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Immigrant Enclaves and Crime

Brian Bell and Stephen Machin

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Abstract
There is conflicting evidence on the consequences of immigrant neighbourhood segregation for individual outcomes, with various studies finding positive, negative or insubstantial effects. In this paper, we document the evolution of immigrant segregation in England over the last 40 years. We show that standard measures of segregation point to gentle declines over time for all immigrant groups. However, this hides a significant increase in the number of immigrant enclaves where immigrants account for a substantial fraction of the local population. We then explore the link between immigrant segregation, enclaves and crime using both recorded crime and self-reported crime victimization data. Controlling for a rich set of observables, we find that crime is substantially lower in those neighbourhoods with sizeable immigrant population shares. The effect is non-linear and only becomes significant in enclaves. It is present for both natives and immigrants living in such neighbourhoods. Considering different crime types, the evidence suggests that such neighbourhoods benefit from a reduction in more minor, non-violent crimes. We discuss possible mechanisms for the results we observe.

JEL Classifications: F22; J15; K42
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Brian Bell is a Research Fellow at the Centre for Economic Performance, London School of Economics. Stephen Machin is Research Director at the Centre for Economic Performance, London School of Economics and Professor of Economics at University College London.

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I. INTRODUCTION

A perennial concern expressed both by academics and by policymakers has been the tendency for newly arriving immigrants to locate in neighbourhoods 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 risks 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, Glaeser and Vigdor, 2008a). The first contribution of this paper is to provide evidence on the pattern of immigrant segregation in England over the past few decades. Such an analysis has not to our knowledge been conducted before. In contrast to the US, we find a modest decline in segregation since 1971, both in aggregate and within 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 neighbourhoods 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, Glaeser and Vigdor (2008b) discuss evidence on this and highlight endogenous selection into neighbourhoods. Using instrumental variable estimation methods to circumvent this, they conclude that there is negative selection into immigrant neighbourhoods which 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, Fredriksson and Aslund (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 unfavourable 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 labour market (e.g. wages and employment) or on outcomes that directly affect performance in the labour market (e.g. language ability or educational attainment). 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 neighbourhoods on crime. Glaeser and Sacerdote (1999) examine why crime is higher in big cities, and Glaeser, Sacerdote and Scheinkman (1996) model the social interactions that occur between individuals that lead to cross-neighbourhood variances in crime rates. More closely related to this paper, Kling, Ludwig and Katz (2005) examine the impact of neighbourhood 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 neighbourhoods, residence in a neighbourhood 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

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

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 neighbourhoods 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 UK 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 neighbourhoods. Section III 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. Such effects are observed for both natives and immigrants. In Section IV, 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 V.

II. IMMIGRANT NEIGHBOURHOODS OVER TIME

In this section, we provide evidence on the evolution of immigrant neighbourhood segregation over time in England, drawing on data on English areas in the UK 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 neighbourhoods become more or less common? To answer these questions, we make use of the 1971-2001 decennial censuses that provide 100% counts of all residents by country of birth. In contrast to the US census, the UK 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. 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

[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, Dorling and Mitchell (2002). Consistent data can be downloaded from the Linking Censuses through Time website (http://cdu.mimas.ac.uk/lct/).

the 1981 wards.[4] This gives us a set of around 8,500 consistent neighbourhoods in England across censuses.

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 US literature on the evolution of both ethnic and immigrant segregation over time (see Cutler, Glaeser and Vigdor (1999, 2008a)) but no extant research for the UK. Following Cutler et al (2008a) we compute two measures of residential segregation within a population. Each index compares the distribution of members of a group with that of individuals who are not members of that group. In what follows, groups are defined by aggregations of country-of-birth within local authorities.[5] Thus, a particular immigrant community is a group of immigrants from the same country-of-birth group within the same local authority.

The dissimilarity index is calculated by dividing the local authority into neighbourhoods (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 0 and 1, with 0 when each neighbourhood contains a

[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%) lie entirely within 1991 EDs that are in the same 1981 ward. More than half of the remaining 8% 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 use the 2001 local authority definitions and apply these back to 1971. Various reorganisations of local government have occurred over the sample period. There are 353 local authorities in England (we exclude the City of London as this has a very small population).

constant proportion of group members and 1 when group members never share neighbourhoods with non-group members. Clearly, such a measure will not be independent of the number of neighbourhoods within the local area, which highlights the need for a consistent set of neighbourhoods over time to allow inference on the trends in segregation.

