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Abstract

We study the link between neighborhood immigrant concentration and crime in England. Over previous decades there has been a significant increase in the number of immigrant enclaves, where immigrants account for a substantial fraction of the local population. Using both recorded crime and self-reported crime victimization data, we find that crime is significantly lower in those neighborhoods with sizeable immigrant population shares. The effect is non-linear and only becomes significant in enclaves. The crime reducing effect is substantially enhanced if the enclave is composed of immigrants from the same ethnic background. We discuss some possible mechanisms for the results we observe.

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1. INTRODUCTION

A perennial concern expressed by academics and policymakers has been the tendency for newly arriving immigrants to locate in neighborhoods that already have substantial immigrant populations. There appears to be a general view that this can be an unfortunate outcome both for the immigrant community and for society more generally. The former are presumed to suffer because such segregation tends to discourage the assimilation of immigrants into the socio-economic fabric of the host country. Society is presumed to suffer because such communities become cut-off from the rest, which runs the risk of increased alienation.

In the United States, the evidence shows that immigrant segregation actually declined in the first part of the twentieth century, but has been rising significantly over the past few decades (Cutler et al., 2008a). The first contribution of this paper is to provide evidence on the pattern of immigrant segregation in England over the past few decades. To our knowledge, such an analysis has not been conducted before. In contrast to the U.S., we find a modest decline in segregation since 1971, both in aggregate and for particular immigrant groups. However, we also show that the rise in the number of immigrants that have arrived in the last few decades has generated an increase in the number of neighborhoods that have high immigrant shares – the so-called enclaves. Increasing fractions of immigrants live in these enclaves.

What of the alleged impact of such immigrant segregation on individual outcomes such as earnings and employment? This question has received extensive attention in recent years. Cutler et al. (2008b) discuss evidence on this and highlight the problems resulting from endogenous selection into neighborhoods. Using instrumental variable estimation methods to circumvent this, they conclude that there is negative selection into immigrant neighborhoods that obscures an overall positive impact of ethnic concentration on immigrant outcomes.

More recently, attempts have been made to identify the impact of immigrant segregation on economic outcomes using quasi-experimental evidence. Both Edin et al. (2003) and Damm (2009) exploit a dispersal policy used to allocate refugees in Scandinavian countries to try to avoid the problem of self-selection of migrants into certain areas. They find strong evidence that refugees with unfavorable unobserved characteristics self-select into areas with higher immigrant shares. Instrumental variable estimates suggest that, after controlling for such self-selection, there is a substantial positive impact on immigrant wages from living in such areas.

The outcomes that have been considered thus far in the economics literature tend to be focused on the labor market (e.g. wages and employment) or on outcomes that directly affect performance in the labor market (e.g. language ability or educational attainment), while Bertrand et al. (2000) provide evidence on the role of ethnic segregation in a neighborhood on welfare participation. To further the evidence base, this paper explores the consequences of immigrant residential segregation on an alternative outcome of key interest, namely crime.[1]

There have, of course, been papers that explore the consequences of neighborhoods on crime. Glaeser and Sacerdote (1999) examine why crime is higher in big cities, and Glaeser et al. (1996) model the social interactions that occur between individuals that lead to cross-neighborhood variances in crime rates. More closely related to this paper, Kling et al. (2005) examine the impact of neighborhood poverty levels on youth crime rates using a randomized experiment. Results show that young women benefit from relocating to lower-poverty areas, while the effect is more mixed for males. Earlier work by Case and Katz (1991) found that, in a sample of low-income Boston neighborhoods, residence in a neighborhood in which a large proportion of other youths were involved in crime was associated with a

substantial increase in an individual's probability of being involved in crime. However, none of these papers was focused on the link between immigrant segregation and crime.

Little empirical attention has been paid to the existence of potential non-linearities in the segregation-outcome research area. Most studies tend to use either the group share of the local population or a dissimilarity index to measure segregation. Even the quasi-experimental evidence that is claimed to be focused on enclaves in fact uses the log of the size of the ethnic group as the key explanatory variable and therefore imposes log-linearity on the estimated effect. This seems somewhat surprising since there are good reasons to think that such effects may be non-linear. Consider for example the idea that segregation is bad because it decreases the rate of host country skill acquisition (e.g. of language skills). Such effects may only become apparent in neighborhoods with a sufficient concentration of immigrants. Low-level concentrations of immigrants may not reach a critical mass that allows migrants to isolate themselves in this way.

This paper is structured as follows. In the next section, we use four decades of U.K. census data to illustrate the scale of changes in immigrant residential segregation. We find evidence of a small decline in average segregation for immigrants, but a concomitant rise in the share of immigrants who live in high-density immigrant neighborhoods. Section 3 presents our key empirical findings. Using recorded crime data and self-reported crime victimization data, we report a strong negative link between living in areas with high immigrant populations and crime. For more de-segregated areas, we find no such link. The effects become more pronounced in enclaves that are composed of immigrants from the same region of the world. Such effects are observed for both natives and immigrants. In Section 4 we discuss possible interpretations of this result and provide some suggestive survey evidence that speaks to the relevance of these interpretations. Our conclusions are given in Section 5.

2. IMMIGRANT NEIGHBORHOODS OVER TIME

In this section, we provide evidence on the evolution of immigrant neighborhood segregation over time in England, drawing on data for English areas in the U.K. census.[2] We address two key questions. First, on average, has segregation risen or fallen? Second, are there pockets of substantial immigrant concentration and have such neighborhoods become more or less common? To answer these questions, we make use of the 1971-2001 decennial censuses that provide 100 percent counts of all residents by country of birth. In contrast to the U.S. census, the U.K. census has not maintained a consistent low-level geographical definition over time. This makes comparisons across the censuses more difficult.

Our base geography uses the 1981 census wards. Wards are constructed for the purposes of elections to local councils. These wards had an average population of 5,407 in 1981. However, they are very heterogeneous, with a population standard deviation of 4,226. For the purposes of the census, wards are disaggregated into individual enumeration districts (ED) containing around 450 residents. Unfortunately, EDs are not exactly the same across censuses, so there is no way of constructing consistent EDs through time. However, it is possible to combine EDs from the 1971 and 1991 censuses into the 1981 ward areas.[3] The geography of the census was radically altered in 2001, with EDs replaced by much smaller Output Areas (OAs). However, there is a link file from 2001 OAs to 1991 EDs that allows us to move to the 1981 wards.[4] This gives us a set of around 8,500 consistent neighborhoods in England across censuses. These neighborhoods can then be grouped into 353 local authorities.

Our first goal is to use these data to provide a picture of the extent and change in immigrant segregation across England. There is an extensive U.S. literature on the evolution of both ethnic and immigrant segregation over time (see Cutler et al. (1999, 2008a)) but no extant research for the U.K.. There are various measures that are used to capture the extent of segregation within a population (see Maignan et al., 2003). Such indices essentially compare

the distribution of members of a particular group with that of individuals who are not members of the group (e.g. by race, nationality etc.). In what follows, we present evidence for the commonly used dissimilarity index.[5] This is calculated by dividing the local authority into neighborhoods (wards in our case), indexed *i*, and using the formula:

$$D = \frac{1}{2}\sum_i \left| \frac{group_i}{group_{total}} - \frac{nongroup_i}{nongroup_{total}} \right|$$

where $group_i$ denotes the number of relevant immigrant group members living in ward *i*, $group_{total}$ denotes the number living in the entire local authority, and $nongroup_i$ and $nongroup_{total}$ are similarly defined for residents not belonging to the group. This dissimilarity index takes values between zero and one, with zero when each neighborhood contains a constant proportion of group members and one when group members never share neighborhoods with non-group members. Clearly, this measure is not independent of the number of neighborhoods within the local area, which highlights the need for a consistent set of neighborhoods over time to allow inference on the trends in segregation. We measure this index for both immigrants as a whole and for immigrant groups defined by region-of-birth. For the latter, we focus on five groups: Irish, South Asian (Indian, Pakistani and Bangladeshi), European, African New Commonwealth and Old Commonwealth (Canada, Australia and New Zealand). These are the only groups that can be consistently identified across the four Censuses.

