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Crime and Immigration: Evidence from  
Large Immigrant Waves

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## **Non-Technical Abstract**

This paper examines the relationship between immigration and crime in a setting where large migration flows offer an opportunity to carefully appraise whether the populist view that immigrants cause crime is borne out by rigorous evidence. We consider possible crime effects from two large waves of immigration that recently occurred in the UK. The first of these was the late 1990s/early 2000s wave of asylum seekers, and the second the large inflow of workers from EU accession countries that took place from 2004. A simple economics of crime model, when dovetailed with facts about the relative labour market position of these migrant groups, suggests net returns to criminal activity are likely to be very different for the two waves. In fact, we show that the first wave led to a small rise in property crime, whilst the second wave had no such impact. There was no observable effect on violent crime for either wave. Nor were immigrant arrest rates different to natives. Evidence from victimization data also suggests that the changes in crime rates during the immigrant waves cannot be ascribed to crimes against immigrants. Overall, our findings suggest that focusing on the limited labour market opportunities of asylum seekers could have beneficial effects on crime rates.

**Keywords:** Crime, Immigration.

**JEL Classification:** F22, K42.

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## Abstract

This paper examines the relationship between immigration and crime in a setting where large migration flows offer an opportunity to carefully appraise whether the populist view that immigrants cause crime is borne out by rigorous evidence. We consider possible crime effects from two large waves of immigration that recently occurred in the UK. The first of these was the late 1990s/early 2000s wave of asylum seekers, and the second the large inflow of workers from EU accession countries that took place from 2004. A simple economics of crime model, when dovetailed with facts about the relative labour market position of these migrant groups, suggests net returns to criminal activity are likely to be very different for the two waves. In fact, we show that the first wave led to a small rise in property crime, whilst the second wave had no such impact. There was no observable effect on violent crime for either wave. Nor were immigrant arrest rates different to natives. Evidence from victimization data also suggests that the changes in crime rates during the immigrant waves cannot be ascribed to crimes against immigrants. Overall, our findings suggest that focusing on the limited labour market opportunities of asylum seekers could have beneficial effects on crime rates.

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## **I. Introduction**

Many media and social commentators posit there to be a direct connection between immigration and crime. However, this is a key economic question on which we currently know very little and on which there is only a very sparse academic literature (for exceptions, see the US papers by Butcher and Piehl, 1998, 2005).<sup>1</sup> This contrasts starkly with the by now very large literature on the labour market effects of immigration (see, *inter alia*, Borjas, 1999, or Card, 2005).

In this paper, we study possible crime effects from two recent large flows of immigrants that entered the UK economy. These large flows offer an opportunity to carefully appraise whether the populist view that immigrants cause crime is borne out by rigorous evidence. We are able to exploit the fact that the two different flows were very different in nature, in particular in their incentive to engage in criminal activities.

The first immigrant flow we consider is the late 1990s/early 2000s wave of asylum seekers (what we refer to as the “asylum wave”). The second is the large inflow of workers from EU accession countries (the “A8 wave”) that occurred from 2004 onwards. As we will demonstrate, connections of these two flows to the labour market are very different. As labour market opportunities on offer are a key determinant of crime in the standard economic model of crime (*a la* Becker, 1968, or Ehrlich, 1973), we develop our empirical tests in this framework. In particular, labour market opportunities available to the asylum wave are much worse than for both natives and the A8 wave, making the net returns to criminal activity likely to be different. We therefore hypothesise that crime effects are more likely in the case of the former.

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<sup>1</sup> Indeed, in the UK – the context we study – there is no evidence at all. The only quantitative evidence of which we are aware is contained in the unpublished MSc dissertation by Pearse (2009).

Our evidence very much supports this way of analysing the crime-immigration relationship. For the asylum wave, we report evidence of a higher incidence of property crime induced by the immigration flow. The A8 wave sees no such effects. There is also no observable impact on violent crime for either wave. Evidence from victimization data suggests the changes in crime rates that occurred during the immigrant waves cannot be ascribed to crimes against immigrants, whilst data on incarceration corroborates the view that any immigrant related crime effect is associated only with the first wave. This leads us an overall conclusion that focusing on the limited labour market opportunities of asylum seekers could have a beneficial crime reduction effect.

The rest of the paper is structured as follows. Section II describes the two migration waves in more detail. Section III briefly lays out the theoretical crime model, discusses its relevance to the two immigration waves and highlights its predictions for empirical analysis. Section IV presents area-level longitudinal estimates of the relationship between recorded crime and the immigration waves, and compares arrest rates for the immigrant groups of focus and natives. Section V gives evidence on immigrant-native differences in rates of incarceration. Section VI presents findings from the victimization analysis. Finally, Section VII concludes.

## **II. UK Immigration Since 1997 – A Tale of Two Waves**

We begin by describing the evolution of immigration in the UK over the last few decades, placing particular attention to the large flows since 1997. The latter period has been notable for the vast inflow of migrants relative to previous experience. We show that two particular waves of immigration into the UK since this date have been major

contributors to the overall rise. Interestingly, they have very different characteristics and motivations for migration. This makes them a natural focal point for analysis, and for testing whether immigrant flows impact on crime.

The pattern of immigration to the UK over the last twenty five years is shown in Figure 1. This plots the annual change in net migration over the period 1983-2008. Over the entire period, England and Wales experienced a population increase of 2.2 million because of net migration. This contrasts with a natural increase of 2.6 million, giving a total population rise of 4.8 million. The figure shows a sharp rise in immigration flows since 1997. Table 1 breaks down the overall increase in population into 5 year windows. The shift in pattern over time can be clearly seen. Fully three-quarters of the rise in the stock of immigrants occurred since 1997 and this is the only period during which the change in migration overwhelmed the natural change in the population. We think this gives us a credible setting for empirically studying the crime-immigration relationship. To see how, we now turn to a closer examination of the immigration flows since 1997.