The isolation index measures the degree of exposure that immigrants have to other members of the same group, correcting for the fact that groups forming a larger share of the population have naturally higher exposure rates. This index is given by:

$$I = \frac{\sum_i \frac{group_i}{group_{total}} \times \frac{group_i}{population_i} - \frac{group_{total}}{population_{total}}}{min\left(1, \frac{group_{total}}{population_{smallest}}\right) - \frac{group_{total}}{population_{total}}}$$

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% and 8.9%. Both the dissimilarity and isolation indices 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 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 country-of-birth groups that we can consistently identify. Table 1 gives the relevant figures for five groups: Irish, South Asian (Indian, Pakistani and Bangladeshi), European, African New

Commonwealth and Old Commonwealth (Canada, Australia and New Zealand). These five groups 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. The isolation index paints a similar picture. In spite of this, there have been declines in both the dissimilarity and isolation indices for each of these groups.

One might reasonably be worried that the picture of declining segregation is a result of the use of particular artificial neighbourhoods imposed on us by the need to maintain consistency across censuses. Alternatively, perhaps that the level of aggregation that we have used gives a distorted view of reality. To address these concerns we re-estimated dissimilarity and isolation indices for alternative neighbourhood definitions. While these are not consistent across censuses, they allow us to examine the importance of neighbourhood size and whether the overall trend decline in segregation would be picked up without using the consistent ward data. Appendix Table 1 reports the results. For comparability, we always include the estimates from the 1981 ward geography that were reported in Table 1. For 1971, 1981 and 1991 we can estimate the indices using enumeration districts as the neighbourhood. This increases the number of neighbourhoods by a factor of ten and unsurprisingly the final two columns of Table A1 show that this leads to much higher levels of dissimilarity and isolation. So for example, in 1981, the dissimilarity index is 0.214 using the ward-level data but rises to 0.286 using the ED-level data. However, the modest trend decline is still clear. For 2001, we can identify a set of increasingly large neighbourhoods. Again, we see the clear link between size of neighbourhood and the segregation indices, but the decline over time remains clear. Thus, the decline in segregation that we observe cannot be plausibly explained by measurement issues.

We can focus more closely on the spatial distribution of immigrants using the neighbourhood 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 such as those considered above 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 neighbourhoods that have become increasingly segregated. All that is needed is for the more even distribution of immigrants in the neighbourhoods that are not heavily segregated to outweigh the effects of the more segregated neighbourhoods. We now show that this is indeed what has happened in England over the last thirty years.

Table 2 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% of wards (i.e. 404 wards) had less than a 1% immigrant share of the local population (but at least some immigrants), whilst 1.3% of wards (i.e. 108 wards) had between 30-50% 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% of all immigrants (i.e. 13,106 immigrants) lived in wards that had between a 0-1% immigrant share, while 13.9% (i.e. 402,845 immigrants) lived in wards that had between a 30-50% immigrant share.

Two facts stand out from an examination of Table 2. 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% 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 neighbourhood. 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% 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 neighbourhoods in which immigrants live and the erosion of low-immigrant neighbourhoods. However, at the same time, an increasingly segregated set of neighbourhoods has also developed. Furthermore, these immigrant enclaves are relevant for a growing share of immigrants. By 2001, 31.1% of all immigrants - i.e. 1.41million lived in neighbourhoods where at least 30% of their neighbours were also immigrants. The comparable figures for 1971 were 14.6% and 0.42 million.

The definition of an immigrant enclave we adopt here is a neighbourhood with at least 30% 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 neighbourhood population is at least twice as high as their share in the overall population. In our context since immigrants account for almost 9% of the population, we might define an enclave as being a neighbourhood with at 18% 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% 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% 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 were 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% of wards were enclaves and that 32.4% of all immigrants would live in these enclaves. Recall that the actual figures for 2001 were 4.3% and 31.1% 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% 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.

III. MAIN RESULTS

Our key conclusion from the analysis of neighbourhood 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 neighbourhoods. In this section, we test whether such neighbourhoods 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 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 this index was 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.[6] 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 2000's) 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,

[6]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.

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.[7]

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 3 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 neighbourhoods with lower immigrant shares. This poor outcome for enclaves is generally true across the various measures, suggesting that such neighbourhoods 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% of the Black population are immigrants and 52.8% of the Asian population. This compares with only 5.2% 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 analysing the enclaves. We know from Table 3 that 2,504 LSOAs have more than 30% immigrant population. If instead we calculated the number of LSOAs that had more than a 30% non-white population, we would get 2,986. Two-thirds of these non-white enclaves are also immigrant enclaves, with the remaining one-third are all in the 10-30% immigrant-density group. Thus when we talk of immigrant enclaves it is important to understand that these are generally ethnic enclaves as well.

[7]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.

In Table 4 we show results from when we regress the crime score in each LSOA on indicators of immigrant density and other controls. We pool the three years of crime scores (2004, 2007 and 2010) together and include year dummies.[8] In all results we also include a full set of local authority dummies so that we are identifying the effects *within* local authorities. 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 3 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 neighbourhoods. 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 both in areas with average immigrant shares and in areas that have almost no immigrants.