Table 1 provides some summary statistics. The first point to note is that the number of immigrants in England has risen from just under 3 million in 1971 to over 4.5 million by 2001. As a share of the population, the comparable figures are 6.2 percent and 8.9 percent. The dissimilarity index show gentle declines across each census. Thus, the dissimilarity index has declined from 0.232 to 0.183 across the four censuses. This is in marked contrast to the experience of the United States, where the trend has been in the opposite direction. Cutler et

al. (2008a) show that over the same period, their dissimilarity index (which is not comparable in magnitudes to ours) rose from 0.463 to 0.560. One further point deserves mention. In all the calculations in Table 1, we weight the data by the number of immigrants in the area. Thus, the indices measure segregation from the perspective of the average immigrant. This is the standard approach in this literature. If however we weighted by the total population in the area, we would see a smaller decline in the dissimilarity index.

The decline in immigrant segregation has occurred across all the region-of-birth groups that we can consistently identify. The five groups we focus on accounted for two-thirds of all immigrants in both 1971 and 2001. Levels of segregation differ markedly across the groups. The dissimilarity index is over twice as large for the South Asian group as for the Irish and Europeans, with African immigrants also exhibiting high levels of segregation. In spite of this, there have been declines in the dissimilarity indices for each of these groups.[6]

We can focus more closely on the spatial distribution of immigrants using the neighborhood definition from the 2001 census. This identifies over 32,000 Lower Super Output Areas (LSOAs) with an average population of around 1,500. That there is a significant dispersion of immigrant shares across LSOAs in the 2001 census is shown in Figures 1 and 2. Figure 1 shows the distribution of immigrant shares with a long spread in the upper tail as one reaches high immigrant shares. Figure 2 shows a map of England with immigrant densities across LSOAs. The darker parts of the Figure denote higher immigrant shares, which tend to be clustered in and around the more urban areas of the country.

Indices of segregation are useful descriptors of the average, but they fail to adequately account for the variation in segregation across areas. Most importantly, it is possible to have *both* a decline in overall segregation *and* a rise in the proportion of neighborhoods that have become increasingly segregated. All that is needed is for the more even distribution of

immigrants in the neighborhoods that are not heavily segregated to outweigh the effects of the more segregated neighborhoods. We now show that this is indeed what has happened in England over the last thirty years.

Table A2 in the Appendix disaggregates the wards by the share of immigrants in the population. In Panel A, we report the percentage of wards that have particular shares of immigrants for each of the census years. Thus for example, the first column for 1971 shows that 4.8 percent of wards (i.e. 404 wards) had less than a 1 percent immigrant share of the local population (but at least some immigrants), whilst 1.3 percent of wards (i.e. 108 wards) had between 30-50 percent immigrant share. In Panel B of the Table, we report the distribution of the total immigrant population across these different wards. So again, the first column for 1971 shows that only 0.5 percent of all immigrants (i.e. 13,106 immigrants) lived in wards that had between a 0-1 percent immigrant share, while 13.9 percent (i.e. 402,845 immigrants) lived in wards that had between a 30-50 percent immigrant share.

Two facts stand out from an examination of Table A2. First, there is a clear decline in the number of wards that have a very small immigrant share. In 1971, there were 407 wards that had less than a 1 percent immigrant share. By 2001, this had fallen to 69 wards. In other words, it is almost impossible to live in England today and not have at least some immigrants living in the same neighborhood. Second, at the other end of the scale, the number of wards that have very high immigrant densities has increased. In 1971, only 114 wards had more than a 30 percent immigrant share in the population. By 2001, 367 had this attribute. Therefore, the decline in overall segregation has been driven by a widening out of the neighborhoods in which immigrants live and the erosion of low-immigrant neighborhoods. However, at the same time, an increasingly segregated set of neighborhoods has also developed. Furthermore, these immigrant enclaves are relevant for a growing share of immigrants. By 2001, 31.1 percent of all immigrants - i.e. 1.41 million lived in

neighborhoods where at least 30 percent of their neighbors were also immigrants. The comparable figures for 1971 were 14.6 percent and 0.42 million. There are also significant differences across immigrant groups. Reflecting the findings using the dissimilarity index, we find that less than one-quarter of Irish and European immigrants live in neighborhoods with more than a 30 percent immigrant population in 2001, while approximately 40 percent of Asian and African immigrants live in such areas.

The definition of an immigrant enclave we adopt here is a neighborhood with at least 30 percent immigrant population (see the darkest shaded areas of Figure 2). It should be noted that there is no commonly accepted definition of an enclave. In their paper on Swedish immigrant enclaves, Edin et al. (2003) define enclaves for specific nationalities when their share in the neighborhood population is at least twice as high as their share in the overall population. In our context since immigrants account for almost 9 percent of the population, we might define an enclave as being a neighborhood with at least an 18 percent immigrant share on this definition. As we will show in the next section, nothing crucial hangs on the exact cut-off point we use.

Unsurprisingly, these immigrant enclaves rarely revert back to the average. From one census to the next, less than one-in-ten of those wards with initially more than 30 percent immigrants are not still in the same category at the next census. Even more remarkably, of the 114 wards that had more than a 30 percent immigrant share in 1971, 96 of them remained so by 2001. Can we account for the growth in enclaves? A simple simulation suggests that immigrant inflows combined with location persistence can explain much of the trend. Suppose we calculate the distribution of immigrants across wards in 1971 and assume that the national increase in the stock of immigrants since then was distributed in exactly the same way. In other words, new immigrants located in the same locations, and in the same proportions, as previously. Then by 2001, we would have expected that 3.9 percent of wards

were enclaves and that 32.4 percent of all immigrants would live in these enclaves. Recall that the actual figures for 2001 were 4.3 percent and 31.1 percent respectively. Thus, we almost exactly match the growth in enclaves over the period. Of course, we do not perfectly predict which wards became enclaves between 1971 and 2001. Nevertheless, we do predict 50 percent of them correctly. Thus while enclave formation is more complicated than simply being a function of large initial immigrant shares and increased immigration, the changes we have observed since 1971 are largely the result of rising immigration and persistence in location choice.

3. MAIN RESULTS

Our key conclusion from the analysis of neighborhood data is that, while segregation in England as a whole has modestly declined over the last few decades, there has been a sharp increase in the number of enclaves and in the share of the population who live in such neighborhoods. In this section, we test whether such neighborhoods matter in terms of a key socio-economic outcome – crime.

To study connections between crime and immigrant enclaves, we require data at a low-level of geography. In general, such data have not been historically available in England. Recorded crime is reported by Police Forces (of which there are 39) and the lowest geographical level that such data have been published is the local authority level. However, in 2004, 2007 and 2010, indices of multiple deprivation (IMD) were created for every lower super output area (LSOA) in England. There are 32,482 LSOAs in England, with an average population of 1,513.

One component of the IMD is a crime score. The crime score was constructed from geo-coded recorded crime data on 33 different crime types over the previous 12 months provided by all Police Forces. The 33 crime types were then aggregated into four crime

groups – violence, criminal damage, burglary and theft. This data was then converted into crime rates and then combined by factor analysis to generate a single index of recorded crime for each LSOA.[7] The strength of this data is that it is made up from over 5,000,000 individual crime reports and thus provides large sample sizes even for such low-level geographies. The disadvantage is that the data is only provided as a crime score so we cannot examine differential effects across crime types. Figure 3 shows the distribution of these crime scores across LSOAs in England, split down by score quintiles (with the lightest shading denoting the lowest crime quintile, through to the darkest shading denoting the highest crime quintile).

