

Racial Harassment, Ethnic Concentration and Economic Conditions ^{*}

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Abstract

In this paper, we analyse the association between spatial concentration of ethnic minorities and local economic conditions on the one hand, and racial harassment on the other. We argue that ethnic concentration relates to racial harassment not only through effects on majority prejudice but also through the probability of minority individuals meeting majority individuals, and through the probability of hostility being expressed aggressively. In that sense, racial harassment of minority individuals is not simply a stronger form of hostility in attitudes. Spatial ethnic concentration can therefore affect harassment probabilities in opposite ways to that in which it affects hostile attitudes in the majority population. We demonstrate empirically that, in area of higher local ethnic concentration, experience of harassment decreases, even though hostility on the side of the majority population does not.

Key Words: Racial Harassment, Economics of Minorities

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1 Introduction

Hostility towards immigrants **and in particular minorities** is socially costly in many ways such as through labour market discrimination¹ and through denial of social rights². **One of the most damaging manifestations is through harassment. Acts of intimidation and harassment aimed at ethnic minority individuals create high immediate social costs, and discourage long term integration.**³ In this paper we analyse the way in which harassment relates to the local concentration of minorities in an area.

Much research has looked at the relationship between expression of hostile attitudes in opinion surveys and ethnic context. However racial attitudes may be a poor substitute for explicit measures of racial conflict if that is what is of interest. It would be tempting to apply a similar model relating ethnic concentration to intensity of harassment, treating harassment as if it were simply a stronger form of attitudinal hostility. We argue that this may lead to wrong conclusions, for several reasons. First, even if ethnic concentration of minorities in an area increases hostility of majority individuals who have chosen to live in these areas, both the opportunity to harass and the costs of harassment relate to ethnic concentration not only through hostility, but through at least two additional channels: the probability of majority individuals to meet potential victims, and their willingness

¹Åslund and Rooth (2005) provide evidence on the relationship between attitudes and discrimination.

²**Roemer and Van Der Straeten (2006) document the notable increase in xenophobic feelings in Denmark and discuss the relation between a reduction in public spending, particularly that directed to immigrants, and anti-immigrant attitudes.**

³See, for instance, Bisin, Patacchini, Verdier, and Zenou (2006) and Manning and Roy (2007).

to express hostility in some form of harassment. As we show below, both of these may decrease with an increase in minority concentration. As a consequence, the effect ethnic minority concentration may have on hostility in majority attitudes may be fundamentally different from the effect it has on the probability of a minority individual to experience harassment. Second, when analyzing the effect of ethnic minority concentration on *hostility in majority attitudes*, it is important to account for selection of majority individuals into areas with different concentrations according to how sympathetic they feel towards minorities. However, when analyzing the effect of ethnic minority concentration on *harassment* induced through hostility in attitudes, no correction should be made for such selection since what matters is precisely the hostility of those majority individuals who choose to live in areas with given minority concentrations.

We commence by providing a conceptual framework for analysis, which draws on existing theories about hostility formation and interethnic violence.⁴

We distinguish between three channels by which ethnic concentration may relate to racial harassment. Firstly, it affects the levels of racial prejudice in the majority pop-

⁴Economists have recently shown increasing interest in issues associated with the economic costs of ethnic diversity (e.g. Alesina and La Ferrara, 2005), ethnic conflict (e.g. Caselli and Coleman 2006) and more generally inter-group hatred (see Glaeser 2005) and its relationship to economic growth (see e.g. Easterly and Levine 1997).

Krueger and Malecková (2003) review evidence on the economic determinants of hate crime. There is some interesting work that investigates racially motivated harassment at the workplace (see e.g. Antecol and Cobb-Clark (2008 and forthcoming) and Shields and Wheatley Price 2002a,b). However, most of the literature that theorises about the possible determinants of racial harassment and attitude formation can be found in other social sciences.

ulation. Secondly, it affects the probability of minority individuals meeting majority individuals. Thirdly, it affects the probability of hostility finding expression in acts of racial harassment. Our discussion shows that the direction of the relationship between ethnic concentration and acts of harassment is by no means clear-cut, and that the relationship between ethnic concentration and attitudinal hostility on the one hand, and harassment on the other need not point in the same direction.

Our empirical findings support the importance of the distinction between hostility and harassment. The likelihood of a minority individual being harassed is found to decline with local ethnic concentration, taking account of the endogeneity of location choices of minorities. By contrast, hostility in attitudes amongst majority respondents are found not to be significantly related to local ethnic concentration. However, hostility in attitudes increase in ethnic concentration if we adjust for endogenous location choices of majority individuals. A main result of our analysis is therefore that we find strong evidence that the relationship between racial harassment and ethnic concentration needs to be modelled differently to that between hostility in attitudes and ethnic concentration. Specifically, our analysis suggests that the probability of being racially harassed is lower in areas with larger minority populations.

Besides a measure of harassment, we also use information on precautionary measures taken on the side of minority individuals, an arguably more direct measure of the welfare cost of harassment. We are careful to develop maximum likelihood procedures appropriate to joint analysis of precaution and harassment. Our results for precautions are in line with those we find for other measures of harassment.

Finally, with respect to economic conditions, we find evidence that the likelihood of harassment, and in particular precautionary behaviour, is aggravated by poor economic circumstances, whereas no effect can be detected from economic conditions on attitudinal prejudice.

We base our empirical investigation on the British Fourth National Survey of Ethnic Minorities (FNSEM), which was collected between 1993 and 1994. This survey contains a "boost" sample of ethnic minorities and a random sample of white natives, and provides a wide range of socioeconomic information on respondents. In addition, the FNSEM contains specific and unique information on different forms of racial harassment and abuse experienced by ethnic minorities. The FNSEM also contains information on how ethnic minority individuals take precautions, changing some of their habits as a response to racial harassment. Finally, the survey contains information on self-reported prejudice of white majority individuals, as well as other questions that relate to racial prejudice. Information on (changes in) ethnic concentration and economic conditions on area level are drawn from the 1981 and 1991 UK census.

The structure of the paper is as follows. In the next section, we discuss the conceptual framework and explain implications for empirical estimation, as well as empirical implementation and identification issues. Next, we introduce and describe the data and our sample. Finally, we present the results, and provide a discussion of our findings in the last section.

2 Conceptual Framework

We distinguish between three elements involved in any incident of racial harassment: hostility towards minority individuals on the side of the potential harasser (assumed here always to be a majority individual, as reflected in our data), a meeting between that individual and an ethnic minority individual, and the decision on the side of the potential harasser to express hostility aggressively. Harassment occurs as the combination of a meeting between a potential harasser and a minority individual, and the willingness on the side of the potential harasser to express hostility aggressively. In Appendix I we set out a more formal model which describes these elements of "harassment", how they relate to each other, and how each of these three elements relates to existing theories in sociology and economics. Here we discuss the basic ideas.

