The Impact of Migration on Crime and Victimisation

A report for the Migration Advisory Committee

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Members of the Migration Advisory Committee (MAC) and its secretariat met and corresponded with the research team at LSE Consulting in order to develop and steer this research project. However, the robustness of the analysis is the responsibility of the authors, and the findings and views presented in this report do not necessarily reflect those of the MAC.

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Executive Summary

This report considers the impact of migration on crime and victimisation. It does so by both reviewing the theoretical and empirical literature and by providing an extensive evidence base for the UK. We then present a range of approaches to estimate the impact of migrants upon crime and victimisation rates in the UK.

One of the key difficulties in such studies is to control for the problem of endogeneity. For example, does a positive association between the migrant share and crime rates across regions imply that migrants are more criminally inclined than natives or that migrants move to regions with higher crime rates? Given the difficulty of controlling for endogeneity, the results presented in this report may not reflect the precise causal relationships between migrants and crime rates. Nevertheless, these results present a range of useful insights into the impact of migrants upon crime and victimisation rates.

Our review of the literature highlights the importance of legal labour market opportunities as an alternative to illegal activities. Since returns from the labour market are a combination of expected wages and employment probabilities, we expect that those with strong labour market attachment and high earning potential are less likely to commit property crime. Since immigrants and natives often differ in their labour market opportunities, this provides a natural mechanism through which we may observe a link between crime and

immigration. Moreover, the small evidence base supports this. Immigrant groups that have poor labour market opportunities (e.g. low-paid workers in the US, asylum seekers in the UK) tend to be more associated with property crime than immigrant groups with stronger attachment to the labour market. The causes of violent crime are much less clear – and in any case, there is virtually no evidence in any country to suggest links between migration and violent crime.

Our evidence on the crime impact of previous immigrant flows in the UK is also consistent with these conclusions. When we examine the effect of flows associated with the A8 accession countries or with those entering with work permits or Tier 2 visas, we find significant negative effects on property crime (and no effect on violent crime). All else equal, areas with higher shares of these types of immigrants in the population experienced faster falls in property crime rates than other areas. These migrants are special in the sense that they came to the UK with the express intent of working and have very strong labour market attachment. It is therefore intuitive that work permit and Tier 2 migrants may be less associated with property crime on average than UK natives. If the UK Government continues to increase the selectivity of entry criteria for the Tier 2 route, the results from this report suggest that future Tier 2 migrants may have a lower propensity towards property crime than those who have recently arrived in the UK.

Using individual self-reported criminal participation measures (and recognizing the risks of doing so) we find that there are a large set of individual characteristics that are strongly associated with such activity. As one would expect from the previous literature, the probability of being arrested is lower for more highly educated individuals, those in work or students, those with higher income, and for women. After controlling for all these (and more) characteristics, we also find that immigrants are less likely to report having been involved in criminal activity. This additional effect for immigrants tends to dissipate as length of time in the UK increases. Indeed, there is little difference between natives and those immigrants who have been in the UK 10 years or more.

Switching attention to the victims of crime, we find that on average immigrants are less likely to report being victims of either violent or property crime. This remains the case after controlling for a large set of personal and neighbourhood characteristics. Once again, however, as duration in the UK increases, the crime experience of immigrants tends to converge on that of natives. We also document a surprisingly beneficial effect of living in neighbourhoods with large immigrant concentrations. Both reported crime and victimisation are lower in such areas than in regions with similar demographics but lower migrant shares. This benefit is observed for both natives and immigrants, though the impact is bigger for immigrants. We discuss why this might be the case.

Finally, and most speculatively, we consider what the evidence suggests regarding future immigrant flows for crime and victimisation. Overall, we are cautiously optimistic. While it is difficult to forecast what the future flows will be (as is demonstrated by the surprisingly large A8 flows that we witnessed), it seems reasonable to suppose that the introduction of the point-based system will increasingly improve the quality of the immigrant flow under this mechanism. This may contribute to a modestly beneficial effect on property crime rates and presumably little effect on violent crime.

1. Introduction

This report examines the potential impact of migration on crime and victimisation. We begin with an extensive review of the extant literature. To provide a framework for analysis, we discuss the Becker/Ehrlich economic model of crime. This model has individuals rationally choosing legal or illegal activities based on relative returns. The key prediction of the model from our perspective is that relative labour market opportunities matter for the criminal participation decision. This is clearly relevant for the potential group of migrants that are the focus of the MAC. To the extent that the UK immigration system favours the flow of high-skilled, high-earning workers who have already secured permanent employment in the UK, the model would predict that such individuals are much less likely to commit crime (and in particular property-related crime) than low-earning individuals with weaker labour market attachment.

We then review the empirical literature on crime and migration. We argue that the more convincing studies show little consistent relationship between crime and migration, with most studies finding small and insignificant effects. However, where the stock can be disaggregated into separate immigrant groups, the evidence is generally consistent with the standard economic model of crime – groups with poor labour market opportunities are more associated with property crime. Models of individual crime participation tend to show that migrants are less likely to commit crime than observably similar natives. In contrast, data on imprisonment across the Organization for Economic Co-operation and

Development (OECD) generally shows that foreigners are disproportionately likely to be in prison relative to natives. We discuss why this may the case given the generally small crime-immigrant links that are found.

In Section 3, we present the first empirical analysis of the impact of migration on crime. We estimate panel models that directly link crime rates and immigrant stocks across time and localities. Such models allow us to examine whether previous immigration has been associated with higher or lower crime rates within an area. To be convincing, such models must deal with the endogenous location choice of immigrants and we will present evidence that such choice does affect the conclusions that we draw. We focus on two groups of immigrants in this section. First, the large inflow of migrants from the A8 accession countries. Second, the stock of migrants that arrived as work permit or Tier 2 migrants post-2008. This second group is obviously of most interest to the MAC given their remit with regard to Tier 2 migrants. In both cases, we find no evidence of any link between migration and violent crime but both flows appear to be significantly negatively related to property crime rates. In other words, rising shares of A8 or work permit and Tier 2 migrants in an area are associated with reduced property crime rates. We interpret these results as consistent with the economic model of crime since both flows had strong labour market attachment.

One disadvantage of the approach pursued in Section 3 is that it only provides evidence on the crime impact of prior immigrant flows. If future flows had

identical demographics, this approach might be sufficient. However, we know that immigrant flows tend to be composed of very different individuals over time. For example, the large inflow of migrants associated with the A8 accession countries had very different socio-economic characteristics (and labour market attachment) to prior immigrant flows (see Table 1). From a policy perspective, the UK Government is in a position to alter the type of immigrants arriving under the Points Based System (PBS) by altering the entry criteria (e.g. by changing the list of occupations). Therefore, the impact of future migration flows on crime may be very different from that estimated on historical data.

To make progress on this issue, we provide some evidence on individual crime propensities in Section 4 by estimating probability models of crime participation (arrest and/or defendant). These models allow us to measure the marginal effect of a particular individual characteristic (e.g. age, sex, immigration status) on the likelihood of crime participation. Armed with such estimates, we can speculate on the impact of a particular migration flow on overall crime provided we have data on the individual characteristics of the flow. So for example, we find that individuals with a university degree are 5% less likely to be arrested than those with lower qualifications. Therefore, if we require such a qualification from all Tier 2 applicants, we would expect a reduced impact on crime. We also provide direct evidence on the relative criminal propensities of migrants and natives conditional on all other observed characteristics and discuss how such propensities change as migrants time in the UK increases.

In Section 5, we switch the focus from perpetrators of crime to victims of crime. We begin by providing some summary statistics on self-reported crime victimisation. In general, migrants appear somewhat less likely to be victims of crime than natives. We show that this result is robust to an extensive set of personal and neighbourhood controls. However, this positive result for migrants is only observed for recent arrivals. As time in the UK increases, immigrant crime experience tends to mirror that of natives.

We also provide evidence on the importance of neighbourhood effects for crime. In particular, we highlight the fact that in 2001, 33% of immigrants lived in neighbourhoods that had at least a 30% immigrant share of the local population. We then show that these enclaves had lower reported crime and self-reported victimisation than similar neighbourhoods with lower immigrant densities. Thus, enclaves appear to provide some measure of protection from crime. We discuss some reasons why this may be the case.

Finally, in Section 6, we use the results that we have produced to speculate on the likely impact of future migrant flows on crime and victimisation. We argue that if the UK Government continues to increase the selectivity of the Tier 2, future Tier 2 migrants may have a lower propensity towards property crime than those who have recently arrived in the UK. Increasingly selective migration policy is estimated to have little impact upon the propensity of future Tier 2 migrants to

commit violent crimes.

2. Literature Review

This review examines and critically appraises the evidence on the possible links between immigration and crime across a broad range of methodologies, time periods and countries. We begin by describing the economic model of crime, which offers a useful theoretical guide to understanding the links between immigration and crime. The key insight of the model is that relative labour market opportunities matter, so, to the extent that natives and immigrants are likely to face different labour market opportunities, we might expect different crime propensities. To motivate this, we provide some simple summary statistics on the characteristics of natives and immigrants in the UK. We also consider the theory of social disorganization that highlights the impact of unstable neighbourhoods on crime. If immigrant inflows increase the instability of neighbourhoods this could provide a mechanism for an immigration-crime link.

We then examine a body of empirical evidence that tries to assess directly the link between immigration and crime. Almost all of this literature adopts a spatial approach by comparing crime outcomes across localities and linking these outcomes to immigrant stocks in the locality. We discuss the methodological difficulties with this line of inquiry and highlight attempts to surmount them. We also discuss some alternative approaches using both individual-level data and work that focuses on imprisonment rather than crime as the outcome variable. In addition, we consider the differences in crime effects between legal and illegal

migrants. Finally, we discuss the small literature that focuses on the victimization experience of immigrants.

2.1 The Economic Model of Crime

The 'orthodox' economic model of crime participation was first introduced by Becker (1968) and further developed by Ehrlich (1973) and others (see Freeman (1999) for a review). In this model, individuals rationally choose between crime and legal labour market work depending on the potential returns each sector offers. The 'returns' from crime are calculated relative to the probability of getting caught and the expected sanction if caught and this is then compared to the labour market earnings from employment. If the former outweighs the latter, then an individual will engage in crime.

More formally, the model assumes that individuals choose between criminal and legal activity by comparing the expected utility from each. If *U(W)* is the utility from working at a legal wage *W*, $\mathbf{U(W_c)}$ is the utility from a successful (i.e. not caught) crime, *p* is the probability of being caught and *S* the monetary-equivalent of the expected sanction if caught and convicted, then an individual decides to engage in criminal activity if:

$$(1-p)U(W_c) - pU(S) > U(W) \qquad (1)$$

The usefulness of this framework for thinking about the possible immigration-crime link is that it highlights some crucial determinants of criminal participation that are likely to differ between natives and immigrants. From the labour market side, the key prediction of the model is that relative labour market opportunities matter. People without a job ($W = 0$) are more likely to participate in crime.[1] So are those where the formal wage W is low relative to the crime wage W_c.

There is extensive evidence showing that relative labour market opportunities do have an effect on criminal activity. For example, Gould, Mustard and Weinberg (2002) show that there are strong links between local labour market conditions (measured by the unemployment rate) and crime rates in the U.S. Similarly, Machin and Meghir (2004) demonstrate that areas that experienced lower wage growth at the lower end of the wage distribution (i.e. a relative deterioration of the area-specific low wage labour market) during the 1980s and 1990s in England and Wales were more likely to see rising property crime rates.

Individual characteristics have been shown to be correlated with criminal activity. There are numerous ways to think how these characteristics affect such behaviour, but two occur naturally within the above model. First, labour market opportunities (both the wage and the probability of finding employment) are correlated with individual characteristics. So, for example, higher educational attainment is associated with higher wages and lower unemployment. Thus we

[1] Of course, there are out-of-work benefits that offset this – though the replacement rate is less than 100%.

would expect, all else equal, for educational attainment to be negatively correlated with crime participation. Second, individual characteristics may directly affect the utility function. For example, education may increase an individual's civic engagement and reduce the utility from criminal participation (see Dee (2004)) or may affect the discount rate used in the utility comparisons. Since different migrant groups have different demographic characteristics to natives, it is clearly important to understand the impact of such characteristics on criminal behaviour to assess the possible impact of various immigrant flows on crime patterns.