Our second source of data is the British Crime Survey (BCS). The BCS is a large annual cross-section survey that is used to produce aggregate figures on crime victimisation for Britain. The sample sizes are now approximately 45,000 in each year (since the early 2000s) and the survey began in 1982. Since 2006, we have obtained access to lower-level geographical identifiers for each survey respondent. These identifiers provide us with the LSOA of each respondent that can then be matched to the same data as the crime index. The advantage of this data is that it allows us to control for individual characteristics and to use an alternative measure of crime. There are two main disadvantages. First, given the sample size, we observe few individuals in any one LSOA. Second, the crime measure we use from the BCS is self-reported victimisation (both violent and non-violent). The willingness to report such victimisation may itself vary by immigrant status.[8]

A natural first question is whether the enclaves are different from other areas, both in terms of crime and other socio-economic characteristics? To shed light on this, Table 2 reports various outcome measures for LSOAs, broken into categories on the basis of immigrant share in the local population. The distribution of all LSOAs by immigrant share is shown in Figure 1. The components of the indices of deprivation are defined such that a larger number indicates a more negative outcome. Therefore, for crime, immigrant enclaves

have substantially higher rates than those neighborhoods with lower immigrant shares. This poor outcome for enclaves is generally true across the various measures, suggesting that such neighborhoods are relatively deprived.

Unsurprisingly, the share of Black and Asian people rises as we move to more immigrant-dense areas. For England as a whole, 50.4 percent of the Black population are immigrants and 52.8 percent of the Asian population. This compares with only 5.2 percent of the white population. This raises a tricky issue. In practice, it will be difficult to separately identify the role of ethnicity and immigration in analyzing the enclaves. We know from Table 2 that 2,504 LSOAs have more than 30 percent immigrant population. If instead we calculated the number of LSOAs that had more than a 30 percent non-white population, we would get 2,986. Two-thirds of these non-white enclaves are also immigrant enclaves, while the remaining one-third are all in the 10-30 percent immigrant-density group. Thus, when we talk of immigrant enclaves it is important to understand that these are generally ethnic enclaves as well.

In Table 3, we show results from when we regress the crime score in each LSOA on indicators of immigrant density and other controls. All the measures of immigrant population at the LSOA level come from the 2001 Census. We pool the three years of crime scores (2004, 2007 and 2010) together and include year dummies.[9] In all results, we also include a full set of local authority dummies so that we are identifying the effects *within* local authorities. In all the analysis of this section, we cluster the standard errors at the local authority level. In the first column, we just include the immigrant density indicators. There is a clear and significant rise in crime as we move to areas with a higher immigrant population. This is no real surprise since we know from Table 2 that these areas have more social and economic problems that are known to be associated with higher crime rates.

In the second column of the Table, we control for an extensive set of LSOA-level controls. These include the other components of the indices of deprivation and a set of socio-demographic controls from the 2001 census data, including age, education and housing types and population density. With these controls included, we see a significantly different pattern of crime across immigrant neighborhoods. Low-levels of immigrant population in an area are now associated with somewhat higher crime rates (relative to areas with very low immigrant shares). In contrast, crime is lower in the enclaves. Indeed crime in the enclaves is significantly lower than in both areas with average immigrant shares and in areas that have almost no immigrants. In terms of magnitude, an enclave reduces the crime score of a neighborhood by 0.2 standard deviations.

In the third column, we also include a set of non-white neighborhood share effects. We commented above on the close correlation between immigrant and non-white neighborhoods in England. The results suggest that the positive effect of low-level immigration on crime disappears when we control for racial composition of the neighborhood, but the enclave effect remains strong and significant.

In the final column, we allow for cross-neighborhood effects. It seems unlikely that the definition of neighborhood used in this, or any other, paper perfectly matches the relevant neighborhood from the perspective of the outcome variable. Criminals can cross artificial neighborhood boundaries to commit crime and individuals can be victims of crime outside their residential neighborhood. Since our neighborhoods have an average population of only 1,500, we might expect a wider measure of the neighborhood to matter. To examine this issue, we first calculate the population-weighted centroid of each LSOA. We then determine the five closest LSOAs and compute the average immigrant density in this neighboring area. We include this average area density in addition to the LSOA neighborhood share dummies.[10] There is a marginally significant negative effect from area immigrant densities on

neighborhood crime, but the neighborhood enclave effect remains significantly negative. This suggests that the overall effect of enclaves on crime is a combination of the neighborhood effect and spillovers from the area effect.

The models estimated in Table 3 (and those to come) all use dummy variables to indicate the share of immigrants in the local population. Whilst this allows for a non-linear relationship, it does not exploit the full cross-sectional variation in the immigrant share and could be missing important features of the immigrant share-crime link. To examine this in more detail, we re-estimated the specifications in columns (2) and (3) of Table 3 replacing the share dummies with individual percentile dummies. We then fitted a local polynomial to these percentile estimates to provide a graphical illustration of the variation in the crime score due to immigrant share. Figures 4A and 4B show the result, with 95 percent confidence bands. The relationship is very clearly non-linear, and significantly negative only when we reach neighborhoods with more than around 30 percent immigrant share. Thus, our focus on enclaves as areas with more than a 30 percent share seems appropriate. To further demonstrate this, Table A3 reports estimates for a range of possible cut-off points for the immigrant enclave. While there is nothing particularly special about 30 percent, the results in the Table show that cut-offs at 25 percent or 35 percent give a very similar picture.

Thus far, we have focused on the total share of immigrants in a neighborhood, effectively treating them as a homogenous group. Much of the literature rightly focuses on the extent to which immigrants within a neighborhood are similar. In the context of segregation, one may have an area with very high immigrant density but low segregation, with many nationalities uniformly represented. Alternatively, enclaves may be primarily composed of immigrants from the same ethnic background (e.g. local clusters of particular nationalities). To examine the importance of immigrant homogeneity in generating the crime effects we observe, in Table 4 we show results from we re-estimating the column (3)

specification of Table 3 now additionally including neighborhood share dummies for particular immigrant region-of-birth concentrations. So for example in the first column of Table 4, we allow for additional effects on crime for neighborhoods with more than 10 percent of the population coming from one of the four regions-of-birth groups. For reasonably low levels of group concentration, the results of the previous table remain unchanged with strong negative effects in immigrant enclaves and no additional effect from group concentrations. However, as the size of the more homogenous groups increases, we see a clear pattern emerging. As particular immigrant groups reach around 20 percent of the population of a neighborhood, we see very substantial and beneficial effects on total crime.[11] In these specifications, the overall immigrant enclave effect is somewhat reduced, but remains statistically significant. These results suggest the following overall conclusion. Neighborhoods with high immigrant densities have lower crime rates, all else equal. This beneficial effect is reinforced in those neighborhoods that also have high concentrations of immigrants from the same region-of-birth.

In Table 5, we switch to the BCS data and estimate models of crime victimisation at the individual level. One simple explanation of the results reported so far could be that the probability of reporting a crime varies by immigrant concentration and that this is the effect we are capturing. It is difficult to see why this would generate the non-linear pattern we observe in Figures 4A and 4B, but it could certainly help to explain the lower crime rates in the enclaves. Fortunately, the BCS data allow us to model all crimes, not just those that are reported. The results control for both LSOA-level effects, using the same set of controls as in Table 3, and also individual level demographics. Most importantly, we control for region of birth so we allow different immigrant groups to have different crime experiences and reporting propensities. Comparing results with and without controls shows that we generally improve the precision of the immigrant neighborhood effect estimates by controlling for other

factors. Immigrants in general appear to be less likely to report being victims of crime. Controlling for this, we again find significant beneficial effects of immigrant enclaves on crime victimisation. We find no such effects for lower levels of immigrant concentration – highlighting again the non-linear nature of the relationship. When we include area immigrant density, the neighborhood enclave becomes marginally less significant, but of roughly the same order of magnitude.

Are all crime types lower in the immigrant enclaves? To explore this, Table 6 presents estimates for a range of different crimes. We estimate the models for violent and non-violent crime, and further disaggregate non-violent crime into robbery, burglary, car theft and vandalism. Interestingly, we find no evidence of a link between immigrant concentration and violent crime, nor when we focus on the more serious components of non-violent crime such as robbery and burglary. The link is only there for the more minor non-violent crimes such as vehicle theft and vandalism. This suggests that the immigrant enclaves are successful in reducing crime by lowering levels of anti-social and opportunistic crime, rather than by reducing the rate of crime committed by career criminals.