Majority Hostility: Consider first the formation of hostility. Sociologists have long theorised about the formation of hostility in majority populations towards minorities. Group conflict theories⁵ hold that racial prejudices and hostility derive from a threat to real resources and accepted practices of the majority population.⁶ Empirical implications of group conflict theories are that levels of intolerance will be higher where the threat from ethnic minorities is perceived as greater. Thus areas with higher concentration of ethnic minorities should be afflicted with greater levels of hostility to minorities⁷. Not only the

⁵See, for example, Blumer (1958), Campbell (1965), Blalock (1967), Bobo (1983), Tolnay, Beck and Massey (1989).

⁶Frijters (1998) models discriminatory behaviour based on these considerations.

⁷There is one opposing theory that predicts a positive relationship between ethnic concentration and hostility. Social contact with minorities can undermine racial prejudice, by reducing misrepresentation

level but also the rate of change of ethnic minority concentration may be important if sudden inflows of minorities to particular communities intensify perception of threat.⁸ Such processes may in turn be moderated by induced population outflows among the majority community, as the most hostile individuals may leave the neighborhood after their attempts to stop the minority inflow fail.⁹ Besides association with ethnic concentration, hostility should be higher in areas with deprived economic conditions, to the extent that group conflict is economic and intensified by economic difficulty.¹⁰

Interaction: For hostility towards minorities to find expression in harassment it is required that majority and minority individuals come into contact. Therefore, the probability of a harassment incident depends on the frequency with which ethnic minority individuals encounter majority individuals. Insofar as meetings between individuals occur as a result of random circulation there is a mechanical relationship whereby greater minority concentration in a neighbourhood decreases the frequency with which a minority individual meets individuals from the majority. This provides a first sense in which of minority practices and characteristics - a hypothesis known as the *contact hypothesis* (see Pettigrew (1998), Powers and Ellison (1995) and Kinder and Mendelberg (1995)).

⁸This is suggested by theories of *defended neighborhoods*, see Suttles (1972), Green, Strolovich and Wong (1998).

⁹This is often referred to as “white flight” (Clark 1993). See Card, Mas and Rothstein (2007) for an interesting study that quantifies “tipping points”.

¹⁰Group conflict theory can be seen as subsuming economic theories which draw attention to labour market competition or to pressures exerted on public finances. See among others Scheve and Slaughter (1999), Mayda (2006), Gang, Rivera-Batiz and Yun (2002), and Dustmann and Preston (2005, 2007) for empirical analyses of association between individual preferences over immigration policies and indicators of labour market status in the US and Europe respectively viewed in the context of such ideas.

there may be “safety in numbers” for minority individuals - for a fixed level of hostility, processes of interaction predict a *decrease* in exposure to harassment with increasing ethnic concentration as the probability of encountering individuals from other communities diminishes¹¹. This effect will probably dominate even if there are non-random aspects to interaction.

Other factors like economic conditions, the overall hostility in the area, or individual characteristics of the minority individual may also affect the nature and intensity of social practices which bring different ethnic communities into contact.¹²

Aggressive expression: Although hostility may predispose majority individuals towards harassment, harassment is not simply a more extreme form of hostility but a particular mode of manifestation. Since the tendency to harass, unlike the simple existence of hostility, arises from a conscious choice of the harasser, it may depend on the perceived benefits and costliness of harassment to the perpetrator, as suggested by the literature on economics of other forms of crime (see Becker, 1968). Since most salient among the likely costs are the possibility of reprisal or punishment and since it is likely that minorities can protect themselves better in neighborhoods at high ethnic density, this provides a further reason to expect that harassment incidents may be less likely, for a given level of hostility, in areas of high ethnic concentration - another “safety in numbers” argument¹³. Economic conditions may also be relevant in this respect. The likelihood that whites

¹¹There is also a mechanical relationship whereby number of harassment incidents increases with numbers given the rate of victimisation. Our focus however is on the victimisation rate.

¹²Blau (1977, 1994) theorises about encounter probabilities.

¹³This idea underlies the *power-differential hypothesis* found in Green, Strolovich and Wong (1998), Levin and McDevitt (1993).

choose to express hostility through harassment may also depend upon the availability of other means of releasing dissatisfaction. More affluent, more articulate and more educated whites may, for example, be less inclined to resort to violent expression of discontent against minorities.¹⁴

Combining these different channels results in a model for the intensity of harassment (λ_i) as a function of the level and the change of ethnic area concentration ($\pi_{j(i)}$ and $\Delta \pi_{j(i)}$) and other area and individual characteristics ($Z_{j(i)}$ and X_i) (see Appendix I for details):

$$\lambda_i = \Lambda(\pi_{j(i)}, \Delta \pi_{j(i)}, Z_{j(i)}, X_i) \quad (1)$$

The parameter we seek to estimate below corresponds to $\frac{d\Lambda}{d\pi_{j(i)}}$. This parameter is ambiguous in sign. It depends on the relationship between the incidence of harassment and ethnic concentration through each of the three channels we discuss above. As we point out, ethnic concentration will reduce the probability of encounters between minority individuals and potential harassers; it is also likely to reduce the probability that a potential harasser will choose to harass, due to fear of reprisal. Both these channels imply that the parameter is negative. On the other hand, the relationship between harassment and ethnic concentration through hostility in attitudes may point in the opposite direction. It is important to note however that it is the hostility in attitudes of those majority individuals who live in the area where harassment takes place that matters. Thus, even if higher ethnic concentration leads to more hostility in attitudes of individuals if randomly

¹⁴In another context of violence, there is some evidence to the contrary, however. Krueger and Maleckova (2003) find that members of Hezbollah's military wing or Palestinian suicide bombers are at least as likely to come from advantaged families and have relatively high levels of education.

allocated, this may not be the case for individuals who have chosen to live in areas with higher ethnic minority concentrations. To explore this channel in more detail, we also estimate the association between minority concentration and hostility in attitudes with, and without accounting for random selection.

3 Empirical Implementation

We estimate models of minority harassment experience, using minority community respondents. In our data, we observe the number of times an individual has been harassed, which we denote H_i . If incidents of harassment arrive at rate λ_i then the probability of being harassed k times is

$$\Pr(H_i = k | \lambda_i) = e^{-\lambda_i} \lambda_i^k / k! \quad (2)$$

We let $\ln \lambda_i = \alpha_1 \pi_{j(i)} + \alpha_2 \Delta \pi_{j(i)} + \alpha_3 Z_{j(i)} + Y_i \alpha + \epsilon_i$ where $\pi_{j(i)}$ and $\Delta \pi_{j(i)}$ are the level and the change in the local minority concentration experienced by individual i in the locality j , $Z_{j(i)}$ includes indicators of economic deprivation of the area, and Y_i includes all relevant observed characteristics of the individual. Finally, ϵ_i captures unobserved influences on harassment propensity.

Our key parameter of interest in our empirical investigation is α_1 , which measures the association between ethnic concentration and harassment. This parameter corresponds to the derivative we discuss above. Our discussion in the last section suggests that the sign of this parameter is not clear-cut: An increase in ethnic concentration may increase hostility in the majority population, thus suggesting that α_1 is possibly positive. On the other hand it reduces the probability of majority individuals meeting minority individuals,

or/and the willingness on the side of a majority individual to express hostility through harassment. Both these indicate a negatives sign of α_1 .