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

[8] Our results are robust if we estimate the cross-sections separately and average the coefficients.

In the final column, we allow for cross-neighbourhood effects. It seems unlikely that the definition of neighbourhood used in this, or any other, paper perfectly matches the relevant neighbourhood from the perspective of the outcome variable. Criminals can cross artificial neighbourhood boundaries to commit crime and individuals can be victims of crime outside their residential neighbourhood. Since our neighbourhoods have an average population of only 1,500, we might expect a wider measure of the neighbourhood 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 neighbouring area.We include this average area density in addition to the LSOA neighbourhood share dummies.[9] There is a marginally significant negative effect from area immigrant densities on neighbourhood crime, but the neighbourhood enclave also remains significantly negative. This suggests that the overall effect of enclaves on crime is a combination of the neighbourhood effect and spillovers from the area effect.

The models estimated in Table 4 (and those to come) all use group 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 columns 2 and 3 specifications of Table 4 replacing the grouped 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% confidence bands. The relationship is very clearly non-linear, and significantly negative only when we reach

[9] 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 neighbourhood share dummies remained almost precisely the same as in Column 4 of Table 4.

neighbourhoods with more than around 30% immigrant share. Thus our focus on enclaves as areas with more than a 30% share seems appropriate.

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 in Table 4 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 4, 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 neighbourhood 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 neighbourhood 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 neighbourhood effects for natives and immigrants, while controlling for all the other characteristics of the neighbourhood 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 neighbourhood as being exogenous. There is a vast literature that focuses on the likely sorting of individuals across neighbourhoods 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 neighbourhoods. 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).[10] The instrument is then the predicted change in the share of immigrants in a

[10] We also experimented with an instrument based on the distribution of occupations across neighbourhoods and the occupational characteristics of immigrants. This approach is used by Cutler et al (2008b) and is predicated

neighbourhood, computed by using the initial distribution of migrants across neighbourhoods in the local authority (by nationality) interacted with the national inflow of immigrants by nationality. Thus it is assumed that new immigrants flow to neighbourhoods in proportion to the previous stock of immigrants of the same nationality in the neighbourhood.

One practical difficulty we face in implementing this instrument is that the definition of neighbourhood 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 4. 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 4, 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 of 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

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.

enclaves. If we allow for a quadratic, we obtain negative coefficientson both terms, though neither is significant.[11] Finally, if we only include the immigrant enclave dummy, we recover almost the identical coefficient as in Table 4. 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.

IV. INTERPRETATION OF THE ENCLAVE EFFECT

Our results from the previous section suggest there to be a beneficial effect on crime from living in an immigrant enclave. This 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, 2011), we would expect to observe a negative linear relationship between immigrant density and crime across neighbourhoods. However, as Figures 4A and 4B demonstrate, this is not the case. Beneficial effects from immigrant neighbourhoods only appear when we reach around 30% immigrant density. Indeed there appears to be no relationship between crime and immigrant density for the majority of neighbourhoods 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

[11] 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% level. This simply highlights again how a single linear term in concentration would fail to capture the nature of the relationship.

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 loathe to artificially create neighbourhoods with high immigrant densities.

The alternative explanation is that individuals who locate in enclaves are just as likely ex-ante to commit crime as others, but that subsequent social interactionsgenerate a dependence between individual crime participation decisions and the actions of others in the neighbourhood.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, Sacerdote and Scheinkman (1996). In their model, individuals are arranged on a lattice, and individual decisions about crime are a function of individual attributes and of their neighbours' decisions about criminal activities. There are two types of individual: (1) those who influence and influenced by their neighbours and (2) those who influence their neighbours, 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 neighbours can be information flows about criminal techniques and the returns to crime, or behavioural influences that determine the costs of crime or the tastes for crime (e.g. family values, social norms) and monitoring by close neighbours. For the purposes of this discussion, the crucial result is that crime in a neighbourhood 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 neighbourhood 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 neighbourhoods. Suppose for example that the law-abiding within a neighbourhood directly monitor criminals (e.g. via neighbourhood watch schemes). Then as the number of law-abiding citizens rises within a neighbourhood, 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 neighbourhood 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.[12] 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

[12] 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.

the individual respondent so that we can link the responses to the same neighbourhoods 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 neighbourhood. Is there are any evidence that immigrant enclaves differ from more mixed neighbourhoods along these dimensions? Second, we examine some behavioural 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 neighbourhoods that may indicate sorting.