While an extensive review of all the individual correlates with criminal behaviour that have been documented in the literature is outside the scope of this paper, there are some key associations that are well established:

- Education has been shown to have a strong negative correlation with crime. Machin, Marie and Vujić (2011a) estimate that a 1% point fall in the proportion of males leaving school with no qualifications would reduce property crime by a roughly equivalent amount. No such effect is observed for violent crime. Machin, Marie and Vujić (2011b) study youth crime in more detail, identifying strong crime reducing impacts of education (this time on both property and violent crime).
- Marriage is associated with reduced criminal participation. For example, Sampson, Laub and Wimer (2006) find that, controlling for a wide set of

covariates, being married is associated with an average reduction of approximately 35 percent in the odds of crime.

- There is a pronounced age-crime profile. Age-crime curves are unimodal and peak in the teenage years (see Farrington, 1985).
- Women commit far fewer crimes than men. This is shown in arrest rates, convictions, self-reported criminal participation and victim reports.

Turning to the criminal justice side, the model predicts that the probability of being caught and the expected sanction if caught are also important determinants of the criminal participation decision. Note that the individual participation decision depends on the individual's estimate of these parameters rather than the actual probabilities and sanctions. Again, there is substantial evidence that these factors do matter, although this evidence tends to suggest that it is the probability of being caught and sanctioned, rather than the size of the penalty, which is the strongest determinant. Lochner (2007) shows that individual perceptions of the probability of arrest are strongly correlated with individual criminal activity and that such perceptions adjust with experience of criminal behaviour and arrests. Similarly, Langan and Farrington (1998), building on a large body of cross-national studies, find substantial negative correlations between the likelihood of conviction and crime rates.

How can we use this model to help frame our thinking about immigration and crime? Clearly, differences in the values of the various parameters in (1) will

generate different criminal participation decisions. To the extent that natives and immigrants differ in these parameters, the model would predict different criminal participation rates. However, the cultural and motivational differences between natives and immigrant communities may also alter propensity to crime participation. Tables 1 and 2 provide some summary statistics on various characteristics and perceptions of male natives and immigrants in the UK. Table 1 is derived from the Labour Force Survey while Table 2 is from the British Crime Survey and the Offending, Crime and Justice Survey.

Comparing natives and immigrants in terms of labour-market relevant characteristics, Table 1 shows that immigrants are more educated than natives, with an average of two extra years of schooling. The participation and unemployment rates are identical between natives and immigrants, suggesting that at least for working-age males we would expect broadly similar legal labour market attachment. Immigrants do on average earn less than natives, though the mean hourly wage is only 4% lower. We also split the immigrant stock into those who arrived before 2000 and those after and those who arrived from A8 accession countries post-2004 (A8 wave) and those from non-EEA countries who arrived post-2004 and are active in the labour market (non-EEA workers). This last group is the closest we can proxy to the group of migrants of most interest to the MAC from publicly-available data.

Turning to Table 2, we can provide some evidence on the perceptions of natives and immigrants to the probability of apprehension as a result of criminal activity and consequent sanction. The 2003 Offending, Crime and Justice Survey (OCJS) asked respondents to predict how many times out of 100 crimes the police would make an arrest. For a variety of crimes, the probability was assessed to be around 25% and there is no obvious difference between natives and immigrants in this assessment[2]. Alternatively, the British Crime Survey (BCS) asked respondents how effective they thought the local police were in catching criminals. Interestingly this produced a much higher percentage and some evidence that immigrants thought the police were more effective than natives did. Certainly, these data suggest that immigrants are unlikely to attach a lower detection probability in (1) than natives.

Interestingly, natives and immigrants have very different perceptions of sanctions.[3] In addition, for those that are sent to prison, immigrants expect longer sentences to be handed down. Two obvious explanations arise to account for these differences. First, natives or immigrants may have more experience of the criminal justice system and therefore more informed views on sanctions. Second, immigrants may simply have more faith in the system. This latter explanation receives some support from the BCS data, which show that immigrants have

[2] Unfortunately immigrants cannot be directly identified in the OCJS since neither country of birth nor nationality is reported. However respondents are asked how long they have been resident in the UK. We define natives as those who respond all their lives and all others as immigrants. This potentially mis-identifies those who come in and out of the UK but summary statistics on the characteristics of the two groups are consistent with other surveys that directly identify immigrants. In contrast, the BCS asks country of birth for all respondents.

[3] The same differences emerge if we focus on first-time and youth offenders.

much higher confidence in the Crown Prosecution Service (CPS) effectively prosecuting offenders and in the courts issuing effective sentences. All of this suggests that we would expect both *S* and *p* in (1) to be higher for immigrants than natives that, ceteris paribus, reduces the likelihood of immigrant crime participation.

This discussion shows the potential value of the economic model of crime as a framework to think about the relative propensities of natives and immigrants to engage in criminal activity. It should be noted that while the model is silent on the type of crime committed, it seems intuitive that property crime is best understood with this model. Whilst a small literature (e.g. Grogger, 2000) does apply the Becker-Ehrlich model to violent crime through violence being complementary to drug crimes, we suspect that in general the model is less useful in this context. In particular, relative labour market opportunities seem unlikely to be a significant determinant of violent crime.

It is also possible that immigrants can affect crime through spillover effects. Even if immigrants have the same criminal propensity as otherwise demographically equivalent natives, immigration could cause an increase in crime if it reduces natives' labour market opportunities, inducing them to substitute toward criminal activity. Such effects will be felt most by those natives who are closest substitutes in the labour market for the newly arriving immigrants. For example, Borjas, Grogger and Hanson (2010) suggest that such a mechanism may have

operated against low-skilled black Americans, who are thought to be close labour market substitutes to the immigrants who arrived in the United States in the 1980s and 1990s, whose incarceration rate has risen substantially in recent years.

Social Disorganization Theory and Crime

In the sociological literature, there has been extensive focus on the implications of social disorganization theory for crime. The objective of this theory was to understand the mechanisms through which urban areas were able to adapt and reorganize in response to external social pressures. In a classic contribution, Shaw and McKay (1969) argued that three structural characteristics of an area – low economic status, ethnic heterogeneity and residential mobility –led to the disruption of community stability, which in turn accounted for variations in crime and delinquency. Sampson and Groves (1989) illustrate the general relevance of social disorganization theory for crime. Using data from the British Crime Survey, they show that between-community variations in social disorganization transmit much of the effect of community structural characteristics on rates of both criminal victimization and criminal offending.

The key insight of social disorganization theory for thinking about immigration and crime can be seen by thinking about the implication of inflows of immigrants into a neighbourhood. The theory contends that in poor, ethnically mixed and

residentially unstable areas it is difficult for members of the community to develop and maintain strong attachments to local institutions or other residents. To the extent that immigrants increase the structural disadvantage of an area (e.g. by increasing the ethnic heterogeneity or by reducing the stability of residential tenure) they will contribute to the decline in neighbourhood stability and rising crime levels. Of course, this then begs the question whether immigrants do in fact have such negative effects on neighbourhood stability.

2.2 Empirical Evidence on the Crime-Immigration Link

A large body of research tries to examine directly the links between immigration and crime. One can think of two possible questions. First, on average are immigrants more likely to commit crimes than natives? Second, are migrants with similar demographics to natives more or less likely on average to commit crimes? Of course, such studies are generally conducted within a single country and for a specific time period. Thus, it is not possible to infer how crime will respond to different immigrant inflows in another country using such results. However, they do help us think about the potential channels through which immigration may influence crime.

Cross-Section Spatial Analysis

The earliest work in this area collected data on crime rates and measures of immigration across localities (e.g. cities, states, regions) and examined the correlation between the two. A common empirical framework for such analysis would be:

$$\left(\frac{Crime}{Population}\right)_i = \alpha + \beta\left(\frac{Migrants}{Population}\right)_i + \gamma X_i + \varepsilon_i \quad (2)$$

The main parameter of interest, β, measures the impact of immigrant stocks in locality *i* on local crime rates. The difficulty with this model is that there will be many other characteristics of the locality that are correlated with both migrant stocks and crime. For example, we might expect that migrants are disproportionately located in localities with low-wage jobs. However, such areas might also have high crime rates since the legal labour-market gains and opportunities are lower in such areas. If we cannot control for this, we would find a positive estimate of β that we would inaccurately ascribe to migrants causing crime. Thus, such models will only be as good as their ability to control for heterogeneity across localities (i.e. the variables in the *X* vector). Inevitably, any result obtained is consistent with any effect of immigrant stocks on crime under an assumption concerning unobserved heterogeneity in the locality. In consequence, we would argue that results from this methodology can best be

thought of as describing some empirical regularities in the data, with no realistic prospect of providing estimates of the causal effect of immigrants on crime.

Aoki and Todo (2009) is a representative example of this approach and examines the effect of migrant stocks on overall crime rates across the 96 departments of France in 1999. Their estimated model is identical to (2) and they control for unemployment, per capita income and income inequality. They find a positive and statistically significant effect of immigrant stocks on crime. Furthermore, they show that the effect is primarily through the impact of *unemployed* immigrants within the locality, who are more strongly associated with crime than either employed immigrants or unemployed natives.

In the tradition of social disorganization theory, Stowell (2007) explores the pattern of violent crime and immigration across the neighbourhoods of three US cities using 2000 census data. He allows for a direct effect of immigrant stocks on violent crime rates and an indirect effect working through the impact of immigrants on measures of social disruption in the neighbourhood. As with much previous research on violent crime and immigration in the U.S. (e.g. Lee, Martinez and Rosenfeld (2001)), he finds a negative direct effect of immigrant stocks on violent crime.

Turning to the impact of immigration on neighbourhood structural conditions, a less clear picture emerges. Immigration is most consistently associated with high

levels of poverty and ethnic diversity in an area. However, such positive impacts are not universal. The impact on residential instability is much less clear. Overall, there does not seem to be a single impact of immigration on neighbourhood social structural characteristics, but rather the effects differ by city and across immigrant groups. Furthermore, the effect of these structural conditions on violent crime is less clear than in the Sampson and Groves (1989) analysis. Poverty in an area does tend to be associated with higher violent crime levels, but the impact of ethnic diversity and residential instability is as likely to be negative as positive in the results. It therefore remains an interesting open question as to how the mechanisms of immigrant flows into a neighbourhood and changes in the nature of that neighbourhood operate, and what the subsequent impact on crime may be. One key difficulty in this line of research is that causality is not well defined. Do immigrants self-select into poor and ethnically diverse neighbourhoods or do immigrants cause such outcomes? The literature has not thus far been able to satisfactorily deal with this[4],

Longitudinal Spatial Analysis

A more promising approach to exploiting spatial data is to estimate empirical models of the form:

[4]This question has been addressed in examining the racial mix of neighbourhoods in the US by Cutler and Glaeser (1997). They recognise that the racial segregation of a neighbourhood is the outcome of endogenous location choices of the different races. To account for this, they use instruments based on topography, political factors and residence prior to adulthood. More recently, Saiz and Wachter (2011) suggest using a geographic diffusion model to account for immigrant clustering in neighbourhoods. They argue that immigrants are more likely to cluster in neighbourhoods that are relatively close to neighbourhoods that already have higher immigrant shares.

$$\left(\frac{Crime}{Population}\right)_{it} = \alpha_i + \beta\left(\frac{Migrants}{Population}\right)_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it} \quad (3)$$

where we observe data on crime and migrant stocks in locality *i* at time *t.* The above model requires panel data and can be estimated in either first-differences or panel fixed-effects to remove the unobserved location-specific heterogeneity (the α). This deals with the key problem of the earlier cross-sectional analysis that could never account for such heterogeneity and therefore required that observable characteristics absorbed all the correlation between migrant stocks and unobserved location characteristics.