Besides reports of harassment incidents we also have data on precautionary responses to fear of harassment, such as going out less frequently, making the home safer and so on. Since one would expect such precautions to be motivated by the prevalence and seriousness of harassment in the area, this provides an alternative indicator which we also use empirically. Indeed this is an indicator which may reflect more fully the costliness to the recipient of acts of harassment. For precautionary activity, we observe a binary indicator n_i which we take to reflect a latent underlying disposition to precaution n_i^* where $n_i^* = \beta_1\pi_{j(i)} + \beta_2\Delta\pi_{j(i)} + \beta_3Z_{j(i)} + Y_i\beta + \eta_i$ and η_i captures unobserved influences on precautions taken. We choose a normal distribution for η_i : $\eta_i|X_i \sim \mathcal{N}(0, 1)$. If the level of precautions taken is induced by (expected) harassment incidences, then the sign of β_1 should correspond to the sign of α_1 .

It is likely that our vector of observable characteristics does not pick up all the factors that affect precautionary behaviour and harassment at the same time. To allow for correlation in unobservables in the harassment and precaution equation, we also estimate the two equations jointly. We model e^ϵ as a conditional gamma distribution: $e^\epsilon|\eta, X_i \sim \Gamma(e^{\psi\eta}, 1/\zeta)$. Here ψ captures correlation between harassment and precaution arising either from the influence of one on the other or from correlation in unobserved influences on the two. If we want to allow for correlation in unobservables we need to allow $\psi \neq 0$. We estimate such models and report results.

The parameter ζ permits unobserved variation in harassment propensity λ_i indepen-

dent of precautionary behaviour. In addition, it divorces the mean and variance of the harassment process, allowing for “over-dispersion” or “under-dispersion” in the harassment equation relative to a Poisson model. As $\zeta \rightarrow 0$, the specification reduces to one in which case harassment follows a Poisson process with unobservable influences perfectly correlated in the two latent specifications.

In the appendix, we provide details of the likelihood function.

3.1 Identification

Key parameters in our analysis involve the effects of area characteristics $\pi_{j(i)}$ and $Z_{j(i)}$ on harassment. As residential location $j(i)$ is a choice by the minority individual, estimates of these parameters may be biased by selective migration.

The main issue is that those minority individuals who are most likely to be affected by harassment, or are most concerned, may leave areas where harassment is most likely to occur. Since this means the most vulnerable will be more likely to be found in areas with low values of characteristics likely to encourage harassment, estimated coefficients on these variables may be biased towards zero and can be seen therefore as lower bounds. The bias can be addressed by the idea that values of such characteristics at higher levels of spatial aggregation qualify as suitable instruments. This is similar to issues discussed in Dustmann and Preston (2001), where we address the ensuing endogeneity problem when regressing hostility in attitudes on ethnic concentration.¹⁵ We check the sensitivity of

¹⁵**Bertrand, Luttmer and Mullainathan (2000) use networks in larger areas as instruments for networks in smaller areas to identify network effects on welfare participation.** See also Evans, Oates and Schwab (1992), who use characteristics at higher spatial level to identify peer group

parameter estimates to using such instruments. By instrumenting characteristics of the respondent’s neighbourhood, we address endogeneity issues created by the location choice of the respondent.

We implement checks of robustness to endogeneity using the control function idea (see Blundell and Powell 2003, Wooldridge 2002 for discussion). Potentially endogenous variables are regressed on the exogenous variables, including the instruments, and the residuals from these equations are added to the main regression as additional regressors. Standard tests for a zero coefficient on the residual can be regarded as tests of exogeneity of the variable concerned. If this test is failed then coefficient estimates on the endogenous variables are consistent given the inclusion of the residual.

4 Data and Sample

The data we use for our analysis comes from the Fourth National Survey of Ethnic Minorities (FNSEM). The FNSEM is a cross-section survey collected between 1993 and 1994, consisting of a main sample of respondents belonging to ethnic minorities, and a reference sample of individuals belonging to the white majority population¹⁶.

Harassment: One section of the survey is dedicated to “victimisation” experienced by ethnic minority individuals in the year previous to the interview. Various incidents are recorded, such as personal attacks, property damage, and insult and whether the effects, and

¹⁶The complex geographically stratified sampling design, designed to obtain nationally representative samples of each major ethnic group, is described in Smith and Prior (1996). Sample averages reported below apply the sampling weights provided with the data.

victim believed such incidents were based on reasons of race or colour. Certain types of incident occur only for a very small proportion of the sample. For instance, 1% and 2% of the minority sample report to have experienced personal attacks and property damage due to reasons related to race or colour respectively. Since the implied numbers are too small for reliable empirical analysis, we base our analysis on reports of a milder form of harassment affecting over 10% of the sample, whether the respondent has been insulted “for reasons to do with race or color”. The wording of the question in the survey is as follows: “In the last twelve months, has anyone insulted you for reasons to do with race or color? By insulted, I mean verbally abused, threatened or been a nuisance to you?”¹⁷. In our sample, 11.1 percent of individuals report at least one incident of harassment over the last 12 months. We should point out that harassment incidents based on surveys are “perceived” incidents, in the sense that perception as to what constitutes harassment may differ across individuals. This has been emphasised by Antecol and Cobb-Clark (2008), who also argue that, as far as the welfare of the victim is concerned, it is the perception that actually matters.

The data gives information both on whether or not the individual has been harassed and if so how often. We use the latter information to take account of differences in frequency of insult. However there is some bunching and rounding in this data at higher frequencies as well as an imprecise category corresponding to a frequency too high to count. We therefore group values of 6 times or above (calculating the likelihood contri-

¹⁷To insure against the possibility that respondents underreport racially motivated offences because they are intimidated by the (different) ethnicity of the interviewer, ethnicity of respondents was matched to ethnicity of interviewers.

bution appropriately by integration over the range of values). We provide frequencies in table 1.¹⁸

Precautions: A randomly chosen subsample of survey respondents were also asked about precautions taken in response to concern about harassment. Nearly a quarter (23.6%) of minority respondents expressed worry about racial harassment and a substantial number (12.9%) had taken at least one of fourteen different possible precautions which were suggested¹⁹. Since taking any of these precautions involves cost to the individual, this may be a good indicator of the severity of the harassment problem faced. We concentrate on modeling a binary variable reflecting whether or not any precaution was reported as undertaken. Of the respondents who were asked this question, 12.9 percent reported having taken one or more of these precautions.

Sociodemographic Characteristics: The FNSEM contains extensive information on both personal sociodemographic characteristics of the interviewees and characteristics of the localities in which they reside. Summary statistics are provided in table (6) in Appendix II.

¹⁸See Virdee (1997) for a description of the data, showing that harassment is more likely to be experienced by men, by the young, by non-manual workers and by those in rented accommodation. Perpetrators are typically male, under 30 years of age, often harassing in groups and overwhelmingly white.

¹⁹The full list, in order of frequency in the data, comprises: avoiding going out at night (9%), making the home safer (7.8%), visiting shops only at certain times (5.4%), avoiding going out alone (4.1%), stopping children playing (4.5%), avoiding white areas (3.1%), changing travel routes (1.9%), stopping going to pubs (1.8%), worshipping less frequently (1.4%), making business premises safer (1.3%), changing telephone number (1.2%), stopping use of public transport (1.2%), moving home and moving school (0.7%).