It is natural to wonder whether these enclave effects are experienced only by immigrants or whether natives living in enclaves also benefit from reduced crime. To examine this, Table 7 shows BCS results from interacting the immigrant share dummies with an individual-level immigrant indicator. Thus, we allow for differential neighborhood effects for natives and immigrants, while controlling for all the other characteristics of the neighborhood and individual. Interestingly, the evidence seems to suggest that both natives and immigrants benefit from the enclave effect. Immigrants experience more of a reduction in non-violent crime than natives – though even natives see a significant fall in non-violent crime. These results are important since it could be argued that immigrants in enclaves have

higher propensities to deny being victims of crime due to social pressures. It is hard to see why natives would feel the same pressure, and yet they also experience beneficial effects.

Thus far, we have treated the immigrant density in a neighborhood as being exogenous. There is a vast literature that focuses on the likely sorting of individuals across neighborhoods that would violate such an assumption. The standard approach is then to instrument immigrant density with a constructed variable that attempts to capture the exogenous variation in that density across neighborhoods. We have therefore computed the standard instrument used in the immigration literature that exploits the fact that immigrants from particular nationalities tend to exhibit strong persistence in their location choices based on prior immigrant settlement of the same nationality (an argument dating back to Altonji and Card, 1991).[12] The instrument is then the predicted change in the share of immigrants in a neighborhood, computed by using the initial distribution of migrants across neighborhoods in the local authority (by nationality) interacted with the national inflow of immigrants by nationality. Thus, it is assumed that new immigrants flow to neighborhoods in proportion to the previous stock of immigrants of the same nationality in the neighborhood.

One practical difficulty we face in implementing this instrument is that the definition of neighborhood changed between the 1991 and 2001 census. The LSOAs used in our empirical work were introduced in 2001. In 1991, we have instead over 100,000 Enumeration Districts (ED). We match each ED to an LSOA – and thus there are multiple EDs for most LSOAs - and compute the initial distribution of immigrants within the LSOA by nationality (using 15 groups – a combination of countries and regions of birth). We then estimate the predicted change in the share of immigrants between 1991 and 2001 for each LSOA and use this to instrument the share of immigrants in each LSOA in 2001.

Unfortunately, the instrument is not designed to predict enclaves alone. We will have more to say on this identification issue in the next section. For the present, we estimate three alternative models. All the models use the specification given in Column (3) of Table 3. First, we simply replace the immigrant share dummies we have used so far with the continuous measure of immigrant share. Second, we also include a squared immigrant share term. Third, since only the immigrant enclave dummy was significant in Table 3, we include this dummy but omit the other immigrant share dummies. We instrument using the predicted change in the immigrant share (and its square when we have the two endogenous regressors).

The first three columns of Table 8 report the OLS results for the alternative specifications, while the IV estimates are given in the final three columns. The OLS estimates show a negative effect of immigrant share on crime, driven by the negative effects in the enclaves. If we allow for a quadratic, we obtain negative coefficients on both terms, though neither is significant.[13] Finally, if we only include the immigrant enclave dummy, we recover almost the identical coefficient as in Table 3. The IV estimates show that for the first two specifications, the pattern is broadly similar and the quadratic term becomes significantly negative. Interestingly when we use the predicted change in the immigrant share as an instrument for the enclave dummy, the instrument appears to retain significant power, with a first stage F-statistic of over 200. The IV estimate is significantly negative and twice as large as the OLS estimates, suggesting even stronger negative effects of enclaves on crime.

4. INTERPRETATION OF THE ENCLAVE EFFECT

Our results from the previous section suggest a beneficial effect on crime from living in an immigrant enclave and that immigrant homogeneity within the enclave lowers crime by even more. This beneficial effect cannot be ascribed simply to the idea that immigrants are less likely to commit crime than natives. Even if that were true, for which the evidence is not strong (see the survey by Bell and Machin, 2012), we would expect to observe a negative

linear relationship between immigrant density and crime across neighborhoods. However, as Figures 4A and 4B demonstrate, this is not the case. Beneficial effects from immigrant neighborhoods only appear when we reach a point somewhere around 30 percent immigrant density. Indeed, there appears to be no relationship between crime and immigrant density for the majority of neighborhoods that have low to medium immigrant shares.

One explanation for our findings is that individuals who locate in enclaves are simply ex-ante less likely to commit crime than observably similar individuals in less segregated areas. In other words there is a sorting of individuals (immigrants and/or natives) by unobserved criminal propensity, but the impact of this sorting only becomes substantial in enclave areas. It seems to us unlikely that either standard instrumental variable methods or displacement policy experiments can adequately deal with such sorting. IV methods are suitable when the object is to control for sorting over the entire cross-section of immigrant areas but are likely to have low explanatory power at the extremes of the distribution where we observe the key effects. Note that this is just as true if our focus were instead on those areas where there are almost no immigrants. Similarly, displacement policy experiments rarely generate exogenous enclaves since policymakers are naturally loath to artificially create neighborhoods with high immigrant densities.

An alternative explanation is that individuals who locate in enclaves are just as likely ex-ante to commit crime as others, but that subsequent social interactions generate a dependence between individual crime participation decisions and the actions of others in the neighborhood. That such social interactions matter is clear from the fact that two-thirds of all criminals commit crimes jointly (Reiss, 1980). A model of crime and social interactions is developed by Glaeser et al. (1996). In their model, individuals are arranged on a lattice, and individual decisions about crime are a function of individual attributes and of their neighbors' decisions about criminal activities. There are two types of individual: (1) those who influence

and are influenced by their neighbors and (2) those who influence their neighbors, but who cannot themselves be influenced ("fixed agents"). These fixed agents can be thought of as either the law-abiding or the hardened criminal. The influence that is exerted by neighbors can be information flows about criminal techniques and the returns to crime, or behavioral influences that determine the costs of crime or the tastes for crime (e.g. family values, social norms) and monitoring by close neighbors. For the purposes of this discussion, the crucial result is that crime in a neighborhood is a function both of the fraction of individuals that can be influenced (the non fixed-agents) and the relative proportion of the law-abiding among the fixed-agents. At the extreme, if all fixed-agents are law-abiding, there is no crime.

What can such a model say about immigrant concentrations? For both immigrants and natives there are two effects. First, the proportion of individuals in the neighborhood that can be influenced may change. Suppose immigrants can only be influenced by other immigrants and vice versa. Then a more mixed community provides fewer social interactions than a very segregated area. Second, the distribution of fixed agents may change. It is often argued that immigrant enclaves enable the enforcement of strong social norms. If one such norm is abiding by the law, the proportion of law-abiders among the fixed-agents may increase. Interestingly, this implies that even natives may adjust their criminal behaviour toward the social norm of the immigrants, provided natives can be influenced by immigrant fixed-agents. What is also clear from this discussion is that there is no particular reason to expect linearity in any immigrant concentration-crime effect.

There are various other models that can generate multiple equilibria in crime rates within neighborhoods. Suppose for example that the law-abiding within a neighborhood directly monitor criminals (e.g. via neighborhood watch schemes). Then as the number of law-abiding citizens rises within a neighborhood, crime detection rates rise and the returns to crime fall. Alternatively, if there is a stigma attached to criminal behaviour, then as the

number of criminals in a neighborhood rises, the average criminal becomes a "normal" member of the society, stigma falls and more crime is committed.

We can provide some suggestive evidence on these explanations by examining survey data. We use both the BCS and the recently introduced Understanding Society survey.[14] At present the only available data for this latter survey is the 2009 cross-section, though over time this will become a panel. Crucially however, the cross-section identifies the LSOA of the individual respondent so that we can link the responses to the same neighborhoods as used in the previous section. We focus here on two questions. First, we look at measures of social interaction that try to capture the extent of trust and cooperation within a neighborhood. Is there are any evidence that immigrant enclaves differ from more mixed neighborhoods along these dimensions? Second, we examine some behavioral measures of individuals to see whether those who live in enclaves appear different along such observable dimensions. This is not to claim that such measures are causally related to criminal behaviour, but rather to investigate whether there appear significant differences in individuals across neighborhoods that may indicate sorting.