However, the model in (3) still has a key econometric problem. For the parameter of interest, β, to have a causal interpretation we require that migrant location choices be exogenous. Suppose instead that migrants chose locations based on their crime outcomes. Most obviously, suppose migrants chose areas with low crime outcomes (we would of course expect natives to do the same but migrants have arguably freer choice over location, particularly when they first arrive in the UK – in particular for more skilled migrants). Then we might observe a negative estimate of β. However, this would not demonstrate the causal effect of migrants on crime, but rather the selection effect of migrants based on crime. To deal with this problem requires an instrumental variable strategy. One needs a variable that is correlated with migrant location but not with crime.

Bell, Fasani and Machin (2010) (hereafter BFM) estimate versions of (3) for England and Wales over the period 2001-2008. They examine the impact on violent and property crime of two large immigrant flows that occurred over the period. The first was associated with a large increase in asylum seekers as a result of dislocations in many countries during the late 1990s and early 2000s (e.g. Iraq, Afghanistan, Somalia, Former Yugoslavia). The second flow resulted from the expansion of the European Union in 2004 to include Poland, Hungary, Czech Republic, Slovakia, Slovenia, Estonia, Latvia and Lithuania – the so-called A8. The UK decided to grant citizens from these countries immediate and unrestricted access to the UK labour market. BFM argue that tighter identification of the impact of immigration on crime can be achieved by focusing on specific and large immigrant flows.

Fixed-effect estimates of (3) show that neither asylum seekers nor A8 immigrants had much effect on violent crime. The point estimates are generally negative but never statistically significant. In contrast, property crime models suggest modestly positive effects of asylum seekers (i.e. rising property crime in areas with rising asylum migrant stocks) and significantly negative effects for A8 migrants. That is, the influx of poorer asylum seekers up to the early 2000s appeared to be correlated with a rise in property crime, but the influx of Eastern

Europeans after 2004 appears to correlate with reductions in property crime[5]. These results are robust to the inclusion of a range of additional local-level controls.

They pay close attention to the importance of instrumenting the migrant stocks to control for endogenous location choice. For the asylum wave, they make use of the dispersal policy adopted by the National Asylum Support Service (NASS) in 2001. From that date, individuals seeking asylum were dispersed to locations around the UK while their claim was being decided. The choice of locations was determined by the NASS with no reference to the wishes of the individual applicant. Thus, the dispersal policy itself can be used as an instrument to explain the locations of asylum seekers, assuming locations were not chosen as a result of correlation with crime shocks. Note that this identification strategy does not require that there is no correlation between location and the *level* of crime since the fixed-effect controls for this. The authors show that there was no difference in crime trends between dispersal and non-dispersal areas before the policy was introduced.

For the A8 wave, location choice is entirely up to the individual. However, an extensive literature has established that the prior settlement patterns of migrants from the same national/ethnic group has a strong predictive effect on location

[5] A new crime recording standard was introduced in April 2002 which affected recorded crime differentially across forces. For this reason, BFM exclude the 2001/2 data. However there may well have been continued effects of this change in 2003. The results reported in their paper are robust to also excluding the 2003 data.

choice of future migrants. Assuming that prior settlement patterns have no correlation with *changes* in current crime rates allows us to use the prior settlement pattern of A8 migrants across areas combined with aggregate A8 flow data to produce predicted A8 stocks for each area each year. This instrument is shown to be strongly correlated with actual migrant stocks (with a clustered F-statistic = 13.1).

The IV estimates show that the possible detrimental effect of asylum seekers on property crime rises and becomes substantially more significant. In contrast, the estimated effect of the A8 wave on property becomes much more beneficial and again more significant. The estimates imply that a 1% point increase in the share of asylum seekers in the local population is associated with a rise on 0.93% in property crimes, while a similar rise in A8 migrants reduces property crime by 0.29%. We interpret these results within the economic model of crime framework. The A8 migrants had strong attachment to the labour market – indeed that was the reason for their migration. Asylum seekers were in general prevented from seeking legal employment in the UK and the benefits paid to them were substantially less than those out-of-work benefits for natives. It is thus unsurprising that we find different effects on property crime rates. It should be noted however that in neither case were the effects quantitatively substantial, so most of the decline in property crime witnessed in the UK over the last decade was not related to immigration.

A similar study by Bianchi, Buonanno and Pinotti (2008) examines the crime-immigration link across Italian provinces over the period 1990-2003. Fixed-effect estimates of (3) show that a 1% increase in the total number of migrants is associated with a 0.1% increase in total crime. When the authors disaggregate across crime categories, they find the effect is strongest for property crimes, and in particular, for robberies and thefts. To account for endogenous location choice, the authors use a variant of the prior-settlement pattern instrument used by BFM for the A8 migrants. Again, the first-stage regression suggests that this is a strong predictor of migrant stocks across localities. In contrast to the OLS results, the IV results show no significant effect of immigrant stocks on total crime, nor on the subset of property crimes. Thus, the causal effect of total immigration on crime is not estimated to be significantly different from zero.

Spenkuch (2010) estimates (3) using panel data on U.S. counties across the three census years 1980, 1990 and 2000. As with BFM and Bianchi et al, he also reports IV estimates using prior-settlement patterns to identify the crime-immigration relation. He finds generally positive and significant association between immigrant stocks and property crime rates but no such association for violent crime. The estimated elasticity suggest that a 10% increase in the share of immigrants would lead to an increase in the property crime rate of 1.2%. The IV estimates are broadly similar in magnitude, but are much less precisely estimated. The author also breaks the immigrant stock into Mexican and non-Mexican. He argues that this allows him to explore whether the economic model

of crime provides a useful guide to examining the impact of immigration on crime. We know that Mexicans tend to have significantly worse labour market outcomes relative to other immigrant groups in the United States and we might therefore expect a more substantial positive coefficient on Mexican immigrants in the property crime regression than for non-Mexican immigrants. This is in fact the case, with the coefficient being significantly positive for Mexican immigrants while negative and insignificant for all other immigrants. Such a result complements the arguments of BFM that it makes sense to focus on particular immigrants groups in addition to estimating the overall impact of immigration on crime.

Alonso, Garoupa, Perera and Vazquez (2008) follow a similar approach for Spain. They have annual data on reported crime and convictions at the province level between 1999 and 2006. In addition to immigrant share in the population, they also include age, education and unemployment rates and the lagged crime rate as additional controls. Though they report IV estimates the instruments, lagged values of the covariates and measures of the service share of GDP in a province, are not convincing in dealing with the endogeneity of migrant location choice. The authors find a significant, positive relationship between immigrant share and crime rates, even after controlling for socioeconomic and demographic characteristics of the province.

Finally, Butcher and Piehl (1998b) present evidence on the crime-immigration link across 43 cities in the United States over the period 1981-1990. Again they

estimate (3) using a fixed-effect panel and various demographic and socioeconomic controls. Whether they focus on overall crime rates or the violent crime rate, the authors find no significant correlation between immigrant stocks in a city and crime. They also estimate an IV model using the initial share of immigrants in a city in 1979 to predict the decadal change in immigrant share that they then regress on the decadal change in crime. In spirit, this is similar to the IV strategy of BFM, though they do not use nationality-based settlement patterns that provide arguably stronger identification than aggregate immigrant shares. In addition, they have only 35 observations in this specification so it is difficult to provide convincing estimates. With these caveats in mind, the IV results also show no effect of immigrant stocks on crime rates – indeed the coefficient is negative, though not significant.

Individual-Level Crime Experiences

An alternative strategy is to directly estimate the probability of committing a crime across a large sample of individuals and examine whether the propensity differs between natives and immigrants, controlling for as many other observable characteristics as possible. In an ideal world, we would use data on actual criminal behaviour (or at least some criminal justice outcome such as arrest or conviction). In practice such data rarely exist (and even more rarely does such data also have extensive information on personal characteristics), and so most research in this area tends to use self-reported criminal activity. Unsurprisingly

the evidence suggests that such data tend to substantially under-report criminal behaviour.

A standard empirical model for such an approach is:

$$\Pr(Criminal\ Behaviour = 1)_i = \alpha + \beta Immigrant_i + \gamma X_i + \varepsilon_i \quad (4)$$

which can be estimated by standard probit or logit estimation.

There are two key problems with this approach. First, we again require that, for the coefficient on the immigrant indicator to measure the true differential of immigrant-native criminal propensity, we are controlling for all other individual characteristics that are correlated with both migrant status and criminal propensity. Second, it is assumed that natives and migrants have the same probability of truthfully revealing criminal behaviour. If immigrants are less likely to admit to criminal behaviour, we would mechanically find a lower propensity to commit crime, which would tell us nothing about the true effect.

Papadopoulos (2011) examines the relationship between immigration and property crime offending in England and Wales using the OCJS. He recognizes the problem of non-random under-reporting of criminal behaviour and proposes a parametric model to account for this. The extent to which such models can

successfully overcome this problem relies on the exclusion restrictions imposed, and we are doubtful that truly satisfying restrictions exist.

Turning to his empirical results, the range of explanatory variables used in the probability models is somewhat limited. Controls for age, gender, region and ethnicity are included. Unfortunately, due to problems with sample size, no individual measures of labour market activity are included. This is unfortunate since the objective here is essentially to estimate the empirical counterpart of the crime participation equation (1). Since this depends crucially on relative labour market opportunities, the exclusion raises doubts as to the robustness of the conclusions regarding immigrant-native crime propensities. He finds that immigrants are less likely to report involvement in property crime than natives. The difference is however generally not statistically significant.

Butcher and Piehl (1998b) also estimate probit models of individual criminal activity using the US National Longitudinal Survey of Youth. Controlling for a range of individual characteristics of the individual, family and area, they find that immigrants are significantly less likely to report having been involved in criminal activity or having had contact with the criminal justice system (stopped, arrested, charged or convicted).

Nunziata (2011) examines individual-level self-reported data on crime victimization across a sample of 17 West European countries using the European

Social Survey. He then models the probability of being a victim of crime on a set of individual characteristics and the share of immigrants in the local area[6]. The data covers repeated cross-sections that allows for the identification of regional fixed-effects in the probability model to control for unobserved regional heterogeneity in crime. He also reports specifications that use prior-settlement patterns as an instrument for regional immigration stocks. The empirical results suggest that immigration does not have any significant impact on criminality in destination regions once unobserved regional characteristics are controlled for.

One difficulty with this study is that the number of observations in a region/year cell is small (there are 115 regions and 100,000 observations across all years). The fixed-effect model achieves identification of the impact of immigration on crime victimization by exploiting changes *within* a region across years. Small cell sizes are likely to generate spurious changes in victimization rates and lead to a bias toward zero in the coefficient on immigrant stocks.

Imprisonment Rates between Natives and Immigrants

Comparing imprisonment rates of natives and immigrants is of obvious policy interest and can be done relatively easily for many countries[7]. It should be

[6] Note that this paper is using the crime victimization data purely as an alternative measure to reported crime. This is different from the victimization work discussed below which explicitly seeks to understand whether immigrants are more or less likely to be *victims* of crime than natives.

[7] It is important in such comparisons to exclude imprisonment for immigration offences, which obviously distorts the relative magnitudes.

recognized that such analysis is investigating a fundamentally different concept of the crime-immigration link than the approaches considered above. Since prison is the outcome of the combined effect of criminal behaviour, detection probability and judicial sanction, there is no tight link between immigrant propensity to commit crime and imprisonment. So for example, if the police are more effective at catching migrants (or perhaps just allocate more resources to crimes that are thought to be committed by migrants) or the courts impose more severe penalties on migrants, we would find higher immigrant imprisonment rates than natives, even if their criminal propensities were identical.

Figure 1 shows the share of foreigners in the total population and in the prison population for a set of advanced economies in 2005.[8] For most countries, we see that foreigners appear over-represented in the prison population. At the extreme, 71% of the prison population in Switzerland are foreigners even though they account for only 23% of the total population. Only the United States appears to imprison foreigners at a lower rate than their share of the population, while the ratio for the United Kingdom is toward to the lower end of the spectrum[9]. We know of no systematic analysis of why there are such large differences across countries, which may be due to sentencing policy, policing strategies as well as differences in migrant types.