At the personal level all estimates below include controls for demographic status, including age and children, labor market status and education. Education is likely to influence the type of socioeconomic environment in which the individual interacts. Therefore, it can affect the probability of being harassed. Also, attitudes and, in particular, propensity to harass may vary in different socioeconomic environments. In addition, individuals with different qualifications may come in contact with majority people to different extents. Age may be another determinant of the propensity to be harassed. Older individuals, for example, may tend to go out less or to go to places less frequented by majority individuals. In addition, potential harassers may prefer to target certain age groups rather than others.

We use ethnic group identifiers, namely Black Caribbean, Indian, African-Asian, Pakistani, Bangladeshi and Chinese²⁰. Ethnicity may indicate the extent to which cultures differ from the majority one and the extent to which different ethnic groups have integrated in British society. Harassment may be experienced particularly by individuals whose look and behavior are perceived as different from individuals of the white majority population. We also look at different harassment experiences for ethnic minority immigrants and native born ethnic minorities as natives may tend to mix with majority individuals more than immigrants. In the sample, 70 percent of ethnic minorities were born abroad.

Ethnic Concentration and Economic Deprivation: The information on ethnic concentration comes from the British census at ward level.²¹ We define ethnic concen-

²⁰These correspond to the ethnic groups oversampled in the survey. See Smith and Prior (1996).

²¹In Britain, a ward is the smallest geographical area identified in the Population Census, and typically

tration as the percentage of (all) minority individuals living in a ward. This allows us to capture the wide diversity in local ethnic composition within regions and, consequently, gives sufficient variation across different geographical units for subsequent analysis. According to the 1991 Census of population, in Britain, almost 80% of ethnic minorities live in the South East (mainly Greater London) and the Midlands regions. Inside these regions, however, ethnic concentration varies widely across smaller areas, such as wards.

The 1991 census collected information on racial identities of the population. However this information was not collected in the previous 1981 census and is therefore unavailable for the purpose of constructing information on dynamics of ethnic concentration. What is present in both 1991 and 1981 censuses is information on country of birth and we use this to construct a measure of ethnic density, and its change, calculated as the percentages of immigrants from South Asia and the West Indies. These particular sources are the main geographical origin of minority ethnic immigration to the UK (excluding only East Asia).²²

Our other central focus is on the role of local economic conditions. As a measure of economic deprivation, we incorporate census information on the percentage of the working population which is unemployed.²³ We also investigated the use of other measures of socio-economic deprivation, like the percentage of houses with shared facilities, the percentage of car ownership, and the percentage of high density accommodation. We do

comprises about 5500 individuals. In Britain there are 9,527 wards. In our sample, there are 240 wards.

²²The measure for 1991 of concentration of immigrants is highly correlated with the measure of ethnic concentration, the correlation coefficient being 0.97.

²³Census data, in its publicly available form, does not provide race-specific local information, such as unemployment or skill composition.

not include these variables in the reported specifications as they were typically individually insignificant and highly correlated with the unemployment rate. We also experimented with indicators for the skill composition in an area, using the percentage of individuals with high qualifications. Again, estimates were never significant.

5 Results

5.1 Harassment

Table 2 presents estimation results, where we model the number of occurrences of racial harassment.²⁴ The estimation equation corresponds to equation (2) above. All estimates, for this and other specifications, are reported with standard errors robust to ward level cluster effects in unobserved heterogeneity. In the table we report coefficients on the role of ethnic density as well as indicators of local area deprivation. All specifications condition on a set of individual observed characteristics, like sex, age and its square, whether the individual has children, educational attainments, indicator variables for unemployment, absence from the labour force, being a student, being foreign born, ethnicity variables, as well as a dummy variable for London. Coefficients on the full set of variables are reported in Table 7 in Appendix III. These suggest that men are more likely to suffer harassment. There is a nonlinear relationship with age typically peaking for individuals in their 30s. The more educated are more harassed, while those born outside Britain are less likely to

²⁴We have also estimated models where we combine harassment counts in a simple binary variable. This does not change the conclusions of the analysis, and results are qualitatively very similar to those we present below.

be harassed. These effects may come from the different milieux frequented by persons with different characteristics or from differences in demeanour which attract or repel the attention of harassers. Different ethnic groups suffer harassment of differing intensity.

The first column in table 2 presents results with a single linear ethnic concentration variable, measured at ward level. The estimate points clearly to lower harassment in areas of higher minority concentration. This is consistent with an interaction-based story or with harassment being more costly to the perpetrator in areas with higher ethnic concentration, as we discuss above.²⁵ The implied marginal effect at mean values of characteristics on the probability of any harassment for the specification in column 1 indicates that a 10 percent increase in ethnic minority concentration reduces the probability of harassment by 2 percentage points. This is not a negligible effect, given that 11 percent of our respondents report to have been harassed over the last 12 months. There is no strong evidence of any impact from rate of change in ethnic density from results in the second column.²⁶

Local unemployment seems to be associated with higher harassment, though the sta-

²⁵Krueger and Pischke (1997) investigate the link between crime against minorities and ethnic concentration for Germany. Results for Germany as a whole provide evidence that associates high concentrations of minorities with more criminal acts against minorities. However, separate results are provided for East and West Germany, and are stronger and statistically significant only for the East where rates of victimisation are found to decline with concentration, compatibly with what our results suggest for Britain.

²⁶The variable capturing the change in ethnic density requires information from the 1981 and 1991 censuses. Because of boundary changes in the two censuses only a smaller proportion of spatial units can be reliably matched between the two census years. A proportion of data is therefore lost, leading to a slightly reduced sample size.

tistical strength of the evidence is weak.

The possible endogeneity of area characteristics was raised as a potential issue earlier. If those who are harassed make location decisions motivated in any part by desire to avoid harassment then area characteristics are themselves a choice and may be correlated with unobservables in our harassment specification. As we discuss above this should lead to a bias of our estimated coefficients towards zero, so that our estimates can be viewed as lower bounds. Location decisions are likely to be geographically circumscribed by considerations of proximity to work, to family and so on. Hence it makes sense to think that characteristics of areas at a coarser level of spatial aggregation may be regarded as less subject to such endogeneity problems (see Dustmann and Preston 2001 for a detailed discussion²⁷). We therefore check the robustness of our estimates by following the estimation strategy we explain earlier, regressing area characteristics (ethnic concentration and unemployment) on values of the these variables at county level²⁸ and entering the residuals from these equations as additional regressors in our main estimation.

The last column in the table reports the results, for the same specification as in the first column. Tests for exogeneity of the variables concerned are simple t-tests on the coefficients on the residuals for "Ethnic Concentration" and "Unemployment", reported in the last two rows of the table. We can not reject exogeneity of either variable, assuming validity of the instruments. Therefore, the central conclusion regarding the reduction in

²⁷Such an argument rests on there being little relevant sorting over the larger geographical units - see, for example, Boozer and Rouse (2001).