To capture social interactions, we consider the following measures: (1) "Friendships in my neighborhood mean a lot to me" (*Friends*), (2) "I borrow things and exchange favours with my neighbors" (*Favours*) and (3) "I regularly stop and talk with people in my neighborhood" (*Talk*). For behaviour, we look at two measures: (1) "Do you belong to a religion?" (*Religion*) and (2) "Do you ever visit a public house?" (*Alcohol*). For social interactions, respondents are asked to answer one to five for each question, with one being strongly agree and five being strongly disagree. We estimate ordered probit models (and invert the order to ensure sign comparability with the behavior questions) for each response and allow for an extensive set of individual controls. For the behaviour questions, the responses are yes/no so we estimate binary probit models. Our interest here is in whether

there are observable differences in responses across neighborhoods with different immigrant concentrations.

Table 9 shows the results for each of the measures. We find no evidence that immigrant enclaves have more powerful social interactions. Indeed at the margin, people who live in enclaves report that friends in the neighborhood are somewhat less important to them than those living in less immigrant-dense neighborhoods. There is no evidence that they are more likely to exchange favours and talk to their neighbors. Two caveats are important here. First, we ideally would focus on the at-risk group who are likely to be potential criminals i.e. mainly young males, and examine their social interactions. Unfortunately sample size precludes such an exercise. Second, it is difficult to know whether the measures we use are truly capturing the social interactions we are interested in.

Turning to measures of individual behaviour, we find much stronger effects. Individuals living in immigrant enclaves are much more likely to be a member of a religion than those living in more mixed neighborhoods. In addition, they are much less likely to visit public houses. Here the effect builds as we move across immigrant neighborhoods rather than occurring solely in the enclaves, but is stronger in the enclaves than elsewhere. Recall that all these models control for region of birth, so these results cannot be explained simply as a result of immigrants being more religious and less likely to consume alcohol. It would appear that there is significant sorting across neighborhoods on individual behaviour.

Of course, none of the evidence presented here can definitively distinguish between alternative explanations of the enclave-crime relationship we observe in the data. Our aim has rather been to highlight some potentially channels through which we might explain the observed correlation and see whether some simple measures provide support. The growth of the immigrant enclave is a reasonably new phenomenon in the U.K. and has received little

attention in the economics literature. It is an area for future research to understand more fully what is going on in these high-density immigrant areas, and the implications of such areas both for crime and other socio-economic outcomes.

5. CONCLUSIONS

The impact of immigrant neighborhoods on the socio-economic outcomes of both immigrant and natives has been a topic of intense debate among economists and other social scientists. A key feature of this work has been the tendency of migrants to locate in the same place as previous migrants from their country, and thus the formation of migrant enclaves. This paper has presented new evidence on the pattern of immigrant residential segregation in England since 1971. It shows that one important development over this period has been the rise of the immigrant enclave, a neighborhood where immigrants account for a substantial proportion of the local population. If we define an immigrant enclave as a neighborhood with at least 30 percent immigrant population, we find that in 1971, 15 percent of immigrants lived in an enclave. By 2001, this proportion had risen to 31 percent.

There is nothing particularly mysterious about this development. The stock of immigrants rose by 57 percent over this period. If the increase was distributed across neighborhoods in exact proportion to the initial distribution of immigrants, the proportion in enclaves would have been 32 percent. By contrast, if the increase had been distributed randomly, the share would have been 17 percent. Therefore, the tendency for immigrants to locate in areas of prior-immigrant settlement, combined with a large increase in the number of immigrants, has generated this increase in the importance of enclaves. However, this is not just an issue for immigrants. In 1971, just over 700,000 natives lived in immigrant enclaves (1.7 percent of the native population). By 2001, this had risen to 2.3m (5.2 percent of the native population). If there are immigrant neighborhood effects on outcome variables such as

crime, the policy relevance of such effects has increased by an order of magnitude as a result of the population changes over the last few decades.

We find strong and consistent evidence that enclaves have *lower* crime experiences than otherwise observably similar neighborhoods that have a lower immigrant share of the population. This effect appears to be significant when we reach somewhere between 20-30 percent immigrant share and is observed whether we use recorded crime data or self-reported crime victimisation data. The effect is present for both natives and immigrants, though it appears somewhat larger for immigrants. In terms of disaggregated crime types, the effect is coming through the more minor crime categories such as car theft and vandalism rather than more serious crimes such as violence, robbery and burglary. The effects are more pronounced in neighborhoods with concentrations of immigrants from the same ethnic background, emphasizing the importance of homogeneity.

There are a number of key questions that remain for future research and we choose to highlight two. First, how can one identify the causal effect of immigrant neighborhoods on crime? To do so, we would need an equivalent of the Moving to Opportunity experiment used to identify the causal effect of poor neighborhoods on crime (Kling et al., 2005). Second, there is the more understudied question of what mechanisms are capable of generating this beneficial enclave effect of crime? This would seem to be an important area, both for generating a better understanding of the key findings and for their relevance to policy debates about immigration.

[1] The focus here is on empirical connections between crime and immigrant segregation/the presence of immigrant enclaves. See Bell et al. (2010) for an analysis of the relationship between crime and immigration more generally.

[2] The analysis is on England so as to be consistent throughout the paper, because the crime data we later focus on is only available for England. The analysis of immigrant segregation in this section can be carried out for

England and Wales (but not Scotland and Northern Ireland as the spatial classifications are different there). Doing so produced very similar results to the ones we report for England only (these results are available from the authors on request).

[3] The linking of the 1971-1991 censuses for 1981 wards is documented in Martin et al. (2002). Consistent data can be downloaded from the Linking Censuses through Time website (http://cdu.mimas.ac.uk/lct/).

[4] There are 175,361 OAs in England and Wales in 2001. The link file shows that 39,240 of these OAs lie entirely within a 1991 ED. The remaining 136,121 require their population to be allocated across two or more 1991 EDs. This could cause substantial mis-measurement in our data. However we are only interested in the 1981 ward match i.e. since we combine 1991 EDs together to produce our ward-level data we are only concerned with those occasions where a 2001 OA lies across 1991 EDs that are themselves not part of the same 1981 ward. Of the 175,361 OAs, 161,575 (92.1 percent) lie entirely within 1991 EDs that are in the same 1981 ward. More than half of the remaining 8 percent have more than three-quarters of their population within the same 1981 ward. Thus while the matching is inevitably not perfect, we conclude that the induced measurement error is likely to be small.

[5] We also calculated the closely-related isolation index (see Cutler et al., 2008a, for a definition) and found very similar trends to those reported using the dissimilarity index - results are available on request from the authors.

[6] There may be a worry that the picture of declining segregation comes about from the use of particular artificial neighborhoods imposed on us by the need to maintain consistency across censuses. We therefore also re-estimated dissimilarity indices for alternative neighborhood definitions. While these are not consistent across censuses, they allow us to examine the importance of neighborhood size and whether the overall trend decline in segregation would be picked up without using the consistent ward data. Appendix Table A1 reports the results and the modest trend decline is still clear. For 2001, we can identify a set of increasingly large neighborhoods. Thus, it seems that the decline in segregation that we observe is not plausibly explained by measurement issues.

[7]To check that the crime index is correctly measuring recorded crime, we calculated the average crime index across all LSOAs in the same local authority and correlated this with published recorded crime rates for local authorities. The population-weighted correlation was 0.91.

[8]Of course the same applies to recorded crime. If immigrants disproportionately fail to report crime this will bias inference. In the individual-level regressions we can directly control for immigrant status to remove the average difference in victimisation and self-reporting propensities.

[9] Our results are robust if we estimate the cross-sections separately and average the coefficients or if we average the data across years within an LSOA and run a simple cross-section.