[8] We select countries in which the shares of foreign-born and foreign-nationals in the total population are broadly similar as it is unclear in all cases which definition is used in the prison statistics (OECD, 2007).

[9] The most recent data (mid-2009) show that 13.7% of the prison population in England and Wales were foreign nationals (Offender Management Caseload Statistics, Ministry of Justice). The Annual Population Survey estimates that 7.4% of the population were foreign nationals.

Such aggregate measures can be misleading. Since we know that the prison population tends to be disproportionately male, young and poorly educated, if immigrants are over-represented in such at-risk populations, they will have higher imprisonment rates even if individual probabilities of imprisonment are the same[10]. This highlights the need to control for individual characteristics in the prison population. In a series of papers, Butcher and Piehl (1998a, 2005) have examined U.S. Census data to evaluate the relative incarceration rates of natives and immigrants. One difficulty with this analysis is that only the 1980 census allows for an exact identification of imprisonment. Both the 1990 and 2000 census only identifies individuals in institutionalized group quarters – this includes prison, mental hospitals, care homes etc. To mitigate the effect, Butcher and Piehl only focus on males aged 18-40. In the 1980 census, 70% of this group that were institutionalized was in prison.

They find that immigrants were less likely than natives to be institutionalized. In 1990, 2.1% of the male population aged 18-40 were institutionalized. Among natives, the percentage was 2.2% while it was only 1.5% for immigrants. Furthermore, immigrants were much less likely to be institutionalized than native-born men with similar demographic characteristics. In addition, earlier immigrants were more likely to be institutionalized than more recent cohorts, suggesting an

[10]A further difficulty is that drug offences often dominate the effect and it is unclear whether the foreigners in prison for such offences actually lived in the country or were arrested in transit. So for example in the England and Wales in 2009, foreign nationals accounted for 10.6% of the male prison population with a custodial sentence. But they accounted for 18.8% of prisoners with drug offences compared to only 8.3% for violence and 3.8% for burglary.

unfortunate assimilation effect as immigrants with longer time in the country approach the higher native incarceration rates. The fact that recent immigrant cohorts into the U.S. have lower incarceration rates than comparable natives is somewhat surprising since the literature on immigrant earnings tends to suggest that recent immigrants have worse permanent labour market characteristics than earlier immigrants. Butcher and Piehl (2005) suggest that immigrant self-selection may explain why, despite poor labour market outcomes, immigrants may have better incarceration outcomes. For example, perhaps those who have high illegal earnings in the source country decide to remain there rather than take the risk of developing capacities in a new legal environment. Alternatively, perhaps migration costs are correlated with success in multiple social dimensions (including criminality). Such hypotheses are hard to test in practice.

BFM also report data on the relative imprisonment rates of immigrants and natives in the UK. Their data comes directly from official prison statistics on inmates. One difficulty however is that the data relate to nationality rather than country of birth or migrant status. This means that we cannot examine successive cohorts of immigrants to see whether changes in cohort composition or quality have led to different imprisonment rates. The data show that foreign nationals on average have marginally higher imprisonment rates than natives. Furthermore, imprisonment rates vary strongly across nationalities. One explanation for this variation is that there appear to be longstanding associations between certain types of crime, particularly organised crime, and particular

nationalities. In the UK context, there are very high rates of imprisonment among certain nationalities for drug and fraud offences that are unlikely to be explained by any other observable characteristic.

2.3 The Impact of Migrant Legalization on Crime

The economics of crime model highlights the importance of the relative returns to legal and illegal activities. One important determinant of such returns for migrants relates to their legal status in their adopted country. Illegal immigrants have much more limited opportunity to obtain legal employment and are rarely entitled to public assistance if they are unemployed. Whilst this suggests that we would expect, ceteris paribus, higher criminal propensities among illegal immigrants, it is difficult to evaluate this empirically since we cannot in general observe illegal immigrants. However, two recent papers have made progress on this question by examining the effect of policy changes on the legal status of migrants to assess the impact on crime.

Mastrobuoni and Pinotti (2010) examine the combined impact of a clemency granted to prisoners in Italy in 2006 and the expansion of the EU. Clemencies are a common feature of the Italian system and generally eliminate around 2-3 years of a sentence, with all inmates whose residual sentence is below such length being immediately released. The 2006 clemency led to 22,000 inmates being immediately released (more than one-third of the entire prison population).

At the start of 2007, Romania and Bulgaria acceded into the EU and were immediately able to legally seek employment in a number of sectors in Italy. Prior to this date, they would have been illegal. In contrast, foreigners from candidate EU members would be illegal both before and after 2007. Thus, the authors propose examining the recidivism rate between Romanians and Bulgarians (the treatment group) and candidate EU foreigners (the control group) released as part of the clemency but from January 2007 subject to different legal status. A difference-in-difference estimator allows a comparison between relative outcomes pre- and post-legalization.

They find a strong and statistically significant reduction in the recidivism rate of Romanians and Bulgarians after the 2007 legalization relative to the control group. During 2007, the hazard rate for the control group does not change but it decreases from 5.8% to 2.3% for the treatment group. Breaking down by type of crime for which the individuals were originally incarcerated shows that the effect of legalization on recidivism is only significant for economically motivated offenders and not for violent offenders. Furthermore, the effects are strongest in those areas that provide relatively better labour market opportunities to legal immigrants. While these results are consistent with the economics of crime model, it should be noted that the sample sizes of the study are quite small. In addition, the authors need to use propensity score matching to adjust for different characteristics between the treatment and control group. This raises the question as to whether the identification of the difference-in-difference estimator is

legitimate since unobserved differences between treatment and control group could account for the results.

Baker (2011) considers the impact of the 1986 Immigration Reform and Control Act (IRCA) in the United States. The Act was introduced in response to the rapid rise in illegal immigration during the late 1970s. The legislation imposed harsh penalties on employers who hired illegal immigrants, increased border security and provided a near-universal amnesty for illegal immigrants currently in the United States. Almost 3 million immigrants were legalized across the U.S.

Evidence from surveys of legalized migrants suggests strong effects of legalization on labour market outcomes. 75% of respondents reported that having legal status made it ‘somewhat’ or ‘much’ easier to find work and 60% reported it helped them advance in their current job. Furthermore, wages appear to be 30-40% higher for those who successfully obtained legal status following the passage of IRCA. This all suggests that there may be strong effects on crime patterns following the legalization.

To estimate the effect on crime, Baker collects data on both reported arrests and reported crime at the county level each year. This is matched to administrative data on the annual number of IRCA applicants in each county. In a fixed-effect model, he finds that a one percentage point increase in the number of legalized IRCA applicants per capita is associated with a fall in overall crime of 1.6%. Both

violent and property crime fall as a result of legalization, though the effect is larger for property crime. An extensive set of robustness checks confirms the key result that legalization led to reductions in crime.

2.4 Immigrants and Crime Victimization

Thus far we have reviewed evidence on the impact of immigration on reported crime, arrests and imprisonment. However there is also the alternative channel through which crime and immigration may be linked, namely that immigrants may be disproportionately victims of crime. Perhaps any positive correlations between crime and immigration rates in an area actually signal increased crime *against* immigrants rather than *by* immigrants. Most research in this area uses self-reported rates of victimization or victim reports from the police. Again, a key difficulty is that if immigrants have different reporting rates than natives, perhaps because they are more cautious in having contact with the authorities, it will be difficult to identify the true differential in victimization between natives and immigrants from the reported differential.

BFM use data from the BCS and the New Deal Evaluation to estimate probit models of self-reported crime victimization. They find that, controlling for an extensive range of individual covariates, immigrants are less likely to report being victims of crime than natives. This is true for all immigrants and for the two waves of immigrant inflows, asylum seekers and A8 that were the focus of the paper.

This raises an interesting question as to why immigrants appear to be less exposed to crime. One possibility is that immigrants have moved into neighbourhood clusters that provide a natural protection against crime, assuming immigrant-on-immigrant crime is socially unacceptable.

Krueger and Pischke (1997) collect data from German newspapers on reports of the number and nature of violent crimes against foreigners at the county level. In total they collect data on 1,056 such incidents, of which 651 are defined as serious (arson and murder). They find significant differences in the patterns of violence in the east and west of the country. The incidence of anti-foreigner crime is higher in the East and rises with distance from the former West German border. Interestingly, economic variables such as unemployment and wages do not affect the level of violent crime once location is accounted for. This is consistent with our observation that the economic model of crime is most appropriate for property crime rather than violent crime. Eckert (2002) provides further evidence on violent victimization of immigrants in Germany. He finds that most perpetrators already had a criminal record. He argues that the local communities, particularly in the East, often implicitly approved of attacks on asylum centres and that this encouraged violent youths who for the first time received recognition for their violence beyond their peer group.

Martens (1997) explores the experience of immigrants in Sweden. The evidence suggests that immigrants are more exposed to violence and threats of violence

than are native Swedes. Interestingly, second-generation immigrants appear to be most exposed. Controlling for individual characteristics, second-generation immigrants are 30 percent more likely to experience violence than indigenous Swedes. The gap is a result of higher levels of violence in the street and other public places and for women, higher rates of domestic violence. In contrast, Killias (1997) reports that immigrants have broadly similar victimization rates to natives in Switzerland. He hypothesizes that this may be a result of the lower concentration of immigrants in poor neighbourhoods than in some other countries.

There appears to be no consistent pattern of immigrant victimization across countries. It seems that violence against immigrants is more likely in poor areas in which immigrants have rapidly become a substantial and visible minority in previously homogenous communities. The neighbourhood seems to be important in this context, but more research is clearly needed.

2.5 Summary and Conclusions

When we examine the body of empirical work based on panel data of crime and immigration rates across localities in various developed countries, the overwhelming conclusion is that overall immigration has almost no effect on crime, whether violent or property crime. However, the work of BFM and Spenkuch suggest that a more nuanced picture emerges when we focus on

separate immigrant groups that are likely to face very different labour market opportunities. As predicted by the theory, those groups with attractive labour market options are less likely to contribute to rising property crime rates, while the less advantaged immigrant groups can cause a rise in crime. This distinction is likely to be important to policy-makers as they contemplate policies that adjust the “offer” they make to potential entrants in the immigration market. Thus, for example, we might expect a skill-point-based immigration system to encourage a flow of immigrants that are unlikely to face the disadvantaged labour market opportunities and are therefore likely to have low incidents of property crime.

Evidence from self-reported involvement in crime tends to show that immigrants are less-likely to be criminally active. There are two difficulties with this evidence. First, individual heterogeneity makes it imperative that a full set of individual characteristics are included to properly identify the immigrant-native differential. This is often beyond the ability of the researcher given survey data constraints. Second, if truthful revelation of criminal activity differs between immigrants and natives it will be difficult to identify the underlying crime differential between natives and immigrants.

If we focus on imprisonment rather than crime rates, immigrants appear to be over-represented in the prison population in most countries. Given the generally negative results found for crime rates, this may suggest that immigrants are discriminated against at various points in the criminal justice system.

Alternatively, migrants may commit more serious offences with longer prison sentences, or be associated with certain types of crime that are given greater focus by the criminal justice system. However it should also be recognized that the data on prison populations tends to be quite poor across countries and it is rare to have publicly available access to individual-level data on prisoners that allows controls for personal characteristics and to examine the type of crimes where the differential effect is strongest. We are sceptical that much progress can be made in this area without better data.

Public policy is naturally also concerned with the welfare of immigrants once settled in the destination country. Are immigrants more likely to be victims of crime than natives? The evidence is less consistent across countries in this regard, with some countries having disturbingly high rates of violence against immigrants relative to natives. The characteristics of the neighbourhood in which immigrants settle seem to matter in this regard. Evidence for the UK actually suggests lower rates of crime victimization among immigrants, though the reasons why this might be are as yet unclear.