²⁸At the time of the data there were 46 counties in England with average population of slightly over a million individuals. In other words there were around 2000 wards per county.

probability of harassment in high ethnic concentration areas is unaffected. Within the framework we discuss in section 2, where we identify channels through which higher ethnic concentration affects harassment (increase in hostility, decrease in interaction, and increase in costs through possible reprisal), our estimates imply that the last two channels seem to dominate this relationship.

5.2 Precautions

In table 3 we present results from the precaution equation. Again, the table reports coefficients on ethnic minority concentration and local economic indicators; other variables included are the same as those in the harassment equation, and their coefficients are reported in Table 8 in Appendix III.

The pattern of results regarding local area characteristics is very much compatible with the findings from direct analysis of harassment. As with harassment, precautions seem to decrease with ethnic concentration. The implied marginal effect at mean values of characteristics on the probability of any precautions indicates that a 10 percent increase in ethnic concentration reduces the probability that any precautions are taken by 4 percentage points. As before, the effect of changes in ethnic composition on precautions is positive, but not significant.

There is now stronger evidence of association with local unemployment. Remember that the theories we discuss above all suggest a positive relationship between harassment and economic hardship. If the results linking unemployment to precautions are indicative of a link with greater harassment, it could perhaps be because unemployment provokes

greater hostility in the expression of negative attitudes. It may also be because it puts a pool of unemployed individuals into contact with others in circumstances where hostile outcomes can easily occur. The findings are in line with work by Falk and Zweimüller (2005) who report that higher unemployment is positively associated with acts of right-wing extremist crime. They are in contrast to findings of Green, Strolovich and Wong (1998, p.373) for the US who “...turn up no relationship between unemployment rates and racially motivated crime.”

In the third column of table 8 we allow for endogeneity of location choice on the side of the respondent. As before, we regress area characteristics (ethnic concentration and unemployment) on values of these variables at county level and enter the residuals from these equations as additional regressors in our main estimation. The residuals are both insignificant, suggesting therefore that exogeneity can not be rejected.

5.3 Joint estimation

Not all determinants of precautions and harassment are observable. Much variation in these two variables is explained by unobservables. In table 4 we present results of a joint model, where we allow the unobservables in the two equations to be correlated.²⁹ The full set of coefficient estimates can be found in tables 9 and 10. The estimates point very

²⁹Questions on precautionary behaviour are only asked to half of the sample population. Nonetheless likelihood contributions can be calculated making full use of harassment information even where there is no information on precaution (by integrating appropriately across the full range of possible values for unobservable variation) and the joint model is therefore estimated on the fullest possible sample using all available information on harassment.

conclusively towards a positive value for the coefficient ψ , showing that harassment and precautionary behavior are positively associated either because of correlation in unobserved influences or because precaution responds to the prevalence of harassment.

The main influences remain well identified when we estimate both equations jointly. In particular, our key finding of a negative relationship between ethnic concentration on the one hand and the incidence of harassment and of precautionary responses on the other continues to find strong support in these estimates. As before, the strongest evidence of association between local unemployment and harassment is through the precaution equation. The marginal effects change only slightly: for the linear models, and evaluated at mean characteristics, an increase in ethnic concentration by 10 percent reduces the probability of harassment and any precautions being taken by 2.3 and 3.7 percentage points respectively. There is still no clear evidence of any effect from changes in concentration.

5.4 Hostility in Attitudes

Our discussion in section 2 suggests that hostility of majority individuals should increase with ethnic concentration according to group conflict theory. This effect may be mitigated through out-migration of majority individuals who are most prejudiced against minorities ("white flight").³⁰ In Dustmann and Preston (2001), we aim at identifying the effect of local ethnic concentration on majority attitudes, if migration responses were not to take place. The effect we seek to identify in that paper corresponds to randomly allocating

³⁰Card, Mas and Rothstein (2008) provide strong evidence that white population flows exhibit tipping-like behavior in most cities in the US, with a distribution of tipping points ranging from 5% to 20% minority share.

majority individuals to areas of different minority concentrations, and relating hostility in their attitudes to concentration measures. In that work we find a pronounced positive effect, suggesting that increased minority concentration leads to more hostility of majority respondents.

As we emphasize above, this is not the measure of majority hostility that enters our estimated model of harassment, as set out in our conceptual discussion above and, more formally, in the appendix. In our analysis what matters is the region-specific level of hostility *after* location choices of majority individuals have been made, as it is this level of hostility that impacts on harassment probabilities towards minorities living in these areas.

For completeness, we estimate equations for hostility, based on information from the white sample in our data. We use two measures of hostility: Self-assessed prejudice against minorities from the Caribbean and/or Indian subcontinent (which constitute the largest groups of ethnic minority individuals in the UK), and attitude towards marriage of a close relative with an ethnic minority individual.³¹ In table 5 we report results. The table reports coefficients on ethnic neighbourhood concentration and economic circumstances. All regressions include a set of characteristics of the respondents, as described in tables 11 and 12 in Appendix III. The strongest of these effects is from education, with higher education in particular being strongly associated with lower prejudice.

³¹Wording of the prejudice question: Would you describe yourself as very prejudiced against Caribbean and/or Indian/Pakistani/Bangladeshi people, a little prejudiced, or not prejudiced at all? Variable coded as one if at least a little prejudiced. Wording of the marriage question: Would you personally mind if a close married a person of ethnic minority origin? Variable coded as one if respondent minds.

The first column of Table 5 includes individual background characteristics and a linear term in ethnic concentration. The second column adds the change in immigrant concentration between 1981 and 1991. The results on both attitudinal measures show no significant relationship with ethnic density, or the change in ethnic density (column 2). Notice again that this is the relationship between the ethnic concentration and attitudes that is observed after any out-migration of the most prejudiced that might have taken place. As discussed above, it is this relationship between hostility and ethnic concentration that contributes to determining the effect of ethnic concentration on harassment through hostility, as estimated above. The estimates we obtain here suggest that there is little in this relationship to counteract the negative impact of ethnic concentration on harassment that works through the other two channels (interaction and expression of hostility).

In the last column we report results where we correct for endogenous location choice of majority respondents, by including (as before) residuals from first stage regressions where we predict ward ethnic concentration with country level ethnic concentration. This should reduce any bias through out-migration when the intention is to estimate the causal effect of ethnic concentration on majority attitudes. Now the signs of the coefficients change, and estimates are significant, pointing strongly towards migration responses of majority individuals leading to lower levels of hostility in areas with high ethnic minority concentrations. Our results therefore suggest that higher ethnic concentration does aggravate hostility in majority community attitudes, as predicted by theories of group conflict, though offset somewhat by location responses of hostile individuals.

6 Discussion and Conclusions

This paper analyzes the relationship between ethnic concentration of minorities and economic conditions on the one hand, and acts of racial harassment on the other. We argue that intensity of racial harassment depends not only on the factors determining hostile attitudes in the majority population but also on the costliness of expression of those attitudes through harassment, and the opportunity of encounters between harasser and potential victim. Harassment cannot be modelled as simply a stronger form of hostility towards minorities as expressed in opinion surveys.