[10] We also experimented with area share dummies to match the LSOA share dummies. The effects again point to a larger negative effect on crime from more immigrant-dense areas, but the coefficients on the neighborhood share dummies remained almost precisely the same as in Column 4 of Table 3.

[11] A referee suggested using the interaction between immigrant shares in a neighborhood and the extent of fractionalization within the neighborhood as an alternative to identify the importance of homogeneity of immigrant groups on crime. The index of fractionalization measures the extent to which immigrants within a neighborhood share a common background. We would expect that if homogeneity of immigrants matters for our effects, enclaves with low levels of fractionalization would see a more beneficial effect on crime rates than enclaves with higher levels of fractionalization. This is indeed what we find. These results are available upon request, but we find the use of groups share dummies used in Table 4 to be a more transparent way of illustrating the importance of immigrant group homogeneity.

[12] We also experimented with an instrument based on the distribution of occupations across neighborhoods and the occupational characteristics of immigrants. This approach is used by Cutler et al. (2008b) and is predicated on the assumption that individuals sort into areas partly based on their occupation. The results are very similar to those reported using the alternative instrument and are available upon request.

[13] Interestingly, if we allow for a quartic in immigrant share to more accurately capture the non-linearities, we find that all four terms are individually significant at the 1 percent level. This simply highlights again how important non-linearities are in capturing the nature of the relationship.

[14] The Understanding Society survey is a new study of the socio-economic circumstances and attitudes of about 100,000 individuals in 40,000 British households.

REFERENCES

Altonji, Joseph, and David Card. 1991. "The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives", in J. Abowd and R. Freeman (eds.), *Immigration, Trade and the Labor Market*. Chicago: University of Chicago Press, pp.

Bell, Brian, Francesco Fasani, and Stephen Machin. 2010. "Crime and Immigration: Evidence from Large Immigrant Waves", Center for Economic Performance Discussion Paper No. 984.

Bell, Brian, and Stephen Machin. 2012. "Immigration and Crime", in A. Constant and K. Zimmerman (eds.), *International Handbook on the Economics of Migration.* London: Edward Elgar Press.

Bertrand, Marianne, Erzo F. P. Luttmer, and Sendhil Mullainathan. 2000. "Network Effects and Welfare Cultures", *Quarterly Journal of Economics*, 115(3), 1019-1055.

Case, Anne C., and Lawrence F. Katz. 1991. "The Company you Keep: The Effects of Family and Neighborhood on Disadvantaged Youths", NBER Working Paper No 3705.

Cutler, David M., Edward L. Glaeser, and Jacob L. Vigdor. 1999. "The Rise and Decline of the American Ghetto", *Journal of Political Economy*, 107, 455-506.

___ 2008a. "Is the Melting Pot Still Hot? Explaining the Resurgence of Immigrant Segregation", *Review of Economics and Statistics*, 90(3), 478-97.

___ 2008b. "When are Ghettos Bad? Lessons From Immigrant Segregation in the United States", *Journal of Urban Economics*, 63, 759-774.

Damm, Anna P. 2009. "Ethnic Enclaves and Immigrant Labor Market Outcomes: Quasi-Experimental Evidence", *Journal of Labor Economics,* 27(2), 281-314.

Edin, Per-Anders, Peter Fredriksson, and Olof Åslund. 2003. "Ethnic Enclaves and the Economic Success of Immigrants: Evidence From a Natural Experiment", *Quarterly Journal of Economics*, 118, 329-357.

Glaeser, Edward L., and Bruce Sacerdote. 1999. "Why is There More Crime in Cities?", *Journal of Political Economy,* 107(6), S225-S258.

Glaeser, Edward L., Bruce Sacerdote, and Jose A. Scheinkman. 1996. "Crime and Social Interactions", *Quarterly Journal of Economics,* 111, 507-548.

Kling, Jeffrey R., Jens Ludwig, and Lawrence F. Katz. 2005. "Neighborhood Effects on Crime for Female and Male Youth: Evidence from a Randomized Housing Voucher Experiment", *Quarterly Journal of Economics,* 120, 87-130.

Maignan, Carole, Gianmarco I. P. Ottaviano, Dino Pinelli, and Francesco Rullani. 2003. "Bio-Ecological Diversity vs. Socio-Economic Diversity: A Comparison of Existing Measures", Fondazione Eni Enrico Mattei, Working Paper 2003.13.

Martin, David, Danny Dorling, and Richard Mitchell. 2002. "Linking censuses through time: problems and solutions", *Area*, 34(1), 82-91.

Reiss, Albert. 1980. "Understanding Changes in Crime Rates", in S. Feinberg and A. J. Reiss (eds.) *Indicators of Crime and Criminal Justice: Quantitative Studies*. Washington DC: Bureau of Justice Statistics, pp.

TABLE 1: IMMIGRANT SEGREGATION IN ENGLAND, 1971-2001

Year/Country of Origin	Number of Immigrants	Dissimilarity	
		Mean	Std. Dev.
1971	2.89m	0.232	0.093
Republic of Ireland	0.64m	0.182	0.053
South Asia	0.43m	0.439	0.162
European	0.57m	0.215	0.069
African NC	0.15m	0.346	0.127
Old Commonwealth	0.12m	0.236	0.059
1981	3.15m	0.214	0.100
1991	3.51m	0.193	0.096
2001	4.53m	0.183	0.094
Republic of Ireland	0.46m	0.129	0.046
South Asia	0.90m	0.367	0.145
European	0.99m	0.149	0.056
African NC	0.56m	0.203	0.079
Old Commonwealth	0.21m	0.217	0.070

Note: Summary statistics are weighted by the number of immigrants residing in the community. There are 8,461 wards in England that have at least some population in all years. South Asia refers to India, Pakistan and Bangladesh. Bangladesh was part of Pakistan until 1971. African NC refers to New Commonwealth Africa only.

TABLE 2: SUMMARY STATISTICS FOR LSOAS

	Immigrant Share				
	0-2%	2-5%	5-10%	10-30%	30%+
Index of Multiple Deprivation	27.3	19.9	17.1	23.3	33.3
Crime Score	0.01	-0.19	-0.11	0.33	0.53
Income Score	0.17	0.13	0.12	0.16	0.26
Employment Score	0.14	0.10	0.08	0.10	0.12
Health and Disability Score	0.54	-0.01	-0.32	-0.01	0.28
% Black	0.1	0.3	0.9	5.1	14.2
% Asian	0.4	0.9	2.6	10.7	27.2
% Young	18.0	17.4	18.1	21.2	22.4
% No Quals	38.1	31.1	26.2	24.5	27.1
% Degree	11.5	15.8	20.5	27.4	30.8
Number of LSOAs	3711	12874	7847	5546	2504

Note: Data from the Indices of Deprivation (first 5 rows) are indices in which a larger number indicates a worse outcome.

TABLE 3: CRIME SCORE AND ENCLAVES, 2004-10

	(1)	(2)	(3)	(4)
Immigrant Share 2%-5%	0.002	0.050**	0.022	0.023
	(0.022)	(0.015)	(0.014)	(0.014)
Immigrant Share 5%-10%	0.109**	0.087**	0.025	0.028
	(0.032)	(0.019)	(0.019)	(0.019)
Immigrant Share 10%-30%	0.286**	0.054**	-0.000	0.012
	(0.038)	(0.025)	(0.027)	(0.028)
Immigrant Share 30%+	0.314**	-0.135**	-0.138**	-0.101**
	(0.053)	(0.043)	(0.042)	(0.037)
Area Immigrant Share				-0.337*
				(0.189)
Non-White Share 2%-5%			0.091**	0.092**
			(0.010)	(0.010)
Non-White Share 5%-10%			0.131**	0.134**
			(0.020)	(0.020)
Non-White Share 10%-30%			0.118**	0.129**
			(0.027)	(0.028)
Non-White Share 30%+			0.023	0.055
			(0.035)	(0.040)
ln(Population Density)		-0.030**	-0.034**	-0.033**
		(0.005)	(0.006)	(0.005)
Poor Income Score		-0.014	0.109	0.129
		(0.154)	(0.152)	(0.147)
Poor Employment Score		1.347**	1.306**	1.304**
		(0.240)	(0.240)	(0.239)
Health Deprivation Score		0.213**	0.206**	0.204**
		(0.017)	(0.016)	(0.016)
Young Share		-0.116	-0.175	-0.172
		(0.119)	(0.119)	(0.119)
Old Share		-0.421**	-0.376**	-0.383**
		(0.090)	(0.089)	(0.090)
Sample Size	97,446	97,446	97,446	97,446
R-Squared	0.419	0.644	0.646	0.646

Note: Standard errors are clustered at the local authority level. Additional LSOA-level controls included (but not reported here) are education and training deprivation score, barriers to housing score, living environment score, 10 to 15 year olds share, no qualifications share, degree and above share, houses share, flat share, shared dwelling share, communal areas present, one family dwelling share, and other family dwelling share. Regressions are weighted by the population in the LSOA and include year dummies.
* and ** denote significance at the 10% and 5% level respectively.