We have had nothing to say in this review on the national time-series evidence of crime and immigration. This is simply because we know of no such analysis. In his review of the causes (and the non-causes) of the decline in crime in the United States during the 1990s, Levitt (2004) does not even mention immigration in spite of the large change in the share of the U.S. population that was foreign-

born over the period. In addition, in the time-series studies of property crime in England and Wales, neither Harries (2003) nor Deadman (2003) discuss immigration as a possible factor, let alone include it in their empirical models.

3. Panel Models of Crime and Immigration

In this section we provide some direct evidence on the links between crime rates and immigrant stocks. As we discussed in the literature review, most panel model studies linking immigrant stocks to local crime rates tend to find little relationship on average. In cases where the stock can be disaggregated into separate immigrant groups, the evidence is generally consistent with the standard economic model of crime – groups with poor labour market opportunities are more associated with property crime.

Ideally, we would begin our analysis with a crime-immigration panel across localities over a long time period as one would when looking at immigrant impacts on wages and employment (e.g. Dustmann et al, 2005). This would provide a baseline estimate of the historical impact of migration on crime. Unfortunately there have been repeated and extensive changes to the crime recording practices of the police over time such as the introduction of the NCRS between 2001 and 2003. These changes have been both local and national, and even when national they have had differential effects across police forces. Such changes make inference over time and localities difficult and the Home Office do not recommend the use of such data in this context.

As an alternative, we focus on immigrant flows in the recent past. Arguably this is preferable for two reasons. First, we avoid the problems associated with the reporting changes. Second, such flows are arguably more relevant to the MAC

than examining the crime impact of flows over the last thirty years which may have little in common with future flows. To proceed, we crucially require well-measured data on annual migrant stocks (or flows) at lower-level geographies. In general such data is not available.[11] However for two recent immigrant flows we do have such data. These are the A8 accession migrants and both work permit and Tier 2 migrants. We now turn to the analysis for these groups.

3.1 Results for the A8 Panel

In 2004, the UK opened up access to the labour market for the citizens of the eight countries that had just joined the European Union. These accession countries (the so-called A8) were Poland, Hungary, Czech Republic, Slovakia, Slovenia, Latvia, Lithuania and Estonia. At the time of accession, current EU members were allowed to decide whether to allow immediate access to their labour markets or to maintain barriers to the free movement of labour. The UK, along with Ireland and Sweden, chose to open up the labour market.

The flow of immigrants associated with the A8 accession is measured using administrative data from the Worker Registration Scheme (WRS). A8 migrants registered on the WRS when they first arrived in the UK. The WRS only measures the inflow of workers and so is not the stock of A8 workers at any point

[11] The census provides very accurate measures of immigrant stocks at very low geographies, but is only conducted every 10 years and the latest available results relate to 2001. Government surveys such as the Annual Population Survey and the Labour Force Survey are too small to provide reliable estimates of migrant stocks at low-level geographies.

in time. However, we cumulate the data over time to approximate the stock[12]. The data is available at the LA level from May 2004 on an annual basis. This data is then matched to crime rates using police recorded crime. Annual crime rates are split into two broad categories: Violent offences and Property offences (the sum of Burglary, Robbery, Theft of a Motor Vehicle and Theft from a Motor Vehicle). We have data for 371 local authorities in England and Wales.

Recall from the literature review that our basic estimating equation is:

$$\Delta(\text{Crime/Pop})_{it} = \beta_1 \Delta(\text{Migrants/Pop})_{it} + \beta_2 \Delta \ln(\text{Pop})_{it} + \beta_3 \Delta X_{it} + T_t + \varepsilon_{it} \qquad (5)$$

where *i* denotes a local authority and *t* denotes a year. We have experimented with various additional controls (the *X*'s) and in the results here we include the share of the local population claiming welfare benefits and the share of the adult population aged 16-24. All regressions include time dummies, are population-weighted and standard errors are clustered at the local authority level.

Table 3 reports the results of estimating this panel model. The first three columns report OLS estimates. In column one, we find that there is no relationship

[12] There is a natural concern that differential rates of out-migration across local authorities by A8 immigrants would result in the cumulated inflow measure having a poor relationship to the true stock. To examine this we have compared the flows from the WRS data with the change in the stock estimates from the Annual Population Survey. To achieve reasonable sample sizes of A8 citizens we estimate APS stocks at the level of Police Force Area (42 areas) and aggregate the WRS data to the same level. We then regress the WRS flows on the change in APS stocks over the period 2004-2008 with time dummies included. The coefficient on the APS stocks is 0.97 with a t-stat of 10 and an R^2 of 0.77, suggesting a fairly tight correspondence between the WRS flows and the stock changes.

between changes in violent crime and changes in the stock of A8 migrants. Turning to property crime, column two finds a significantly negative relationship between A8 migrants and crime. In other words, property crime rates tend to fall faster in areas with larger inflows of A8 migrants. There is also a strong and robust effect on property crime from the share of welfare recipients in the area, as we would expect given the theoretical predictions. Finally in column three, we add police force area dummies to the specification. This essentially controls for trends in property crime for each police force, so we identify the migrant effect from changes relative to trend *within* a police force area. This is a much tougher empirical test, but again we find significant negative effects from the A8 migrants.

As discussed above, endogenous location choice by migrants will bias our estimates of the coefficient of interest. To address this we require plausibly exogenous variation in immigrant location. We follow the standard approach in the immigration literature and exploit the fact that immigrants tend to disproportionately locate in areas where there has been prior settlement by natives of the same nationality. To generate an instrument, we use the distribution of each A8 nationality in each local authority in 2001 (using the full 100% census sample) and the national flow of A8 migrants by nationality.

The final three columns of Table 3 show the results using the instrument. For violent crime, the lack of any relationship with A8 migrants remains. For property crime, we find much stronger negative effects than in the OLS.

Overall, we conclude that the enormous inflow of A8 migrants since 2004 has had no observable effect on violent crime and is associated with lower property crime. This result seems intuitive, since a high proportion of A8 migrants come to the UK to work. This may explain why they are less likely, on average, to be associated with property crime than UK natives.

3.2 Results for the Work Permit and Tier 2 Panel

We have been able to obtain data from the UK Border Agency on the initial work location of all approved work permit applicants since January 2005. These were replaced by Tier 2 permits from the beginning of 2009, which we also have data on. The data covers almost 304,000 permits and we have work location at the postcode-level. Since crime is not reported at this level (and in any case crime patterns are more broad than individual postcodes), we aggregate the data to the local authority level and match to crime rates over the six-year period[13].

Table 4 reports the results for this stock of immigrants. For violent crime, there is no significant relationship between changes in the stock of both work permit and Tier 2 migrants and changes in crime rates. The coefficient is poorly determined and switches sign when we control for trends in violent crime at the police force area level. In contrast, the coefficient on the migrant stock is always negative in

[13] We also windorise the permit data at the 99th percentile as there are some outliers that appear to be associated with permits issued at the HQ-level of a firm rather than the actual work location. Results without this adjustment are consistent with those in Table 4 but are weaker.

the property-crime regressions. In other words, areas that witness a rise in the share of work permit and Tier 2 migrants in the population experience a fall in property crime. The effect is significantly negative when we control for property crime trends and is of a similar magnitude as the effect for A8 migrants reported in Table 3.

Some caution is required in interpreting these results. Work permit holders clearly choose locations where work for their skill is available. Unfortunately, we do not have sufficient information on the individual characteristics of the work permit and Tier 2 migrants to generate any plausible instrument. The best we can do is therefore to control for local-level changes in economic conditions. We have conducted a battery of robustness tests on the results in Table 4 by including an extensive set of additional controls and we continue to find a negative effect from the stock of work permit and Tier 2 migrants on property crime.

Again, the results are very much as we would expect given the motivation and labour market attachment of this set of migrants. They only receive a work permit or Tier 2 visa if they already have a job offer, so to an extent they have already made the legal choice within the Becker/Erlich framework.

We draw two general conclusions for the panel evidence presented in this Section. First, from the perspective of future policy, it probably makes little sense to estimate models of the crime-immigration link for all migrants. Unless we

assume that future migrant flows will have the same socio-economic characteristics as those that went before, such analysis will not provide a useful guide to the likely effect on crime. Second, disaggregating migrant stocks into groups that have more homogenous characteristics and motivations for migration can provide more useful clues for policymakers. Perhaps unsurprisingly, the results suggest that those migrants that come to the UK for the express purpose of working are relatively less likely to commit property crimes. The evidence discussed in the literature review suggests that focusing on those with poor labour market opportunities generate the reverse effect. The effects on violent crime are generally insubstantial for all groups.

4. Crime Participation

The results in the previous section provide a valuable guide to the impact of migration on crime for particular immigrant groups. From a policy perspective however this raises two issues. First, if future flows are unlike previous flows, how are we to evaluate the likely impact on crime? Second, the panel results show how crime rates respond as the *share* of migrants in the population changes. This is a natural benchmark, but policy makers are presumably also interested in the total amount of crime. In other words, what would be the likely increase in crime if one additional migrant were allowed into the UK?[14] Both these questions clearly depend on the characteristics of the migrants that enter and the association between such characteristics and crime participation. It is to this that we now turn.

A common approach to examining individual criminal behaviour is to exploit survey data that explicitly asks individuals whether they have been involved in crime. Such data are necessarily subject to the obvious problem that individual reporting may not be honest, though the evidence does suggest that there is a positive correlation between self-reported criminal behaviour and actual criminal activity. The usual empirical approach is then to estimate probit models of various measures of criminal participation (e.g. self-reported activity (both violent

[14] Note that it is difficult to envisage a decrease in crime from this thought experiment – it would require the migrant to commit no crime and to actively discourage crime that would otherwise have been committed. By contrast, an increase in migrant inflows can easily be consistent with a fall in total crime if there is also an increase in outflows and the inflow are less criminally prone than the outflow.

and non-violent), arrest and conviction) on an extensive set of individual characteristics (e.g. age, sex, race, education, employment, occupation etc.) to provide numerical estimates of the marginal effect of any particular demographic on crime propensity. We might in addition include either an immigrant dummy or indeed immigrant interactions to allow for differential effects between natives and migrants over and above those resulting from differences in individual characteristics.

It should be emphasised that such analysis cannot hope to identify casual links between individual characteristics and criminal activity. Such an exercise is unrealistic given the difficulty in identifying exogenous variation in characteristics that would be necessary to identify the causal effect (see Lochner and Moretti (2004) and Machin, Marie and Vujić (2011a, 2011b) for a discussion of these issues in the context of educational attainment and crime). Rather the objective is to consider empirical associations between self-reported crime measures and characteristics of individuals that then allow for broad conclusions to be made regarding the likely aggregate crime effect of changing the demographic characteristics of incoming immigrant cohorts. The exercise is aimed at providing some guidance to questions such as “how would total crime change if we increased the average level of education of incoming immigrants by one year”? To see such an approach in action, Machin et al (2011a) provide estimates of the change in aggregate crimes and convictions resulting from reducing the population with no qualifications by 1%.

The BCS and OCJS both contain self-reported information on criminal activity. The BCS asks whether respondents have ever been arrested and/or a defendant in court. The data does not distinguish type of offence. The OCJS asks whether individuals have committed a crime in the last 12 months (separately for violent and non-violent crime), regardless of whether the individual was subsequently arrested or prosecuted. There are therefore two important differences between the BCS and OCJS measures. The former relate only to those crimes that are detected by the police and cover the respondent's whole life, while the latter relate to all crimes but only within the last year.

We also need an indicator of immigrant status. The BCS directly identifies immigrants since all respondents are asked what their country of birth was and when they first arrived in the UK. In contrast, the OCJS does not ask about country of birth. However, it does ask how long the respondent has lived in the UK. We classify all those who respond that they have lived in the UK all their lives as natives and all others as immigrants (this is the same identification as Papadopoulos, 2011). We recognise that this will falsely classify some individuals who have moved back and forth, so the immigrant indicator will be measured with error.