To capture social interactions, we consider the following measures: (1) “Friendships in my neighbourhood mean a lot to me” (*Friends*), (2) “I borrow things and exchange favours with my neighbours” (*Favours*) and (3) “I regularly stop and talk with people in my neighbourhood” (*Talk*). For behaviours 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 1-5 for each question, with 1 being strongly agree and 5 being strongly disagree. We estimate ordered probit models for each response and allow for an extensive set of individual controls. For the behaviours, the responses are yes/no so we estimate binary probit models. Our interest here is in whether there are observable differences in responses across neighbourhoods 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 neighbourhood are somewhat less important to them than those living in less immigrant-dense neighbourhoods. There is no evidence that they are more likely to exchange favours and talk to their neighbours. 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 neighbourhoods. In addition, they are much less likely to visit public houses. Here the effect builds as we move across immigrant neighbourhoods 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 neighbourhoods on individual behaviours.

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 UK 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.

V. CONCLUSIONS

The impact of immigrant neighbourhoods on 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 neighbourhood where immigrants account for a substantial proportion of the local population. If we define an immigrant enclave as a neighbourhood with at least 30% immigrant population, we find that in 1971, 15% of immigrants lived in an enclave. By 2001, this proportion had risen to 31%.

There is nothing particularly mysterious about this development. The stock of immigrants rose by 57% over this period. If the increase was distributed across neighbourhoods in exact proportion to the initial distribution of immigrants, the proportion in enclaves would have been 32%. By contrast, if the increase had been distributed randomly, the share would have been 17%. 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% of the native population). By 2001, this had risen to 2.3m (5.2% of the native population). If there are immigrant neighbourhood 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 neighbourhoods that have a lower immigrant share of the population. This effect appears to be significant when we reach somewhere between 20-30% 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.

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 neighbourhoods on crime? To do so, we would need an equivalent of the Moving to Opportunity experiment used to identify the causal effect of poor neighbourhoods 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.

REFERENCES

Altonji, J., and Card, D. (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.

Bell, B., Fasani, F. and Machin, S. (2010) "Crime and Immigration: Evidence from Large Immigrant Waves", Centre for Economic Performance Discussion Paper No. 984.

Bell, B., and Machin, S. (2011) "Crime and Immigration: What do we Know?", Centre for Economic Performance mimeo.

Case, A., and Katz, L. (1991) "The Company you Keep: The Effects of Family and Neighbourhood on Disadvantaged Youths", NBER Working Paper No 3705.

Cutler, D., and Glaeser, E. (1997) "Are Ghettos Good or Bad?", *Quarterly Journal of Economics,* 112, 827-72.

Cutler, D., Glaeser, E. and Vigdor, J. (1999) "The Rise and Decline of the American Ghetto", *Journal of Political Economy*, 107, 455-506.

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

Cutler, D., Glaeser, E. and Vigdor, J. (2008b) "When are Ghettos Bad? Lessons From Immigrant Segregation in the United States", *Journal of Urban Economics*, 63, 759-74.

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

Edin, P., Fredriksson, P. and Aslund, O. (2003) "Ethnic Enclaves and the Economic Success of Immigrants: Evidence From a Natural Experiment", *Quarterly Journal of Economics*, 118, 329-57.

Glaeser, E., and Sacerdote, B. (1999) "Why is There More Crime in Cities?", *Journal of Political Economy*, 107(6), S225-58.

Glaeser, E., Sacerdote, B. and Scheinkman, J. (1996) "Crime and Social Interactions", *Quarterly Journal of Economics*, 111, 507-48.

Kling, J., Ludwig, J. and Katz, L. (2005) "Neighborhood Effects on Crime for Female and Male Youth: Evidence from a Randomized Housing Voucher Experiment", *Quarterly Journal of Economics*, 120, 87-130.

Martin, D., Dorling, D. and Mitchell, R. (2002) "Linking Censuses Through Time: Problems and Solutions", *Area*, 34(1), 82-91.

Reiss, A. (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.

Simpson, L. (2007) "Ghettos of the Mind: The Empirical Behaviour of Indices of Segregation and Diversity", *Journal of the Royal Statistical Society, Series A*, 170, 405-24.

TABLE 1. IMMIGRANT SEGREGATION IN ENGLAND, 1971-2001

Year/Country of Origin	Number of Immigrants	Dissimilarity		Isolation	
		Mean	Std. Dev.	Mean	Std. Dev.
1971	2.89m	0.232	0.093	0.037	0.032
Republic of Ireland	0.64m	0.182	0.053	0.007	0.006
South Asia	0.43m	0.439	0.162	0.053	0.049
European	0.57m	0.215	0.069	0.010	0.009
African NC	0.15m	0.346	0.127	0.023	0.026
Old Commonwealth	0.12m	0.236	0.059	0.008	0.007
1981	3.15m	0.214	0.100	0.036	0.036
1991	3.51m	0.193	0.096	0.031	0.031
2001	4.53m	0.183	0.094	0.029	0.028
Republic of Ireland	0.46m	0.129	0.046	0.003	0.003
South Asia	0.90m	0.367	0.145	0.054	0.042
European	0.99m	0.149	0.056	0.005	0.004
African NC	0.56m	0.203	0.079	0.011	0.009
Old Commonwealth	0.21m	0.217	0.070	0.007	0.006