Our empirical analysis is supportive of this hypothesis, and suggests that intensity of racial harassment as well as induced precautionary behaviour decreases with concentration of ethnic minorities in the individual's immediate neighbourhood. On the other hand, estimates we obtain for hostility in attitudes show no association between hostility towards minorities and high ethnic concentration. Indeed controlling for location choices points towards a possible adverse effect of high ethnic concentration on hostility offset by spatial sorting of the majority population, in line with theories of group conflict. These results imply that racial abuse can not be seen as simply an intensification of hostile prejudice towards minorities. The transmission of majority prejudice into acts of harassment is mediated by processes of interracial interaction and choices which may be affected by costliness of harassment, as well as majority location choices. These are themselves likely to be affected in important ways by ethnic concentration in the area concerned. Our findings that minority experience of harassment diminishes with local ethnic concentration points strongly towards dominance of explanations that emphasize safety in numbers

through reduced frequency of interaction and higher costs of aggression.

A number of recent papers emphasise the subtlety of the relationship between concentration of minority individuals and minority welfare. Recent work by Edin, Fredriksson and Åslund (2005) and Damm (2007) provide convincing evidence that living in larger enclaves enhances labour market prospects for minority individuals. Bisin, Patacchini, Verdier and Zenou (2006) find that an increase in ethnic concentration decreases ethnic identity; they conclude that therefore integrationist policies might have perverse effects, by enhancing identity with the own ethnic group. Our results show that adverse experiences of harassment by minority individuals also relate strongly to ethnic concentration in their area of residence.

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Tables

Table 1: **Harassment: Annual frequency of occurrence**

Frequency	None	1	2	3	4	5	>5
Percentage of sample	88.9	2.4	2.5	1.0	0.6	0.6	3.8

Wording of the question: “In the last 12 months, has anyone insulted you for reasons to do with race or colour? By insulted, I mean verbally abused, threatened or been a nuisance for you?”

Unweighted number of cases: 4935

Table 2: **Harassment**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-6.283	-4.41	-6.438	-3.94	-8.153	-2.03
Δ Ethnic conc	.	.	-0.804	-0.22		
% Unemployed	2.435	1.20	4.915	1.88	-1.219	-0.30
ζ	25.687	12.32	24.339	11.16		
Ethnic Conc Residual					0.786	0.18
Unemployment Residual					8.310	1.71
Mean log-likelihood	-0.467		-0.493		-0.493	
Number of cases	4935		3656		4935	

Independent negative binomial model. All regression include individual characteristics of the victim (sex, age and its square, whether individual has children, educational attainments, indicator variables for unemployed, out of the labour force, being a student, being foreign born, and ethnicity variables).

Standard errors are clustered by ward.

Table 3: **Precaution**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-1.947	-3.43	-2.851	-4.48	-1.242	-0.89
Δ Ethnic conc	.	.	2.134	1.43		
% Unemployed	1.327	1.81	2.342	2.55	0.209	0.15
Ethnic Conc Residual					-1.085	-0.71
Unemployment Residual					1.788	1.04
Mean log-likelihood	-0.387		-0.393		-0.393	
Number of cases	2424		1789		2424	

Probit model. All regression include individual characteristics of the victim (sex, age and its square, whether individual has children, educational attainments, indicator variables for unemployed, out of the labour force, being a student, being foreign born, and ethnicity variables). Reference individual is of Bangladeshi origin.

Standard errors are clustered by ward.

Table 4: **Harassment and Precaution: Joint Model**

Variable	Harassment		Precaution		Harassment		Precaution	
	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-6.941	-3.76	-1.749	-3.06	-7.095	-3.09	-2.756	-4.25
Δ Ethnic conc					-0.844	-0.15	1.859	1.21
% Unemployed	2.425	0.88	1.296	1.76	3.588	0.92	2.513	2.65
ζ	13.354	6.28			13.753	6.90		
ψ	2.580	9.08			2.492	9.25		
Mean log-likelihood		-0.634				-0.664		
Number of cases		4935				3656		
Cross equation								
proportionality					$\chi^2=16.3$		P=0.000	

Joint model. All regression include individual characteristics of the victim (sex, age and its square, whether individual has children, educational attainments, indicator variables for unemployed, out of the labour force, being a student, being foreign born, and ethnicity variables). Reference individual is of Bangladeshi origin.

Table 5: **Majority Attitudes**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Prejudiced against minorities						
Ethnic concentration	0.438	0.61	-1.778	-0.86	3.181	3.13
Δ Ethnic conc	.	.	5.777	0.87		
% Unemployed	0.034	0.07	0.991	0.76	-0.083	-0.10
Ethnic conc residual					-4.971	-5.07
Unemployment residual					-0.231	-0.18
Mean log-likelihood	-0.600		-0.604		-0.604	
Number of cases	2763		2008		2008	
Inter-ethnic marriage						
Ethnic concentration	-0.384	-0.66	-4.554	-1.55	2.677	2.12
Δ Ethnic conc	.	.	13.733	1.33		
% Unemployed	-0.074	0.10	2.245	1.25	0.989	1.09
Ethnic conc residual					-5.938	-2.67
Unemployment residual					-2.582	-2.02
Mean log-likelihood	-0.523		-0.523		-0.523	
Number of cases	2632		1918		1918	

Dependent variable first panel: Self-reported prejudice against Caribbean or/and Indian/Pakistani/Bangladeshi. Dependent variable second panel: Respondent minds marriage of close relative with ethnic minority individual. All regression include individual characteristics of the victim (sex, age and its square, whether individual has children, educational attainments, indicator variables for unemployed, out of the labour force, being a student, being foreign born, and ethnicity variables). Reference individual is of Bangladeshi origin.

Standard errors are clustered by ward.

7 Appendix I: A Formal Model

Majority Hostility

Consider first the formation of attitudinal hostility. Take an individual from the majority community, say the k th. Hostility to minority individuals a_k will depend on their characteristics, X , and on those of the area in which they live, Z :

$$a_k = F(\pi_{j(k)}, \Delta\pi_{j(k)}, Z_{j(k)}, X_k) \quad (3)$$

from which, by aggregating within area j ,

$$A_j = F(\pi_j, \Delta\pi_j, Z_j) \quad (4)$$

where Z_j is assumed to include the distribution of individual characteristics X_j in the majority community, and π_j and $\Delta\pi_j$ are ethnic concentration and the change in ethnic concentration in area j . Thus, according to group conflict theories, areas with higher concentration of ethnic minorities π_j should be afflicted with greater levels of hostility to minorities. The rate of change of ethnic minority concentration $\Delta\pi_j$ may be important if sudden inflows of minorities to particular communities intensify perception of threat.

Interaction

We express the interaction between minority and majority individuals as the rate of arrival of meetings of a minority individual with potential harassers, μ_i . Denote by $j(i)$ the area in which the i th minority individual lives. Then this rate depends on individual and area specific characteristics, X_i and $Z_{j(i)}$, the level and change in the local minority concentration $\pi_{j(i)}$ and $\Delta\pi_{j(i)}$ and hostility in attitude of majority individuals towards

minorities in the j th area $A_{j(i)}$:

$$\mu_i = f(A_{j(i)}, \pi_{j(i)}, X_i, Z_{j(i)}) \quad (5)$$

An increase in ethnic concentration $\pi_{j(i)}$ should lead to a *decrease* in the frequency of meetings, as the probability of encounters of a minority individual with a majority individual decreases.