Tables 5 and 6 give some summary statistics for the BCS and OCJS. For the BCS sample, we have over 23,000 immigrants. Compared to natives, they are

disproportionately non-white, are more likely to be at the extremes of the educational distribution, have lower household income and lower employment rates. These differences are even more marked when we compare across different regions of birth. In terms of self-reported criminal activity, migrants are much less likely to report having been arrested (7.5% and 14.2% respectively) or a defendant in court (5.7% and 10.1% respectively) than natives. The OCJS data is smaller as it comprises only a single cross-section. The immigrants in the OCJS appear to be much less educated than the BCS sample. In terms of self-reported crime, we again find that migrants are much less likely to report such activity than natives (7.5% and 10.3% respectively). This is true for both violent and non-violent crime.

4.1 Estimated Crime Probabilities

We now turn to the estimated models of criminal participation. Table 7 reports the results for the BCS sample and Table 8 for the OCJS. The Tables report the marginal effects i.e. the change in the probability from a discrete change in the independent variable which are all 0/1 dummies. In the BCS models, we include controls for ethnicity, age, sex, education, household income, economic activity, housing tenure and geographic location. The OCJS data is less rich and we can only include controls for ethnicity, age, sex and geographic location. This is somewhat unsatisfactory since we are estimating a crime participation equation

and we know that income, employment, education etc. are important determinants in such a model.

Focusing on the BCS results, we find that the results are essentially the same whether we focus on arrest or defendant as the measure of self-reported criminal activity. Focusing on the arrest results, our results are consistent with the extant literature, which finds that women, older people, the more educated, and the higher earners are all significantly less likely to commit crime. Turning to ethnicity and immigration, we find that immigrants are significantly less likely to report having been arrested. Blacks are more likely to have been arrested relative to Whites, while Asians are less likely. Note that the ethnicity dummies apply to both natives and immigrants. Thus, a black native is 4.2% *more* likely to have been arrested than a white native, while a black immigrant is 2.8% *less* likely to have been arrested than a white native, all else equal[15].

Turning to the OCJS results, we see that immigrants are also significantly less likely to admit having committed a violent or non-violent crime than natives. Other results in the Table show that young people are much more likely to be involved in crime while women report less involvement in both violent and non-violent crime.

[15] These results provide a contrast to those reported in Sharp and Budd (2005). They conclude from an analysis of the OCJS that Black and Asian respondents were less likely to report criminal involvement than Whites. Our results show that this is driven primarily by the fact that the majority of Blacks and Asians in the OCJS sample are immigrants and they have much lower self-reported crime. Black natives actually have marginally higher criminal involvement than White natives, and significantly so in the BCS sample. Asian natives do report significantly lower involvement than White natives. This highlights the importance of distinguishing between ethnicity and immigration in such analysis.

Overall, these results paint a consistent picture. Higher-educated, higher earners are less likely to commit crime (or at least admit it), as are women, older people and those in employment or education. In addition, controlling for these effects, immigrants are less likely on average to report criminal involvement relative both to White natives and natives of their own ethnicity.

4.2 Immigrant Assimilation and Crime

Why is there such a strong negative effect for immigrants? First, it must be recognised that it could simply be a result of differences in willingness to self-report. If immigrants were less likely to admit prior arrests or criminal acts, conditional on all observable characteristics, than natives we would get this result. This may well be the case since migrants may be concerned that answering such questions truthfully may harm their legal status in the UK. A second explanation is of course that the migrant stock is made up of individuals with different lengths of time in the UK. In the BCS sample, 15% of immigrants have been resident less than two years, 33% two to ten years and 52% have been resident more than 10 years. Since the BCS crime participation question is whether the respondent has ever been arrested by the police, those immigrants with short durations are inevitably less likely to respond affirmatively (assuming respondents take the question to refer only to the arrests by UK police). This is

less likely to be so for the OCJS since the crime involvement question relates only to activity in the last twelve months.

To explore this, we allow for the immigrant effect to differ according to length of time in the UK. Tables 9 and 10 show the results for the BCS and OCJS. Though not reported in the tables, the regressions include the full set of controls included in the previous tables. We see a sharp rise in the probability of being arrested for immigrants as length of time in the UK increases. For those with less than two years in the UK, the probability of arrest is 8.7% lower than for natives. For those with more than ten years duration, the probability is only 3.3% lower, though still significant. The results are similar for the OCJS sample, showing a marked assimilation toward native criminal behaviour as duration in the UK increases.

The BCS results are certainly consistent with the argument that the nature of the question generates the effect. However the drop in the OCJS sample, particularly comparing immigrants with 2-10 years against those with more than 10 years duration, cannot be explained by this effect. An alternative hypothesis is that as migrants spend more time in the UK they learn local crime-specific skills that reduce the costs of criminal activity and thus they assimilate toward the native crime behaviour. In either case, the results suggest that the difference between native and immigrants' propensities to commit crime reduces as immigrants' length of residence in the UK increases.

5. Crime Victimisation

In this section we switch focus from the links between criminal propensities and immigration, to whether immigrants are more or less likely to be victims of crime. As was shown in the literature review, there is little current evidence on this issue.

5.1. Immigrant and Native Crime Victimisation

We use the BCS and OCJS to explore the extent of victimisation among both natives and immigrants. Both surveys ask respondents whether they have been victims of violent or non-violent crime over the last 12 months. Tables 5 and 6 show the average rates of victimisation across the two surveys. In the BCS, 30.7% of natives have been victims of crime over the last 12 months compared to 27.1% of immigrants. Within the immigrant group, we can see that Asian immigrants in particular report lower levels of crime victimisation. Looking at violent and non-violent crime separately, immigrants are less likely to report victimisation for both types of crime. Victimisation rates are higher in the OCJS (partially because the sample includes younger ages) and there is no noticeable difference in this data between immigrants and natives.

However to get a more accurate perspective on crime victimisation, we run probit models of the probability of being a victim on a set of personal and

neighbourhood controls as in Section 4. The results of this exercise are shown in Tables 11 and 12. For violent crime, women, older people, ethnic minorities and higher earners are less likely to be victims. However in all cases, the impact of these characteristics on victimisation probabilities is much lower than was the case for participation probabilities i.e. individual characteristics are less important in explaining victimisation patterns than criminal activity patterns. For non-violent offences, older people, the less educated and poorer households are less likely to be victims. This makes sense since we would expect those with more income and assets to be more likely to be victims of property crime.

In general we find that ethnic minorities are less likely to report victimisation than natives, particularly for violent crime. Immigrants are also significantly less likely to report being victims of crime – though in the BCS data the effect is more pronounced for non-violent crime.

The results again raise the question of whether differences in crime victimisation between natives and immigrants changes as time in the UK increases. As in Section 4, we estimate models that allow for differential effects for immigrants depending on their length of time in the UK. These results are reported in Tables 13 and 14. Note that in this case for the both the BCS and the OCJS the victimisation question relates only to the last 12 months so we are less concerned that there is a mechanical link between immigrant duration and victimisation (at least for those with more than 12 months duration in the UK).

Again, we see clear evidence of assimilation in crime victimisation. For both violent and non-violent crime, immigrants with short durations in the UK experience much lower crime than observably similar natives. This benefit erodes rapidly as time in the UK increases, and for those immigrants who have been in the UK for at least ten years there is no significant difference between their experience of crime and that of natives. These results closely mirror the results for crime participation and suggest that any observed benefit in terms of victimisation of being an immigrant is short-lived.

5.2 Immigrant Neighbourhoods and Victimisation

Over the course of the last thirty years there has been a striking increase in the number of immigrants that live in neighbourhoods that are themselves heavily populated by immigrants. Such areas are commonly termed enclaves. Interestingly this development has occurred over a period in which aggregate measures of immigrant residential segregation have actually fallen i.e. on average, immigrants are more dispersed across neighbourhoods now than in the past. This is explained by the fact that there has been a more even distribution of immigrants in the neighbourhoods that are not heavily segregated (see Bell and Machin (2011) for extensive evidence of this).

In the context of this report, we are interested in whether people who live in enclaves are more or less likely to be victims of crime. There are various possible effects here. First, social disorganization theory generally predicts that ethnic and immigrant heterogeneity in a neighbourhood is bad for crime. In general this suggests that areas with higher immigrant shares will be more crime-prone. However there may come a tipping point where a neighbourhood has a high enough immigrant share to overcome the disadvantage of heterogeneity and large immigrant groups may reinforce strong social norms against crime within their community. Second, enclaves potentially increase the social capital of individuals if they predominantly spend time with people of their own immigrant group. Third, there may be a direct effect if members of the same immigrant group do not commit crimes against each other. On the negative side, enclaves may inadvertently signal to outsiders that large group of immigrants are present which may increase crime against them.

To provide some evidence on this issue we make use of lower-level geographic identifiers available in the BCS since 2006. This allows identification of locality down to the lower super-output area (LSOA). LSOAs contain a minimum of 1,000 residents and an average of around 1,500. There are 34,378 LSOAs in England and Wales. Crucially for our purpose, the Office for National Statistics release full counts of immigrant populations at the LSOA level from the 2001 Census (http://www.neighbourhood.statistics.gov.uk/). This allows us to measure the share of immigrants in each LSOA and identify enclaves. In what follows we call

all neighbourhoods with an immigrant share of more than 30% an enclave. In 2001, 7.3% of the LSOAs were enclaves. However, 32.5% of all immigrants lived in enclaves.

Table 15 provides some evidence on the link between crime victimisation and enclaves. We run probit models of victimisation as in Table 11, but include dummy variables to capture variations in the share of immigrants in the local population. The omitted category are areas with less than 2% immigrant population. We estimate models for overall crime victimisation and for violent and non-violent victimisation separately. In these models, we are able to control both for LSOA-level effects, using a set of controls from the Census and the Index of Deprivation, and for individual level demographics. We find significant beneficial effects of immigrant enclaves on crime victimisation. Interestingly there is no strong pattern of effects on victimisation outside of the enclaves – there appears to be something unique about such neighbourhoods even compared with neighbourhoods with fairly high immigrant densities. The effect is a result of reduced non-violent crime, with no observed effects on violent crime.

It is natural to wonder whether only immigrants experience these enclave effects or whether natives living in enclaves also benefit from reduced crime. To examine this, Table 16 interacts the immigrant share dummies with an immigrant indicator. Thus, we allow for differential 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.

6. Future Immigrant Flows and Crime

The previous sections of this report presented a collection of empirical evidence on: i) the direct links between immigration and crime; and ii) the links between various socio-economic characteristics (including migrant status);and both crime participation and crime victimisation. How should policymakers focused on migration flows interpret and use these results?

The first point to note is that we do not claim the results presented above are truly causal. Thus, any inference that is drawn from them must be conditioned on this observation. It is possible that underlying unobserved characteristics could be driving the results we obtain and, to the extent that such characteristics change over time, inference from the results would be biased.

To conduct a cost-benefit analysis of the impact of future immigration on crime would require an extensive set of parameters on the costs of crime, enforcement, imprisonment etc. and estimates of the costs of victimisation. Such an analysis lies firmly outside the scope of this report, but results from the models estimated in Sections IV and V potentially provide the Home Office with a set of parameters that could be used in conjunction with estimates of the characteristics of future migration flows to estimate the likely crime participation and victimisation rates of those flows. Such estimates can then feed into a detailed cost-benefit analysis.

A simpler, but nonetheless informative, use of the results presented in this report is to allow a thought experiment of whether any proposed change in the criteria used for granting entry into the UK would be likely to have a positive or negative effect on crime rates and victimisation. Thus for example, we know that educational attainment tends to reduce the likelihood of an individual engaging in criminal activity. So if a change to the point-based immigration system allocated more points to those with higher qualifications and reduced the points awarded to those with lower qualifications, our results imply that, all else equal, we would expect to see a smaller increase in crime *levels* from the subsequent migrant inflow. And to the extent that this flow was more highly educated than the native population, crime *rates* would likely be lower.