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. 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 3. 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 4. 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 the10 % 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 4 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)
European Immigrant	-0.011**	-0.046**	-0.000	-0.019**	-0.023**	-0.002*
	(0.003)	(0.007)	(0.003)	(0.004)	(0.005)	(0.001)
Asian Immigrant	-0.010**	-0.083**	-0.005**	-0.032**	-0.034**	-0.001
	(0.003)	(0.009)	(0.002)	(0.005)	(0.005)	(0.002)
African Immigrant	-0.008**	-0.024**	0.002	-0.005	0.002	-0.001
	(0.004)	(0.011)	(0.004)	(0.008)	(0.007)	(0.002)
Other Immigrant	0.005	-0.003	0.004	-0.002	-0.012*	0.001
	(0.005)	(0.013)	(0.005)	(0.007)	(0.007)	(0.002)
Black	-0.007*	-0.047**	-0.001	-0.012**	-0.025**	-0.000
	(0.004)	(0.013)	(0.004)	(0.006)	(0.005)	(0.002)
Asian	-0.013**	0.010	-0.002	0.011	0.015*	-0.005**
	(0.002)	(0.011)	(0.003)	(0.007)	(0.008)	(0.001)
ln(Population Density)	0.000	0.006**	0.001	0.004**	0.006**	-0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Urban Area	0.000	0.018**	0.004*	0.007	0.008**	0.000
	(0.002)	(0.007)	(0.002)	(0.004)	(0.004)	(0.002)
Female	-0.019**	0.004	0.002*	-0.007**	-0.006**	0.005**
	(0.001)	(0.003)	(0.001)	(0.002)	(0.002)	(0.001)
Young	0.073**	0.019**	0.013**	0.016**	-0.007**	0.015**
	(0.003)	(0.006)	(0.002)	(0.004)	(0.003)	(0.002)
Old	-0.019**	-0.070**	-0.007**	-0.036**	-0.026**	-0.000
	(0.002)	(0.005)	(0.002)	(0.003)	(0.003)	(0.001)
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 4and 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 the10 % 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 the10 % and 5% level respectively.

TABLE 9. ENCLAVES, SOCIAL INTERACTIONS AND BEHAVIOURS

	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 less 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 4. * and ** denote significance at the10 % and 5% level respectively.

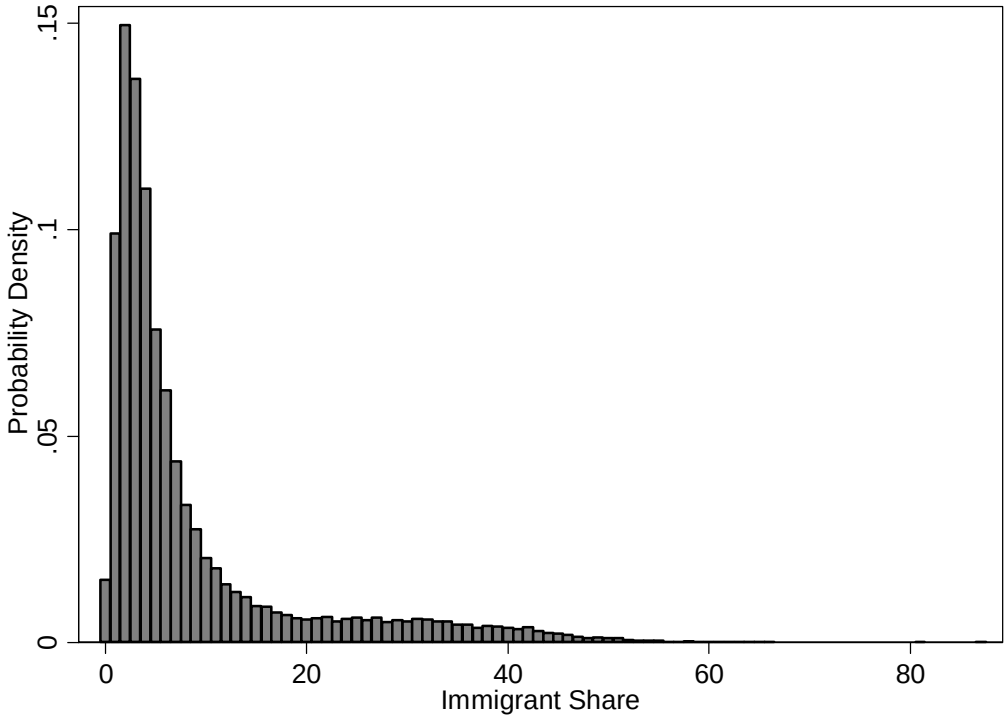

Figure 1:
Distribution of Immigrant Concentration Across Neighbourhoods – LSOAs in England, 2001