TABLE 4: IMMIGRANT GROUP SHARE EFFECTS

Δ:	10%	15%	20%	25%
	(1)	(2)	(3)	(4)
Immigrant Share 2%-5%	0.021	0.022	0.022	0.022
	(0.014)	(0.014)	(0.014)	(0.014)
Immigrant Share 5%-10%	0.021	0.024	0.026	0.026
	(0.019)	(0.019)	(0.019)	(0.019)
Immigrant Share 10%-20%	-0.002	0.005	0.010	0.011
	(0.027)	(0.027)	(0.026)	(0.026)
Immigrant Share 20%-30%	-0.081**	-0.050	-0.039	-0.044
	(0.040)	(0.037)	(0.037)	(0.037)
Immigrant Share 30%+	-0.223***	-0.135***	-0.106**	-0.109**
	(0.061)	(0.050)	(0.048)	(0.047)
European Share Δ%+	0.024	-0.028	-0.199**	-0.233***
	(0.028)	(0.035)	(0.087)	(0.017)
Asian Share Δ%+	-0.010	-0.135***	-0.216***	-0.304***
	(0.023)	(0.035)	(0.052)	(0.076)
African Share Δ%+	0.046	-0.047	-0.080	-0.103
	(0.040)	(0.053)	(0.053)	(0.108)
Other Non-Native Share Δ%+	0.055*	-0.126	0.166	-0.421*
	(0.032)	(0.093)	(0.354)	(0.250)
Sample Size	97446	97446	97446	97446
R-squared	0.646	0.646	0.647	0.647

Notes: Standard errors are clustered at the local authority level. The regressions use the specification in Column 3 of Table 3. We also include a dummy for LSOAs containing the two largest USAF airbases in the UK.
* and ** denote significance at the 10% and 5% level respectively.

TABLE 5 : CRIME VICTIMISATION AND ENCLAVES, 2006-10

	(1)	(2)	(3)	(4)
Immigrant Share 2%-5%	0.002	0.002	0.002	0.003
	(0.007)	(0.007)	(0.007)	(0.007)
Immigrant Share 5%-10%	0.007	-0.002	-0.001	0.000
	(0.009)	(0.009)	(0.009)	(0.009)
Immigrant Share 10%-30%	0.008	-0.020*	-0.011	-0.008
	(0.010)	(0.011)	(0.014)	(0.014)
Immigrant Share 30%+	-0.037**	-0.064**	-0.045**	-0.036*
	(0.013)	(0.016)	(0.020)	(0.021)
Area Immigrant Share				-0.099
				(0.075)
Non-White Share 2%-5%			-0.004	-0.004
			(0.005)	(0.005)
Non-White Share 5%-10%			0.005	0.005
			(0.009)	(0.009)
Non-White Share 10%-30%			-0.010	-0.008
			(0.012)	(0.012)
Non-White Share 30%+			-0.036*	-0.027
			(0.018)	(0.020)
European Immigrant		-0.062**	-0.062**	-0.062**
		(0.008)	(0.008)	(0.008)
Asian Immigrant		-0.095**	-0.095**	-0.095**
		(0.010)	(0.010)	(0.010)
African Immigrant		-0.033**	-0.033**	-0.033**
		(0.012)	(0.012)	(0.012)
Other Immigrant		0.004	0.004	0.004
		(0.012)	(0.012)	(0.012)
Black		-0.058**	-0.056**	-0.056**
		(0.013)	(0.013)	(0.013)
Asian		-0.009	-0.006	-0.006
		(0.012)	(0.012)	(0.012)
ln(Population Density)		0.007**	0.007**	0.007**
		(0.002)	(0.002)	(0.002)
Urban Area		0.019**	0.019**	0.019**
		(0.008)	(0.008)	(0.008)
Female		-0.020**	-0.020**	-0.020**
		(0.003)	(0.003)	(0.003)
Young		0.097**	0.097**	0.097**
		(0.006)	(0.006)	(0.006)
Old		-0.088**	-0.088**	-0.088**
		(0.006)	(0.006)	(0.006)
LA Fixed Effects	Yes	Yes	Yes	Yes
Sample Size	131,079	119,882	119,882	119,882

Note: Standard errors are clustered at the local authority level. The regressions also include the full set of LSOA-level controls used in Table 3 and dummies for inner-city and living on a housing estate. Regressions are weighted by BCS sample weights and include year dummies.
* and ** denote significance at the 10% and 5% level respectively.

TABLE 6: CRIME VICTIMISATION TYPES AND ENCLAVES

	Violent	Non-Violent	Burglary	Vehicle	Vandalism	Robbery
Immigrant Share 2%-5%	-0.001	0.002	0.002	0.005	-0.000	0.000
	(0.003)	(0.006)	(0.002)	(0.004)	(0.004)	(0.001)
Immigrant Share 5%-10%	0.002	-0.006	0.005*	0.001	0.000	0.001
	(0.003)	(0.008)	(0.003)	(0.005)	(0.005)	(0.002)
Immigrant Share 10%-30%	-0.003	-0.018*	0.004	-0.009	-0.007	0.001
	(0.004)	(0.009)	(0.003)	(0.007)	(0.006)	(0.002)
Immigrant Share 30%+	-0.004	-0.059**	0.003	-0.024**	-0.020**	-0.001
	(0.005)	(0.014)	(0.005)	(0.008)	(0.009)	(0.002)
LA Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample Size	119,882	119,882	119,882	119,882	119,882	119,882

Note: Standard errors are clustered at the local authority level. The regressions also include the full set of LSOA-level controls used in Table 5 and dummies for inner-city and living on a housing estate. Regressions are weighted by BCS sample weights and included year dummies. Vehicle includes any vehicle related crime and robbery consists only of theft from a person. The vehicle regression also controls for vehicle ownership.
* and ** denote significance at the 10% and 5% level, respectively.

TABLE 7: IMMIGRANT AND NATIVE ENCLAVE EFFECTS

	Total	Violent	Non-Violent
Native Effect			
Immigrant Share 2%-5%	0.003 (0.007)	-0.001 (0.003)	0.003 (0.006)
Immigrant Share 5%-10%	0.001 (0.009)	0.003 (0.003)	-0.004 (0.008)
Immigrant Share 10%-20%	-0.006 (0.011)	-0.001 (0.004)	-0.005 (0.009)
Immigrant Share 20%-30%	-0.042** (0.015)	-0.001 (0.006)	-0.043** (0.013)
Immigrant Share 30%+	-0.070** (0.019)	-0.005 (0.005)	-0.063** (0.016)
Immigrant Effect			
Immigrant Share 2%-5%	-0.029 (0.026)	-0.013* (0.006)	-0.011 (0.029)
Immigrant Share 5%-10%	-0.043 (0.026)	-0.015** (0.005)	-0.023 (0.028)
Immigrant Share 10%-20%	-0.078** (0.025)	-0.019** (0.004)	-0.049* (0.026)
Immigrant Share 20%-30%	-0.104** (0.024)	-0.017** (0.005)	-0.077** (0.026)
Immigrant Share 30%+	-0.130** (0.024)	-0.015** (0.006)	-0.106** (0.025)
LA Fixed Effects	Yes	Yes	Yes
Sample Size	119,882	119,882	119,882

Note: Standard errors are clustered at the local authority level. The regressions also include the full set of LSOA-level controls used in Table 4. Regressions are weighted by BCS sample weights and include year dummies.
* and ** denote significance at the 10% and 5% level respectively.