What of the characteristics of Tier 2 main applicants? First, we know that entry requires a certificate of sponsorship. In other words, the applicant already needs to have obtained an offer of employment. Thus, their attachment to the labour market is strong at time of entry. Second, the system rewards educational qualifications with more points. Table 1 shows that labour market active non-EEA migrants tend to have substantially more education than natives and other immigrants and much more likely to be university educated. Third, the jobs that such migrants obtain tend to be well paid. To provide a perspective on the wages of those granted Tier 2 permits, we have been provided with data on the starting salary of all Tier 2 General migrants with Certificates of Sponsorship since April 2011. This gives us data on 3,061 migrants. The data relates only to salaries

below £150,000, so if anything we will somewhat underestimate the average wage of such migrants and will be right-censored. In particular, we will be missing some data on those Tier 2 migrants in the financial sector. In spite of this, the mean gross annual salary of these workers is £45,417 (the median is £38,879). The most reliable comparator for UK workers as a whole is the Annual Survey of Hours and Earnings which covers a random 1% of all UK workers. As of April 2010, the mean gross annual salary for all full-time workers was £32,178 (the median was £25,879). So on average, Tier 2 migrants are earning 41% more than the UK average. Of course, the data does not allow us to control for location, occupation, industry etc. so we cannot tell whether these workers are earning a premium over similar UK workers. But it is clear that Tier 2 workers are generally higher-earning individuals. Indeed, the salary threshold for entering the UK via Tier 2 was increased to £20,000 per year from April 2011. In contrast, over 30% of full-time workers in the UK earn less than this.

Overall, our general sense is that the migrant flows into the UK that we have observed over the last decade have most likely been associated with small declines in the rate of property crime. This is assumed to be a result of the strong labour market attachment of immigrants such as those from the A8 accession countries and those entering under work-related programmes. The impact on violent crime is less well measured, but the results suggest that migrants have the same propensity to commit violent crimes as natives. We argue that if the UK Government continues to increase the selectivity of the Tier 2, this may reduce

the propensity of future Tier 2 migrants to commit property crimes relative to the criminal propensity of recently arrived Tier 2 migrants. Increasingly selective migration policy is estimated to have little impact upon the propensity of future Tier 2 migrants to commit violent crimes.

Table 1. Descriptive Statistics on Male Natives and Immigrants, UK 2010

			Immigrant Cohort			
	Natives	All Immigrants	1970-99	2000-09	A8 Wave	Non- EEA Worker
Age	39.8	37.3	40.6	32.2	30.9	32.8
% White	95.7	45.6	40.8	46.4	95.8	22.3
% Married	46.0	54.5	59.7	49.3	43.3	58.2
% with Children	40.0	47.7	53.7	47.1	44.9	46.7
% Degree	21.5	27.7	31.0	26.3	7.9	34.9
Years of Schooling	12.7	14.7	14.5	15.3	14.7	15.8
% English First Language	98.6	48.5	57.0	33.7	7.8	41.2
% Long-term Illness	32.1	21.9	28.4	12.8	9.2	11.7
Participation Rate	82.9	82.7	84.1	83.4	94.4	-
Unemployment Rate	8.8	8.9	8.9	8.5	4.9	9.7
% Professional	43.3	40.5	45.0	36.0	9.7	45.4
Mean Hourly Wage	14.00	13.41	15.37	11.95	8.56	12.83
Median Hourly Wage	11.62	10.33	12.70	9.00	7.50	9.87
Sample Size	113,609	23,881	5,988	7,727	1,541	1,757

Notes: Figures from the 2010 Labour Force Survey. Non-EEA worker are all non-EEA immigrants who arrived since 2005 and are active in the labour market.

Table 2. Native and Immigrant Perceptions of Apprehension and Sanctions

	Natives	Immigrants
Pr(Assault Arrest)	24.6	23.2
Pr (Car Theft Arrest)	23.1	22.6
Pr(Burglary Arrest)	21.6	19.2
% Effective Police	60.7	68.9
Pr(Prison, 3 strikes Assault)	23.6	33.2
Pr(Prison, 3 strikes Car Theft)	42.7	59.4
Pr(Prison, 3 strikes Burglary)	51.9	63.6
Expected Sentence for Rape, months	58.5	67.3
% Effective Prosecutors	46.0	63.4
% Effective Sentences	21.2	43.2

Notes: Figures come from the 2009/10 British Crime Survey and the 2003 Offending, Crime and Justice Survey.

Table 3. A8 Migrant Panel Regressions, 2004-2009

	A8 Panel Regressions, 2004-2009					
	Violent	Property	Property	Violent	Property	Property
Δ(A8/Pop)	-0.004	-0.057*	-0.072*	0.021	-0.250*	-0.347*
	(0.012)	(0.027)	(0.027)	(0.325)	(0.105)	(0.083)
ΔlnPop	-0.019*	-0.027*	-0.030*	-0.022	-0.024*	-0.030*
	(0.006)	(0.011)	(0.011)	(0.018)	(0.011)	(0.011)
ΔBenefit Claimants	-0.004	0.152*	0.133*	-0.003	0.151*	0.147*
	(0.025)	(0.036)	(0.036)	(0.058)	(0.038)	(0.036)
ΔYoung Share	0.027	-0.095*	-0.057	0.005	-0.104*	-0.071*
	(0.020)	(0.040)	(0.033)	(0.052)	(0.035)	(0.032)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
PFA Dummies	No	No	Yes	No	No	Yes
OLS/IV	OLS	OLS	OLS	IV	IV	IV
Sample Size	2586	2586	2586	2586	2586	2586
R2	0.242	0.187	0.263	0.180	0.210	0.284

Notes: Regressions are population-weighted. Clustered standard errors in parentheses.

Table 4. Work Permit/Tier 2 Migrant Panel Regressions, 2005-2010

	Work Permit/ Tier 2 Panel Regressions, 2005-2010					
	Violent	Violent	Violent	Property	Property	Property
Δ(Permits/Pop)	0.127	0.115	-0.035	-0.104	-0.091	-0.224*
	(0.071)	(0.069)	(0.070)	(0.074)	(0.073)	(0.085)
ΔlnPop		-0.001	-0.001		0.001	0.002
		(0.001)	(0.002)		(0.001)	(0.001)
ΔBenefit Claimants		0.023	0.026		0.079	0.088*
		(0.027)	(0.028)		(0.043)	(0.042)
ΔYoung Share		-0.047*	-0.039*		-0.044	-0.041
		(0.017)	(0.018)		(0.024)	(0.021)
Time Dummies	Yes	Yes	Yes	Yes	Yes	Yes
PFA Dummies	No	No	Yes	No	No	Yes
OLS/IV	OLS	OLS	OLS	OLS	OLS	OLS
Sample Size	1,719	1,719	1,719	1,719	1,719	1,719
R2	0.046	0.052	0.114	0.065	0.072	0.156

Notes: Regressions are population-weighted. Clustered standard errors in parentheses. Data are windsorized at the 99th percentile.

Table 5. Summary Statistics, British Crime Survey

British Crime Survey, 2005-2009						
	Natives	Immigrants	Europe	Africa	Asia	Other Non-UK
% Male	48.9	49.3	47.2	50.0	52.5	45.4
Average Age	41	38	37	39	39	40
% of Whites	95.4	44.1	93.0	19.9	9.7	57.0
% of Blacks	1.1	13.4	0.6	49.8	0.3	25.4
% with any degree	13.5	16.8	16.7	12.6	21.2	11.4
% with no qualifications	18.1	21.4	20.4	16.6	27.4	15.1
% Employed	70.7	67.1	73.0	65.5	61.4	70.6
% Married	63.8	65.9	62.6	61.5	72.0	63.2
% Household Income < £15K	8.6	11.8	9.2	14.3	13.6	9.2
% Household Income > £50K	16.9	16.4	17.2	15.3	13.6	22.8
% Crime Victim	30.7	27.1	28.1	23.8	27.6	32.3
% Violent Crime Victim	4.0	3.1	3.4	2.3	3.0	4.4
% Non-Violent Crime Victim	26.7	24.0	24.7	21.5	24.6	27.9
% Ever Arrested	14.2	7.5	8.5	5.3	7.5	10.6
% Ever Defendant in court	10.1	5.7	6.2	4.5	5.2	8.1
Sample Size	165,169	23,133	6,267	4,881	8,456	3,529

Notes: Years cover 2005-2006 to 2009-2010 for England and Wales, sampling ages 16 to 65. The percentages are weighted.

Table 6. Summary Statistics, Offending, Crime & Justice Survey

Offending, Crime, and Justice Survey, 2003		
	Natives	Immigrants
% Male	49.7	49.8
Average Age	37	38
% of Whites	95.4	56.2
% of Blacks	1.1	8.7
% with any degree	27.7	17.0
% with no qualifications	21.9	43.5
% Employed	59.7	57.7
% Married/Cohabitating	64.0	64.1
% Household Income < £15K	26.7	26.8
% Household Income > £50K	9.7	12.7
% Crime Victim	45.8	46.4
% Violent Crime Victim	11.5	10.5
% Non-Violent Crime Victim	41.9	42.4
% Any Offense	10.3	7.5
% Violent Offense	5.6	3.7
% Property Offense	5.7	3.5

Notes: The sample covers ages 10 to 65 of the 2003 Offending, Crime, and Justice Survey. The percentages are weighted. Immigrant is defined as a person who has not spent his/her entire life in the UK.

Table 7. BCS Crime Participation Marginal Effects

	Arrested	Defendant
Immigrant	-0.070***	-0.048***
	(0.005)	(0.003)
Black or Black British	0.042**	0.035***
	(0.016)	(0.011)
Asian or Asian British	-0.028***	-0.023***
	(0.009)	(0.006)
Other Non-White	0.017	-0.010
	(0.015)	(0.009)
Age 16 to 24	-0.000	-0.030***
	(0.007)	(0.004)
Age 25 to 34	0.016***	-0.009***
	(0.006)	(0.003)
Age over 60	-0.057***	-0.027***
	(0.005)	(0.004)
Female	-0.190***	-0.139***
	(0.005)	(0.003)
No qualifications	0.021***	0.014***
	(0.006)	(0.004)
Intermediate qualifications (A-Levels etc.)	-0.009*	-0.006
	(0.005)	(0.004)
High qualifications (First Degree or Higher)	-0.049***	-0.030***
	(0.005)	(0.003)
Household Income £15,000-£30,000	0.000	-0.001
	(0.005)	(0.003)
Household Income £30,000-£50,000	-0.007	-0.007*
	(0.006)	(0.004)
Household Income over £50,000	-0.023***	-0.013***
	(0.006)	(0.004)
Employed	-0.050***	-0.027***
	(0.006)	(0.004)
Student	-0.065***	-0.040***
	(0.005)	(0.004)
Mean of Dependent Variable	0.142	0.102
Sample Size	22,006	35,757

Notes: Standard errors are in parentheses (***,**,* indicate significance at the 1, 5, and 10% levels). Sample covers respondents age 16 to 65 to the British Crime Survey for years 2005-2006 to 2009-2010. Neighbourhood controls include housing tenure (6 categories), years at current address, years in area, and police force area (in/out of London). Arrest and defendant are binary variable taking on 1 if the respondent has ever been arrested or a defendant in court.

Table 8. OCJS Crime Participation Marginal Effects

	Violent	Non-Violent
Immigrant	-0.018***	-0.026***
	(0.004)	(0.004)
Black or Black British	-0.001	-0.005
	(0.006)	(0.006)
Asian or Asian British	-0.027***	-0.030***
	(0.003)	(0.003)
Other Non-White	0.007	-0.009*
	(0.006)	(0.005)
Age 10 to 15	0.176***	0.087***
	(0.012)	(0.009)
Age 16 to 24	0.134***	0.083***
	(0.010)	(0.008)
Age 24 to 34	0.037***	0.031***
	(0.008)	(0.007)
Age over 60	-0.040***	-0.034***
	(0.005)	(0.005)
Female	-0.023***	-0.027***
	(0.003)	(0.003)
Mean of Dependent Variable	0.068	0.058
Sample Size	15,006	14,977

Notes: The dependent variable is a binary variable taking on 1 if the respondents admits to having been involved in a violent or property crime. Robust standard errors in parentheses (***, **, * indicate significance at the 1, 5 and 10% level). The sample covers respondents aged 10-65. A native is defined as a respondent who indicated that they lived in the UK their entire live.