Aggressive Expression

Denote the probability that a person chooses to harass or insult given an encounter with a minority individual as ν_i :

$$\nu_i = g(A_{j(i)}, \pi_{j(i)}, X_i, Z_{j(i)}) \quad (6)$$

The probability of harassment should be less likely the higher is the ethnic concentration in a particular area, implying that ν_i *decreases* in $\pi_{j(i)}$. Further, violent expression may be aggravated by disadvantaged economic conditions. Finally, violent expression should depend on the overall level of hostility in the area; thus, local area concentration should affect ν_i directly, as well as through area hostility $A_{j(i)}$, as in (4).³²

Harassment

Define now for each potential victim i a rate of arrival of harassment incidents λ_i as the product of the rate of arrival of meetings with potential harassers μ_i and the probability that the person met chooses to harass given the encounter ν_i :

$$\lambda_i = \mu_i \nu_i. \quad (7)$$

³²Notice that what matters here is the local area hostility after adjustments through possible out-migration of those majority individuals who are most pre-disposed to minorities. We discuss this in the Results section.

Substituting (4) into (5) and (6), and (5) and (6) into (7) gives a reduced form equation for the intensity of harassment:

$$\lambda_i = \Lambda(\pi_{j(i)}, \Delta\pi_{j(i)}, Z_{j(i)}, X_i) \quad (8)$$

8 Appendix II: Likelihood contributions

Let the joint density of ϵ and η be denoted $p_{\epsilon,\eta}(\epsilon, \eta)$, the conditional density of ϵ given η be $p_{\epsilon|\eta}(\epsilon|\eta)$ and the marginal density of η be $p_\eta(\eta)$. Then the likelihood contribution for the i th observation, supposing say that precautions are undertaken, is

$$\begin{aligned} \Pr(H_i = k, n_i^* > 0 | X_i) &= \\ &= \frac{1}{k!} \int_{-X_i\alpha}^{\infty} \int_{-\infty}^{\infty} e^{-\exp(X_i\beta+\epsilon)} e^{(X_i\beta+\epsilon)k} p_{\epsilon,\eta}(\epsilon, \eta) d\epsilon d\eta \\ &= \int_{-X_i\alpha}^{\infty} \left[\frac{1}{k!} \int_{-\infty}^{\infty} e^{-\exp(X_i\beta+\epsilon)} e^{(X_i\beta+\epsilon)k} p_{\epsilon|\eta}(\epsilon|\eta) d\epsilon \right] p_\eta(\eta) d\eta \end{aligned}$$

Given $\eta|X_i \sim \mathcal{N}(0, 1)$ and $e^\epsilon|\eta, X_i \sim \Gamma(e^{\psi\eta}, 1/\zeta)$ we can integrate to derive (see Cameron and Trivedi 1990)

$$\Pr(H_i = k, n_i^* > 0 | X_i) = \int_{-X_i\alpha}^{\infty} \left[\frac{\Gamma(k+1/\zeta)}{\Gamma(k+1)\Gamma(1/\zeta)} \left(\frac{1}{1+\zeta e^{X_i\beta+\psi\eta}} \right)^{1/\zeta} \left(\frac{\zeta e^{X_i\beta+\psi\eta}}{1+\zeta e^{X_i\beta+\psi\eta}} \right)^k \right] \phi(\eta) d\eta \quad (9)$$

This formula involves only a single integral which we compute numerically (by Gauss-Legendre quadrature). In cases where precaution behavior is unrecorded we integrate over the whole real line. Estimations are done in GAUSS.

9 Appendix III: Summary statistics

Table 6: **Descriptive Statistics**

Variable	Minority sample		White sample	
	Mean	S.d.	Mean	S.d.
<i>Local</i>				
% Black/Asian	0.123	0.101	0.019	0.041
Δ % Immigrant	0.014	0.032	0.002	0.007
London	0.407	0.491	0.092	0.289
% Unemployed	0.139	0.069	0.085	0.046
% Sharing facs	0.012	0.009	0.007	0.009
<i>Personal</i>				
Male	0.486	0.500	0.449	0.497
Age	37.22	15.15	45.29	18.33
Has children	0.528	0.499	0.331	0.471
No of children	1.219	1.518	0.622	1.022
Degree	0.125	0.330	0.078	0.268
Voc training	0.217	0.412	0.250	0.433
A Level	0.247	0.432	0.333	0.471
Unemployed	0.131	0.337	0.063	0.243
Student	0.134	0.341	0.045	0.207
Out of lab force	0.255	0.436	0.353	0.478
Foreign born	0.703	0.457	0.052	0.222
Caribbean	0.304	0.459	.	.
Indian	0.251	0.433	.	.
Afro Asian	0.154	0.361	.	.
Pakistani	0.166	0.372	.	.
Chinese	0.074	0.261	.	.
Sample	5098		2780	

Source: FNSEM 1994, UK Census 1981, 1991. Entries are weighted using population weights provided with the data.

Full set of estimates

Table 7: **Harassment**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-6.2826	-4.411	-8.1529	-2.027
% Unemployed	2.4347	1.197	-1.2191	-0.305
Male	0.9408	4.213	0.8847	3.944
Age	5.6567	1.153	6.8945	1.486
Age ²	-7.1125	-1.248	-8.6209	-1.613
Degree	-0.0177	-0.067	-0.1926	-0.653
Voc training	0.1896	0.674	0.2067	0.717
A Level	0.6072	2.291	0.4759	1.736
London	0.4717	1.973	0.4358	1.713
Has children	-0.0864	-0.253	-0.1418	-0.415
No of children	1.6374	1.628	1.6335	1.619
Foreign born	-1.2946	-4.177	-1.3059	-4.250
Unemployed	-0.1998	-0.672	-0.1169	-0.389
Student	0.1106	0.235	0.1540	0.357
Out of lab force	-0.2013	-0.709	-0.1835	-0.644
Caribbean	0.7117	1.671	0.6095	1.375
Indian	0.6733	1.612	0.5052	1.173
Afro Asian	1.3718	3.015	1.2007	2.502
Pakistani	0.9090	2.108	0.8664	2.049
Chinese	0.9759	1.718	0.6605	1.045
Ethnic conc residual			0.7864	0.178
Unemployment residual			8.3099	1.710
ζ	25.6871	12.319	25.4216	12.359
Constant	-1.7738	-1.584	-1.0523	-0.925