TABLE 8: CRIME SCORE AND INSTRUMENTAL VARIABLE ESTIMATION

	OLS			IV		
Immigrant Share	-0.918**	-0.500		-0.945**	0.541	
	(0.183)	(0.419)		(0.283)	(0.650)	
Immigrant Share Squared		-0.744			-2.521**	
		(0.805)			(1.166)	
Immigrant Enclave			-0.136**			-0.312**
			(0.032)			(0.090)
LA Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F-statistic (Immigrant Share)				805.3	606.8	214.0
First Stage F-statistic (Immigrant Share Squared)					296.9	
Sample Size	97,446	97,446	97,446	97,446	97,446	97,446
R-Squared	0.646	0.646	0.646	0.646	0.645	0.645

Notes: Standard errors are clustered at the local authority level. Additional LSOA-level controls included (but not reported here) are the same as in Column 3 of Table 5. Immigrant share and immigrant share squared are instrumented using the predicted change in immigrant share (and its square) from 1991 Enumeration Districts mapped into 2001 LSOAs.
* and ** denote significance at the 10% and 5% level respectively.

TABLE 9: ENCLAVES, SOCIAL INTERACTIONS AND BEHAVIORS

	Understanding Society			British Crime Survey	
	Friends	Favours	Talk	Religion	Alcohol
Immigrant Share 2%-5%	-0.007 (0.048)	-0.028 (0.046)	-0.028 (0.050)	-0.012* (0.006)	-0.013 (0.008)
Immigrant Share 5%-10%	-0.018 (0.057)	-0.043 (0.053)	-0.019 (0.056)	-0.009 (0.008)	-0.022** (0.011)
Immigrant Share 10%-30%	-0.090 (0.074)	-0.058 (0.071)	-0.030 (0.077)	0.008 (0.009)	-0.054** (0.014)
Immigrant Share 30%+	-0.228* (0.135)	-0.129 (0.130)	-0.035 (0.122)	0.049** (0.015)	-0.109** (0.022)
LA Fixed Effects	Yes	Yes	Yes	Yes	Yes
Sample Size	15009	14954	14800	119882	119882

Notes: Standard errors are clustered at the local authority level. Columns (1)-(3) use data from the Understanding Society survey and are ordered probits (with higher outcomes representing more agreement). Columns (4) and (5) use data from the British Crime Survey and are 0/1 probits. All regressions are weighted and include year dummies and the LSOA controls used in Table 3.
* and ** denote significance at the 10% and 5% level respectively.

Figure 1: Distribution of Immigrant Concentration Across Neighborhoods – LSOAs in England, 2001

Figure 2: Immigrant Densities Across LSOAs in England, 2001

Figure 3: Crime Score Quintiles Across LSOAs in England, 2004-10

Figure 4A: Local Polynomial of Immigrant Neighborhood Effect on Crime Score

Figure 4B: Local Polynomial of Immigrant Neighborhood Effect on Crime Score Controlling for Ethnic-Share in Neighborhood

TABLE A1: ALTERNATIVE CENSUS GEOGRAPHIES

Year/Geography	# Units	Population	% Enclaves	% Immigrants in Enclaves	Dissimilarity
1971					
Enumeration District	101,865	439	4.9	24.1	0.324
1981 Ward	8,461	5,298	1.3	14.6	0.232
1981					
Enumeration District	104,209	439	5.7	24.6	0.286
1981 Ward	8,461	5,407	1.9	17.6	0.214
1991					
Enumeration District	103,101	456	5.7	26.3	0.253
1981 Ward	8,461	5,554	2.5	20.9	0.193
2001					
Output Area	165,628	297	7.4	34.7	0.258
Lower Super Output Area	32,477	1,513	7.7	33.1	0.213
Middle Super Output Area	6,780	7,247	7.5	31.6	0.186
1981 Ward	8,461	5,801	4.3	31.1	0.183

Note: The dissimilarity index is weighted by the number of immigrants residing in the community. Enclaves are defined as those neighborhoods with more than 30% of the population being immigrant.

TABLE A2: DISTRIBUTION OF IMMIGRANTS IN CENSUS WARDS IN ENGLAND

	1971	1981	1991	2001
A. Ward Count				
Immigrant % Share:				
Exactly 0	0.1	0.0	0.0	0.0
0-1	4.8	2.8	1.7	0.8
1-2	19.5	17.4	14.7	9.8
2-5	47.9	50.1	51.1	47.3
5-10	17.9	18.7	20.0	25.7
10-20	6.6	6.3	6.6	8.7
20-30	2.0	2.8	3.3	3.3
30-50	1.3	1.9	2.4	4.1
50-100	0.1	0.1	0.2	0.3
B. Immigrant Population				
Immigrant % Share:				
0-1	0.5	0.3	0.2	0.0
1-2	3.9	3.4	2.9	1.5
2-5	22.1	21.4	19.6	14.7
5-10	21.3	20.9	19.8	19.2
10-20	23.6	19.8	18.3	18.1
20-30	14.0	16.8	18.4	15.3
30-50	13.9	16.4	19.4	28.6
50-100	0.7	1.2	1.4	2.6

Note: There are 8,461 wards in England that have at least some population in all years.

TABLE A3 : ALTERNATIVE ENCLAVE DEFINITIONS

Δ:	20%	25%	30%	35%
	(1)	(2)	(3)	(4)
Immigrant Share 2%-5%	0.021	0.021	0.021	0.021
	(0.014)	(0.014)	(0.014)	(0.014)
Immigrant Share 5%-10%	0.023	0.021	0.021	0.021
	(0.019)	(0.019)	(0.019)	(0.019)
Immigrant Share 10%-20%	0.006	-0.001	-0.003	-0.002
	(0.027)	(0.027)	(0.027)	(0.026)
Immigrant Share 20%-Δ%		-0.044	-0.084**	-0.097**
		(0.038)	(0.039)	(0.040)
Immigrant Share Δ%+	-0.093**	-0.168**	-0.210**	-0.225**
	(0.040)	(0.049)	(0.054)	(0.058)
Non-White Share 2%-5%	0.091**	0.091**	0.091**	0.091**
	(0.010)	(0.010)	(0.010)	(0.010)
Non-White Share 5%-10%	0.130**	0.129**	0.129**	0.129**
	(0.020)	(0.020)	(0.019)	(0.019)
Non-White Share 10%-30%	0.128**	0.126**	0.125**	0.124**
	(0.027)	(0.027)	(0.027)	(0.027)
Non-White Share 30%+	0.030	0.058	0.066*	0.056
	(0.039)	(0.040)	(0.039)	(0.039)
ln(Population Density)	-0.034**	-0.034**	-0.033**	-0.033**
	(0.006)	(0.006)	(0.005)	(0.005)
Poor Income Score	0.080	0.102	0.114	0.115
	(0.159)	(0.153)	(0.151)	(0.150)
Poor Employment Score	1.310**	1.285**	1.293**	1.301**
	(0.241)	(0.238)	(0.239)	(0.240)
Health Deprivation Score	0.209**	0.207**	0.204**	0.204**
	(0.016)	(0.016)	(0.016)	(0.016)
Young Share	-0.139	-0.140	-0.138	-0.147
	(0.122)	(0.122)	(0.121)	(0.121)
Old Share	-0.395**	-0.401**	-0.394**	-0.391**
	(0.090)	(0.090)	(0.090)	(0.090)
Observations	97,446	97,446	97,446	97,446
R-squared	0.645	0.646	0.646	0.646

Note: Standard errors are clustered at the local authority level. The regressions use the specification in Column 3 of Table 3.
* and ** denote significance at the 10% and 5% level respectively.