Table 9. BCS Immigrant Duration Crime Participation

	Arrested	Defendant
Immigrant (< 2yrs in UK)	-0.087***	-0.064***
	(0.003)	(0.002)
Immigrant (2-10 yrs. in UK)	-0.091***	-0.062***
	(0.003)	(0.002)
Immigrant (>10yrs in UK)	-0.033***	-0.028***
	(0.007)	(0.004)
Mean of Dependent Variable	0.142	0.102
Sample Size	22,006	35,757

Notes: Standard errors are in parentheses (***,**,* indicate significance at the 1, 5, and 10% levels). Sample covers respondents age 16 to 65 to the British Crime Survey for years 2005-2006 to 2009-2010. Neighbourhood controls include housing tenure (6 categories), years at current address, years in area, and police force area (in/out of London). Arrest and defendant are binary variable taking on 1 if the respondent has ever been arrested or a defendant in court. Regressions also include all variables reported in Table 7.

Table 10. OCJS Immigrant Duration Crime Participation

	Violent	Non-Violent
Immigrant (<2yrs in UK)	-0.028***	-0.036***
	(0.005)	(0.004)
Immigrant (2-10yrs in UK)	-0.020***	-0.016**
	(0.005)	(0.006)
Immigrant (>10yrs in UK)	-0.009*	-0.014**
	(0.005)	(0.007)
Mean of Dependent Variable	0.068	0.058
Sample Size	15,006	14,977

Notes: The dependent variable is a binary variable taking on 1 if the respondents admit to having been involved in a violent or property crime. Robust standard errors in parentheses (***, **, * indicate significance at the 1, 5 and 10% level). The sample covers respondents aged 10-65. A native is defined as a respondent who indicated that they lived in the UK their entire live. Regressions also include all variables reported in Table 8.

Table 11. BCS Crime Victimisation Marginal Effects

	Violent	Non-Violent
Immigrant	-0.007***	-0.027***
	(0.001)	(0.004)
Black or Black British	-0.008***	-0.018***
	(0.002)	(0.007)
Asian or Asian British	-0.009***	0.002
	(0.002)	(0.006)
Other Non-White	-0.002	0.002
	(0.002)	(0.009)
Age 16 to 24	0.051***	0.038***
	(0.003)	(0.005)
Age 25 to 34	0.016***	0.022***
	(0.001)	(0.003)
Age over 60	-0.020***	-0.055***
	(0.001)	(0.004)
Female	-0.015***	0.007***
	(0.001)	(0.002)
No qualifications	-0.007***	-0.025***
	(0.001)	(0.004)
Intermediate qualifications (A-Levels etc.)	-0.003**	0.018***
	(0.001)	(0.004)
High qualifications (First Degree or Higher)	-0.002	0.020***
	(0.001)	(0.003)
Household Income £15,000-£30,000	-0.001	0.025***
	(0.001)	(0.003)
Household Income £30,000-£50,000	-0.006***	0.030***
	(0.001)	(0.004)
Household Income over £50,000	-0.003**	0.045***
	(0.001)	(0.004)
Employed	-0.008***	0.004***
	(0.001)	(0.003)
Student	-0.000	0.006
	(0.002)	(0.006)
Mean of Dependent Variable	0.038	0.248
Sample Size	142,629	142,641

Notes: Standard errors are in parentheses (***,**,* indicate significance at the 1, 5, and 10% levels). Sample covers respondents age 16 to 65 to the British Crime Survey for years 2005-2006 to 2009-2010. Neighbourhood controls include housing tenure (6 categories), years at current address, years in area, and police force area (in/out of London).

Table 12. OCJS Crime Victimisation Marginal Effects

	Violent	Non-Violent
Immigrant	-0.027***	-0.025**
	(0.007)	(0.011)
Black or Black British	0.007	-0.025
	(0.011)	(0.015)
Asian or Asian British	-0.032***	0.025*
	(0.007)	(0.013)
Other Non-White	0.023**	0.016
	(0.010)	(0.014)
Age 10 to 15	0.178***	0.120***
	(0.011)	(0.012)
Age 16 to 24	0.143***	0.121***
	(0.010)	(0.011)
Age 25 to 34	0.071***	0.089***
	(0.010)	(0.012)
Age over 60	-0.082***	-0.128***
	(0.009)	(0.018)
Female	-0.068***	-0.031***
	(0.005)	(0.008)
Mean of Dependent Variable	0.117	0.376
Sample Size	15,349	15,349

Notes: The dependent variable is a binary variable taking on 1 if the respondents reports being a victim of a violent or property crime. Robust standard errors in parentheses (***, **, * indicate significance at the 1, 5 and 10% level). The sample covers respondents aged 10-65. A native is defined as a respondent who indicated that they lived in the UK their entire live.

Table 13. BCS Immigrant Duration Crime Victimisation

	Violent	Non-Violent
Immigrant (< 2yrs in UK)	-0.021***	-0.113***
	(0.002)	(0.008)
Immigrant (2-10 yrs. in UK)	-0.011***	-0.048***
	(0.002)	(0.006)
Immigrant (>10yrs in UK)	0.000	0.000
	(0.002)	(0.005)
Mean of Dependent Variable	0.038	0.248
Sample Size	142,629	142,641

Notes: Standard errors are in parentheses (***,**,* indicate significance at the 1, 5, and 10% levels). Sample covers respondents age 16 to 65 to the British Crime Survey for years 2005-2006 to 2009-2010. Neighbourhood controls include housing tenure (6 categories), years at current address, years in area, and police force area (in/out of London). Regressions also include all variables reported in Table 7.

Table 14. OCJS Immigrant Duration Crime Victimisation

	Violent	Non-Violent
Immigrant (<2yrs in UK)	-0.070***	-0.159***
	(0.010)	(0.022)
Immigrant (2-10yrs in UK)	-0.033***	-0.044**
	(0.009)	(0.017)
Immigrant (>10yrs in UK)	-0.009	0.013
	(0.009)	(0.013)
Mean of Dependent Variable	0.117	0.376
Sample Size	15,349	15,349

Notes: The dependent variable is a binary variable taking on 1 if the respondents reports being a victim of a violent or property crime. Robust standard errors in parentheses (***, **, * indicate significance at the 1, 5 and 10% level). The sample covers respondents aged 10-65. A native is defined as a respondent who indicated that they lived in the UK their entire live. Regressions also include all variables reported in Table 8.

Table 15. Crime Victimisation and Enclaves

	Total	Total	Violent	Violent	Non-Violent	Non-Violent
Immigrant Share 2%-5%	0.002	0.002	0.003	-0.001	-0.006	0.002
	(0.007)	(0.007)	(0.006)	(0.003)	(0.013)	(0.006)
Immigrant Share 5%-10%	0.007	-0.002	0.005	0.002	-0.004	-0.006
	(0.009)	(0.009)	(0.008)	(0.003)	(0.017)	(0.008)
Immigrant Share 10%-30%	0.008	-0.020*	-0.002	-0.003	0.001	-0.018*
	(0.010)	(0.011)	(0.008)	(0.004)	(0.019)	(0.009)
Immigrant Share 30%+	-0.037**	-0.064**	-0.002	-0.004	-0.041	-0.059**
	(0.013)	(0.016)	(0.011)	(0.005)	(0.025)	(0.014)
European Immigrant		-0.062**		-0.011**		-0.046**
		(0.008)		(0.003)		(0.007)
Asian Immigrant		-0.095**		-0.010**		-0.083**
		(0.010)		(0.003)		(0.009)
African Immigrant		-0.033**		-0.008**		-0.024**
		(0.012)		(0.004)		(0.011)
Black		-0.058**		-0.007*		-0.047**
		(0.013)		(0.004)		(0.013)
Asian		-0.009		-0.013**		0.010
		(0.012)		(0.002)		(0.011)
Female		-0.020**		-0.019**		0.004
		(0.003)		(0.001)		(0.003)
Young		0.097**		0.073**		0.019**
		(0.006)		(0.003)		(0.006)
Old		-0.088**		-0.019**		-0.070**
		(0.006)		(0.002)		(0.005)
LA Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	131,079	119,882	131,079	119,882	131,079	119,882

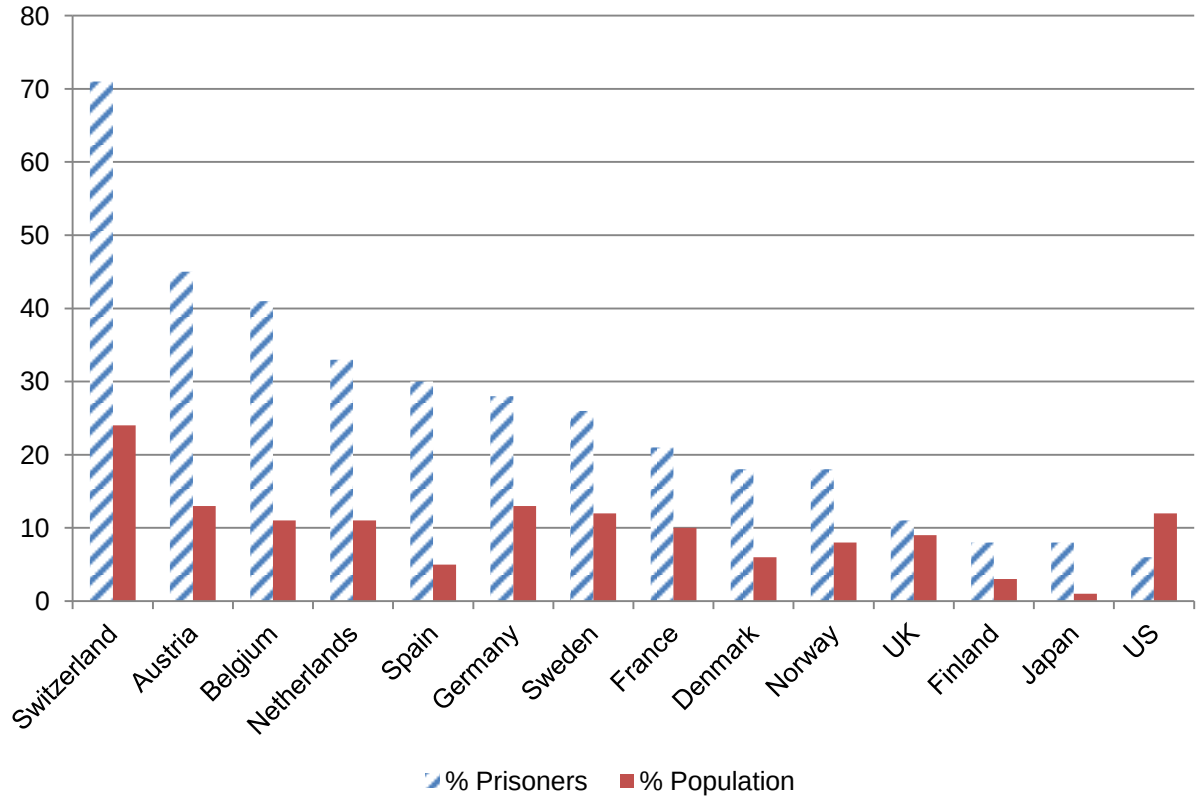
Note: Standard errors are clustered at the local authority level. The regressions also include a full set of LSOA-level controls. Regressions are weighted by BCS sample weights and include year dummies. See Bell and Machin (2011) for a detailed discussion.
* and ** denote significance at the10 % and 5% level respectively.

Table 16. 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
N	119,882	119,882	119,882

Note: Standard errors are clustered at the local authority level. Regressions are weighted by BCS sample weights and include year dummies.
* and ** denote significance at the10 % and 5% level respectively.

Figure 1. Foreign Population in Prison



Note: % Prisoners shows the percentage of prisoners who are foreigners, while % Population shows the percentage of the population who are foreigners. If imprisonment rates were identical between foreigners and natives, the bars would be the same height within a country.

Source: OECD (2007).

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