Table 8: **Precaution**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-1.9467	-3.428	-1.2422	-0.893
% Unemployed	1.3272	1.809	0.2093	0.150
Male	-0.0186	-0.248	-0.0184	-0.248
Age	1.0695	0.869	0.9268	0.763
Age ²	-1.5156	-1.158	-1.3639	-1.051
Degree	0.0220	0.202	0.0147	0.130
Voc training	-0.0333	-0.336	-0.0351	-0.344
A Level	0.1525	1.583	0.1438	1.476
London	0.4073	4.261	0.3622	3.323
Has children	-0.1231	-1.287	-0.1241	-1.295
No of children	0.5206	1.738	0.5255	1.740
Foreign born	0.0229	0.262	0.0199	0.225
Unemployed	0.2587	2.557	0.2683	2.630
Student	0.2532	1.878	0.2501	1.855
Out of lab force	0.2215	2.210	0.2290	2.290
Caribbean	-0.4478	-2.867	-0.4509	-2.894
Indian	0.0858	0.571	0.0573	0.374
Afro Asian	0.2143	1.402	0.1822	1.184
Pakistani	0.1498	0.997	0.1421	0.965
Chinese	-0.2281	-1.144	-0.2230	-1.079
Ethnic conc residual			-1.0848	-0.706
Unemployment residual			1.7883	1.044
Constant	-1.5034	-4.767	-1.3714	-3.870

Table 9: **Harassment (Joint estimation)**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-6.9409	-3.762	-12.8537	-2.694
% Unemployed	2.4249	0.884	-1.7794	-0.347
Male	1.0969	3.705	1.1155	4.026
Age	5.8603	1.132	7.4120	1.507
Age ²	-7.0300	-1.233	-9.2305	-1.689
Degree	0.6793	1.492	0.3938	0.848
Voc training	0.7132	2.072	0.5473	1.547
A Level	1.0744	3.114	0.8186	2.330
London	0.7084	1.924	0.7574	2.058
Has children	0.1816	0.425	0.1236	0.289
No of children	1.1255	0.828	1.0136	0.710
Foreign born	-1.4015	-3.699	-1.4882	-3.861
Unemployed	-0.3115	-0.822	-0.1236	-0.320
Student	-0.1166	-0.270	0.0550	0.131
Out of lab force	-0.4646	-1.266	-0.2798	-0.756
Caribbean	1.2429	2.210	1.0026	1.838
Indian	0.8845	1.566	0.6264	1.208
Afro Asian	1.8065	3.035	1.4398	2.637
Pakistani	1.5801	2.628	1.5653	2.777
Chinese	1.4670	2.195	1.0140	1.194
Ethnic conc residual			4.6572	0.824
Unemployment residual			11.0663	1.746
ζ	13.3537	6.284	12.5708	6.808
Constant	-4.1436	-2.926	-2.9250	-1.999

Table 10: **Precaution (Joint estimation)**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-1.7488	-3.056	-0.4204	-0.291
% Unemployed	1.2956	1.761	-0.4552	-0.332
Male	-0.0494	-0.666	-0.0541	-0.736
Age	1.0740	0.829	0.7755	0.604
Age ²	-1.4794	-1.056	-1.1441	-0.825
Degree	0.0570	0.520	0.0562	0.487
Voc training	-0.0281	-0.274	-0.0297	-0.286
A Level	0.1556	1.640	0.1503	1.556
London	0.4219	4.391	0.3446	3.244
Has children	-0.1181	-1.216	-0.1127	-1.170
No of children	0.6663	2.243	0.6709	2.252
Foreign born	-0.0188	-0.182	-0.0311	-0.303
Unemployed	0.2045	1.996	0.2150	2.102
Student	0.1416	1.075	0.1166	0.884
Out of lab force	0.1855	1.905	0.1948	1.986
Caribbean	-0.3150	-2.040	-0.3038	-2.060
Indian	0.1492	1.046	0.1132	0.798
Afro Asian	0.2882	1.980	0.2477	1.750
Pakistani	0.2100	1.441	0.2057	1.456
Chinese	-0.0506	-0.260	-0.0048	-0.025
Ethnic conc residual			-1.8925	-1.194
Unemployment residual			2.5716	1.541
Constant	-1.5725	-4.877	-1.3818	-3.940
ψ	2.5795	9.077	2.7001	10.728

Table 11: **Prejudice**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	.4375728	0.61	-1.778459	-0.86	3.180695	3.13
Δ Ethnic conc			5.777116	0.87		
% Unemployed	.0344625	0.07	.9905502	0.76	-.0834137	-0.10
Male	.153194	3.09	.1788647	3.17	.157621	3.17
Age	.3281281	0.41	.2005745	0.23	.3798552	0.47
Age ²	-.386466	-0.50	-.2179712	-0.25	-.4436038	-0.57
Degree	-.2501538	-2.03	-.2445977	-1.79	-.2340989	-1.90
Voc training	-.0276594	-0.38	-.0170038	-0.18	-.0157347	-0.21
A Level	-.0304575	-0.53	-.0398282	-0.55	-.0180907	-0.31
London	.3035553	2.87	.3415662	3.03	.1475727	1.75
Has children	.1120627	0.87	.0205279	0.13	.1154346	0.90
No of children	-.5065571	-0.82	-.3342777	-0.45	-.5256005	-0.84
Foreign born	-.1277788	-1.04	-.0703968	-0.54	-.1384786	-1.15
Unemployed	.0142336	0.15	.0701018	0.63	.0125199	0.13
Student	-.0819993	-0.46	.0159284	0.08	-.0702955	-0.38
Out of lab force	-.0904299	-1.31	-.1546832	-1.95	-.0793305	-1.12
Ethnic conc residual					-4.971454	-5.07
Unemployment residual					-.2307688	-0.18
Constant	-.6276571	-2.88	-.6320102	-2.63	-.681042	-3.10

Table 12: **Interethnic Marriage**

Variable	Coeff	Est/S.e.	Coeff	Est/S.e.	Coeff	Est/S.e.
Ethnic concentration	-.3835533	-0.66	-4.554382	-1.55	2.665895	2.12
Δ Ethnic conc			13.73269	1.33		
% Unemployed	-.0742157	-0.10	2.244686	1.25	.98941	1.09
Male	-.0021729	-0.04	-.0247063	-0.36	.0018206	0.03
Age	4.471382	5.26	4.22795	4.35	4.724042	5.57
Age ²	-2.412135	-3.10	-2.11526	-2.30	-2.608329	-3.33
Degree	-.6227793	-4.52	-.5120897	-3.47	-.5850644	-4.19
Voc training	-.2091303	-2.54	-.1660616	-1.74	-.1841778	-2.20
A Level	-.1862383	-2.92	-.153499	-2.02	-.1630797	-2.58
London	.2568471	1.81	.3045587	1.92	.0324357	0.34
Has children	-.0590599	-0.41	-.1778449	-1.00	-.0525362	-0.36
No of children	.539755	0.85	1.021551	1.24	.5040145	0.79
Foreign born	-.0366449	-0.27	-.0424225	-0.31	-.0508026	-0.40
Unemployed	-.1665295	-1.10	-.1037099	-0.66	-.1899603	-1.23
Student	-.1590387	-0.79	-.0655688	-0.29	-.141065	-0.68
Out of lab force	-.0095716	-0.11	-.0698421	-0.81	-.0133718	-0.16
Ethnic conc residual					-5.93765	-2.67
Unemployment residual					-2.582024	-2.02
Constant	-2.025129	-7.82	-2.107305	-6.61	-2.242811	-8.36