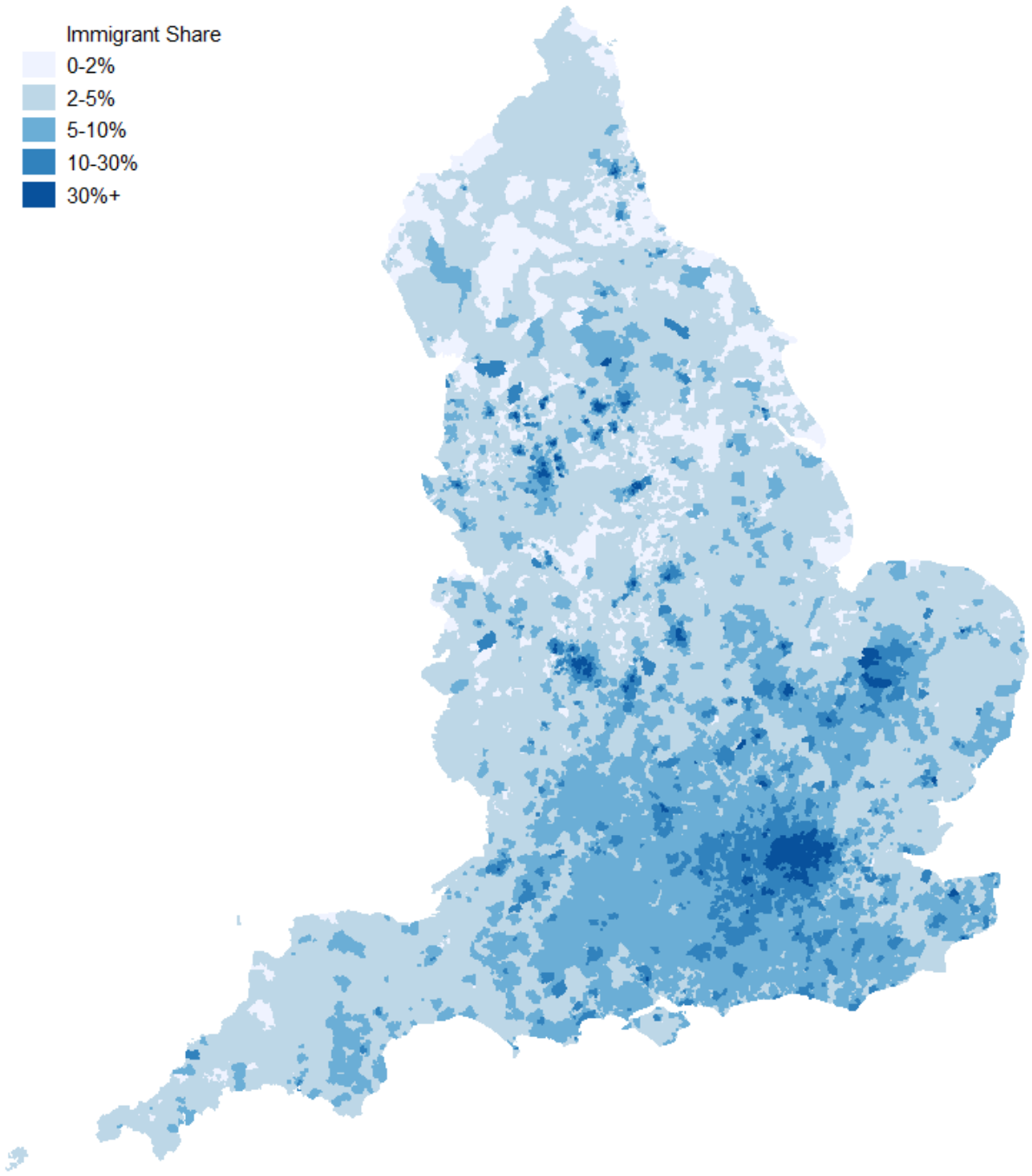

Figure 2: Immigrant Densities Across LSOAs in England, 2001

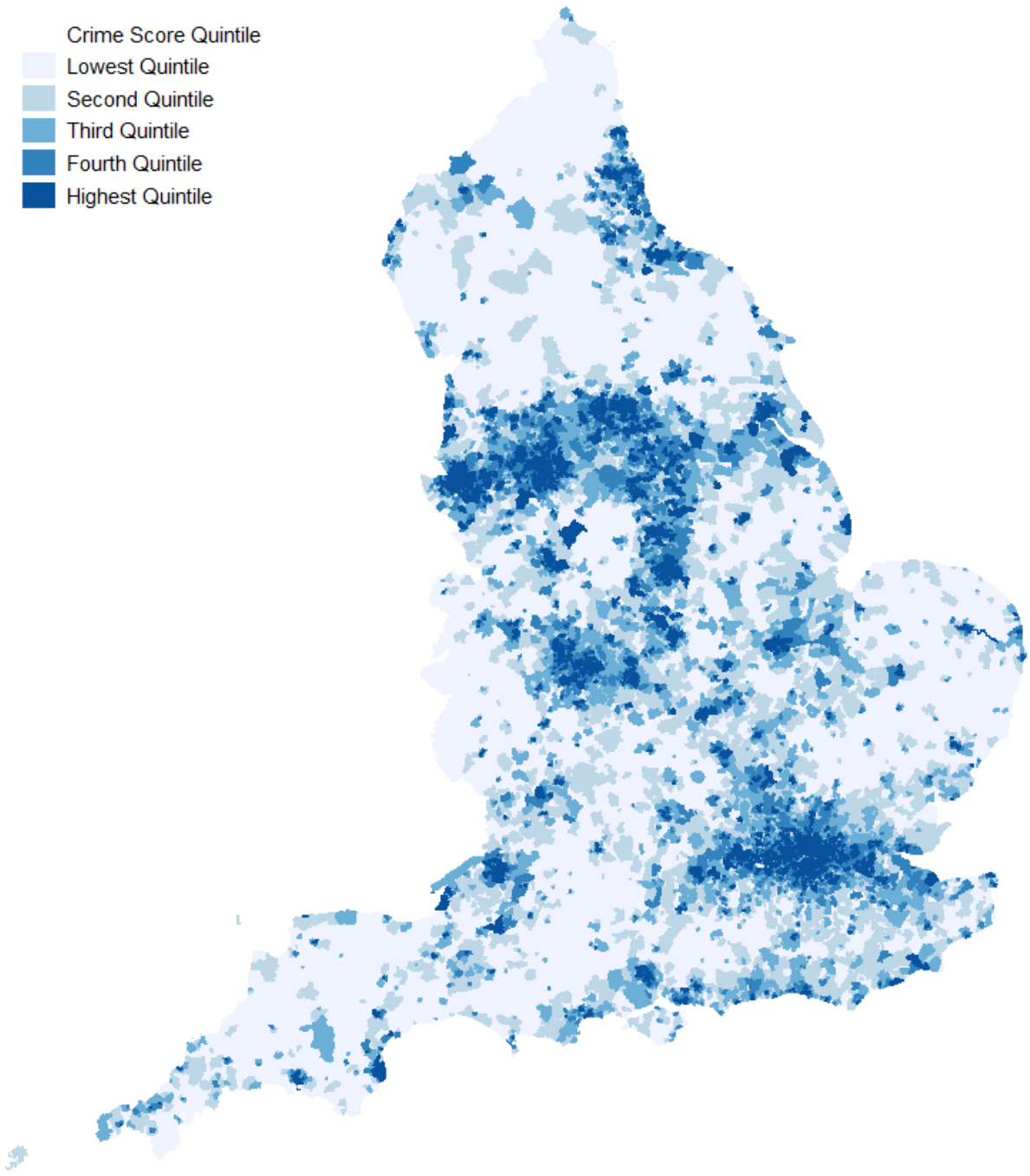

Figure 3: Crime Score Quintiles Across LSOAs in England, 2004-10

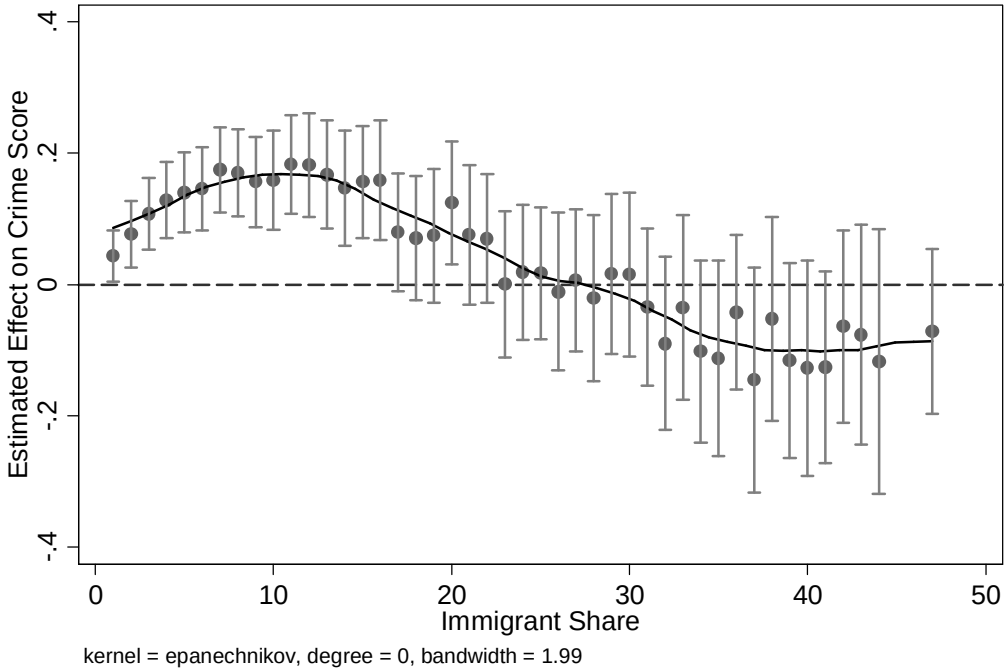

Figure 4A. Local Polynomial of Immigrant Neighbourhood Effect on Crime Score

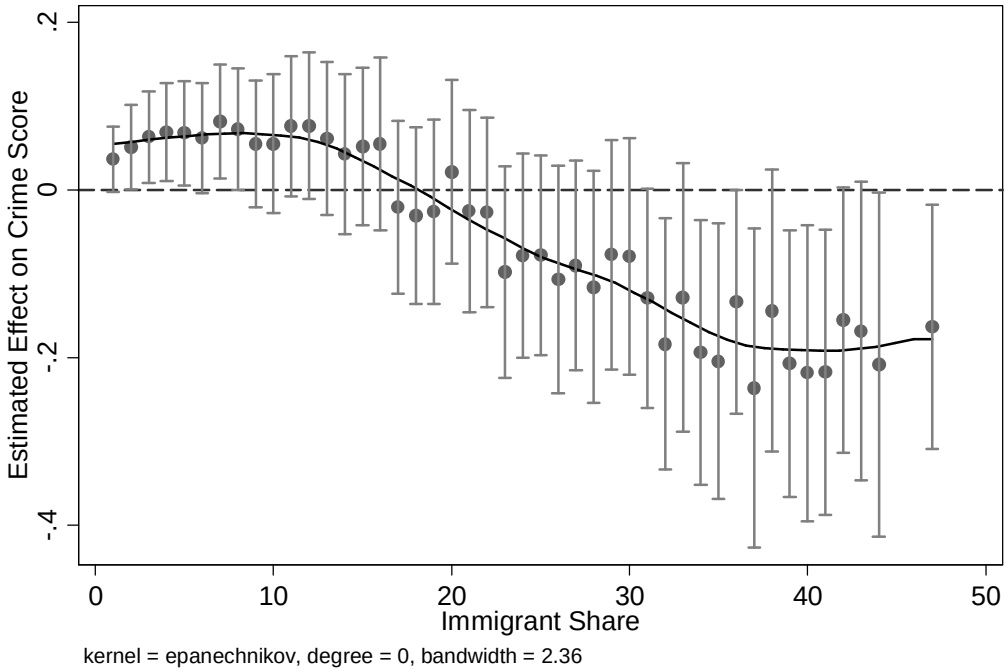

Figure 4B. Local Polynomial of Immigrant Neighbourhood Effect on Crime Score Controlling for Ethnic-Share in Neighbourhood

TABLE A1. ALTERNATIVE CENSUS GEOGRAPHIES

Year/Geography	# Units	Population	% Enclaves	% Immigrants in Enclaves	Dissimilarity	Isolation
1971						
Enumeration District	101,865	439	4.9	24.1	0.324	0.091
1981 Ward	8,461	5,298	1.3	14.6	0.232	0.037
1981						
Enumeration District	104,209	439	5.7	24.6	0.286	0.070
1981 Ward	8,461	5,407	1.9	17.6	0.214	0.036
1991						
Enumeration District	103,101	456	5.7	26.3	0.253	0.057
1981 Ward	8,461	5,554	2.5	20.9	0.193	0.031
2001						
Output Area	165,628	297	7.4	34.7	0.258	0.054
Lower Super Output Area	32,477	1,513	7.7	33.1	0.213	0.040
Middle Super Output Area	6,780	7,247	7.5	31.6	0.186	0.031
1981 Ward	8,461	5,801	4.3	31.1	0.183	0.029

Note: Dissimilarity and Isolation indices are weighted by the number of immigrants residing in the community. Enclaves are defined as those neighbourhoods with more than 30% of the population being immigrant.

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