0.091)	(0.060)	(0.108)	(0.095)	(0.090)
Specification C												
Racial Dominance	-0.014	-0.004	0.000	-0.024	-0.033*	-0.014	-0.002	-0.043**	-0.015	0.020	0.007	-0.028
	(0.027)	(0.022)	(0.036)	(0.030)	(0.018)	(0.019)	(0.020)	(0.019)	(0.014)	(0.023)	(0.020)	(0.018)
Specification D												
Polarization	0.060	0.011	0.147	0.049	0.128**	0.011	0.008	0.090	0.080**	-0.076	0.046	0.039
	(0.072)	(0.084)	(0.118)	(0.119)	(0.051)	(0.075)	(0.082)	(0.065)	(0.037)	(0.068)	(0.070)	(0.062)
Observations	4114	3203	3794	2876	4110	3193	3789	2872	4492	3806	4317	3211

Notes: Sampling weights used. Standard errors are adjusted for clustering by installation. ***, **, and * indicate significant at the 1, 5, and 10 percent level, respectively. See Tables 2 and 3 for additional control variables. Racial Fragmentation is defined as $R_j=1-\sum s_{kj}^2$, racial dominance is defined as $s_{kj}>0.75$, and polarization is defined as $RQ_j=1-\sum((0.5-s_{kj})/0.5)^2 s_{kj}$, where k indexes racial groups and j indexes local communities.

Table 5. Determinants of Community-Level Racial Harassment: Installation-Level Characteristics vs. Community-Level Characteristics (Linear Probability Models)

	Offense				Threat				Services			
	White	**Black**	**Hispanic**	**Asian**	**White**	**Black**	**Hispanic**	**Asian**	**White**	**Black**	**Hispanic**	**Asian**
Specification One												
R-Squared	0.010	0.015	0.025	0.019	0.019	0.021	0.024	0.029	0.024	0.012	0.024	0.037
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Installation-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Community Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No
Specification Two												
R-Squared	0.067	0.091	0.128	0.126	0.101	0.100	0.128	0.172	0.118	0.065	0.106	0.169
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Installation-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Specification Three												
R-Squared	0.018	0.017	0.028	0.020	0.026	0.027	0.026	0.032	0.029	0.014	0.032	0.044
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Installation-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No
Specification Four												
R-Squared	0.027	0.027	0.034	0.036	0.056	0.031	0.040	0.057	0.065	0.024	0.037	0.059
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Installation-Level Characteristics	No	No	No	No	No	No	No	No	No	No	No	No
Community Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No
Observations	4114	3203	3794	2876	4110	3193	3789	2872	4492	3806	4317	3211

See Tables 2 and 3 for a complete list of individual characteristics and community-level characteristics, respectively. Installation-level characteristics include percent white, race relations good, and social presciptions.

Appendix Table 1. Racially Harassing Behavior Components

	Mean	Std. Dev.
Offensive Encounters	**0.652**	**0.476**
Unwelcome Attempts To Discuss Race/Ethnicity	0.337	0.473
Told Racist Stories/Jokes	0.413	0.492
Condescending Due To Race/Ethnicity	0.259	0.438
Distribute Racist Materials	0.183	0.386
Displayed Racist Tattoos/Clothing	0.334	0.472
Not Included In Activity Due To Race/Ethnicity	0.134	0.341
Uncomfortable, Hostile Looks/Stares Due to Race/Ethnicity	0.360	0.480
Offensive Remarks About Appearance Due to Race/Ethnicity	0.183	0.387
Remarks Your Race/Ethnicity Not Suited To Job	0.079	0.270
Offensive Remarks About Race/Ethnicity	0.222	0.416
Threat/Harm	**0.123**	**0.329**
Vandalized Property Due To Race/Ethnicity	0.042	0.201
Threatened With Retaliation if Did Not Partake in Racist Behavior	0.049	0.215
Physically Threatened/Intimidated Due to Race/Ethnicity	0.088	0.284
Assaulted You Physically Due to Race/Ethnicity	0.026	0.160
Family Services	**0.106**	**0.308**
Discriminated Against for Non-Government Housing Due to Race/Ethnicity	0.015	0.123
Unwelcomed by Local Business Due to Race/ Ethnicity	0.088	0.284
Local Civilian Police Harassed Me/Family Due to Race/Ethnicity	0.028	0.166

*Coded as 1 if respondent answered yes and his/her race was a factor, zero otherwise.

Appendix Table 2. Summary Statistics for Installation-Level and Community-Level Characteristics

	Mean	Std. Dev.
Installation-Level Mean Characteristics		
Percent White	0.675	0.101
Racial Relations Good	0.662	0.105
Social Presciptions	19.673	0.939
Community-Level Characteristics		
Racial/Ethnic Diversity		
Percent White	0.699	0.160
Percent Black	0.201	0.154
Percent Asian/Pacific Islander	0.058	0.132
Percent Other	0.042	0.049
Racial Fragmentation	0.396	0.120
Dominance	0.430	0.495
Polarization	0.689	0.205
Economic Vulnerability		
Income Inequality	0.752	0.378
Poverty Rate	0.135	0.048
Civilian Unemployment Rate	0.077	0.026
Crime^		
Violent Crimes per 100,000 Population	654.822	459.593
Housing Market		
Home Ownership Rate	0.412	0.086
Ln(Median Mortgage)	6.600	0.265
Social Context		
South	0.588	0.492
Active Duty Personnel/Community Population	0.494	1.121
Service		
Army	0.366	0.482
Navy	0.160	0.367
Marines	0.137	0.343
Airforce	0.337	0.473
Number of Observations	15,826	

Notes: Sampling weights used. Based on family service incident sample. Does not include Native Americans.
^ Measured at the county level.

Appendix Table 3. Summary Statistics for Individual Characteristics by Race

	White		Black		Hispanic		Asian	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Family Situtation								
Married	0.667	0.471	0.620	0.486	0.622	0.485	0.538	0.499
Mixed Marriage	0.087	0.282	0.116	0.320	0.285	0.451	0.227	0.419
Presence of Kids	0.464	0.499	0.558	0.497	0.465	0.499	0.464	0.499
Education								
High School or Less	0.256	0.437	0.271	0.445	0.340	0.474	0.222	0.416
Some College	0.473	0.499	0.609	0.488	0.523	0.500	0.498	0.500
College	0.271	0.445	0.119	0.324	0.137	0.344	0.280	0.449
Female	0.122	0.327	0.250	0.433	0.118	0.323	0.168	0.374
Years of Active Service								
6-	0.475	0.499	0.402	0.490	0.562	0.496	0.502	0.500
7-11	0.169	0.375	0.190	0.392	0.152	0.359	0.170	0.376
12-19	0.280	0.449	0.332	0.471	0.233	0.423	0.258	0.438
20+	0.077	0.266	0.076	0.265	0.054	0.225	0.070	0.255
Officer	0.237	0.426	0.083	0.275	0.100	0.300	0.193	0.394
Lives Off-Base	0.579	0.494	0.526	0.499	0.471	0.499	0.565	0.496
Number of Observations	4,492		3,806		4,317		3,211	

Notes: Sampling weights used. Based on family service incident sample.