The first flow we concentrate on is the large rise in the number of asylum seekers. Asylum flows to industrialised countries rose in the 1990s and 2000s, with peaks in 1992 and 2001 (see Hatton, 2009). The first peak was associated with the fall of the Berlin Wall and civil war in the former Yugoslavia, and Germany was the principal destination country. The second peak, which we focus on in this paper (as flows to the UK were much larger), was associated with wars and country breakdowns such as Iraq, Afghanistan, and Somalia.

While the increased flow of asylum seekers occurred in many industrialized countries, the numbers seeking asylum in the UK were very large relative both to

previous application trends and to other forms of immigration. The UK was the second-highest recipient in the world of asylum seekers over this period, for example receiving almost twice as many as the United States. Figure 2 plots the number of applications for asylum in each year from 1993 to 2008. The sharp increase after 1997 is clear, as is the subsequent deceleration after 2002. The average number of new applications for asylum in the five years prior to 1997 was 31,000. In the five years after 1997, this rose to 71,000. At their peak, asylum seekers accounted for over 20% of all non-British migrants entering the UK.<sup>2</sup>

Most of the migrants associated with the first flow are ultimately denied leave to remain in the UK. On average during this period, around 70% of asylum seekers had their claim rejected or withdrawn. In this paper, we focus on the stock of asylum seekers rather than the subsequent smaller stock of successful asylum applicants. We do so for three reasons. First, as most asylum applicants are eventually denied it would make little sense to focus only on the subset of successful applicants. Second, as a practical matter we have data on the geographical location of asylum seekers only while their claim is being assessed or appealed. Third, the identification strategy we use relies on the dispersal policy adopted for asylum seekers. Successful applicants are no longer subject to these restrictions. It is a subject for future research to examine the performance of successful asylum seekers in the labour market and their impact on crime.<sup>3</sup>

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<sup>2</sup> A detailed discussion of the causes of the rise and fall of asylum flows is provided by Hatton (2009).

<sup>3</sup> Edin, Fredriksson and Aslund (2003) examine the economic success of refugee immigrants in Sweden, where a dispersal policy similar to that used in the UK was operated. Their data does not identify refugee immigrants separately from other immigrants so their identification relies on country of origin and year of arrival. Such an empirical strategy for the UK would be ineffective. Suppose we take all identified countries of origin that contributed asylum seekers between 1997 and 2003. Over the period 412,000 asylum applications were made from these countries (95% of the total). We know that the ultimate acceptance rate was around 30%, implying around 125,000 applicants would be allowed to remain permanently in the UK. If we assume that all these successful applicants remained in the UK, we can

The second flow we consider is rather different. This big inflow occurred because of the opening up of the UK labour market to citizens of eight countries that joined the European Union in 2004. 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 impact on the labour market has been comprehensively analysed by Blanchflower and Shadforth (2009). Our focus is simply on the size of the subsequent immigrant flow. Figure 2 shows the number of registrations on the Worker Registration Scheme for each year since 2004. Clearly, the flows associated with this immigrant wave dominate the inflows of non-British migrants over the period, accounting for almost 50% of such inflows at their peak.

The characteristics of the two immigrant waves are very different (a feature we return to in Section III when considering theoretical underpinnings of our later empirical analysis). Tables 2A and 2B reports some summary statistics for the two waves for all other immigrants and for natives. Few datasets in the UK explicitly identify asylum seekers. For Table 2A we use the 2004 New Deal for Communities Evaluation Survey, which asks all respondents whether they entered the UK as refugees. The sample for this survey covers disadvantaged areas around the UK so the data tends to show higher unemployment rates and lower wages than would be true for the whole country, but we

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compare this figure to the size of the immigrant population in 2008 for these countries of origin who arrived as adults between 1997 and 2003. The Annual Population Survey gives an estimate of 634,000. So using country of origin and year of arrival to try and identify asylum immigrants would falsely identify in around 80% of cases. Even if we restrict the sample to only the largest 5 countries of origin, the error rate would still be around 50%. This simply highlights the fact that the vast majority of foreign migrants to the UK do not arrive as asylum seekers, even from countries that generate many asylum applicants.



are comparing asylum seekers with natives and non-asylum immigrants within the same areas. The data for the A8 wave comes from the Labour Force Survey.

A number of observations can be made regarding the characteristics of the two waves. First, immigrants in both waves were younger and more likely to be male than natives. Second, individuals in the A8 wave were much more likely to be single and have no dependent children compared to natives, other immigrants and the asylum wave. This is consistent with the general impression that the A8 wave was dominated by young people coming to take up employment rather than for family relocation. Further support for this is shown by the participation rates for this wave, which are higher than for natives. In contrast, the asylum wave has low participation rates and unemployment rates that are twice as high as for natives.<sup>4</sup> It is clear that the first wave has experienced very poor employment outcomes, while the second wave has the opposite experience. Wages tend to be low for both waves, though some of the wage disadvantage for the A8 wave can be explained by the lower average age of this group.<sup>5</sup>

Two broad conclusions arise from the discussion in this section. First, the rate of immigration into the UK was relatively smooth in the decades prior to 1997. Since then, the flows have been much more rapid. They have been dominated first by the flow of asylum seekers, then by the flow of A8 workers. Second, the characteristics and outcomes, particularly in the labour market, of these two waves are starkly different. These differences will be crucial in examining whether there are links between

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<sup>4</sup> Poor labour market performance relative to natives is a feature of asylum seekers who were relocated to other countries. For example, Edin et al's (2003) analysis of refugee immigrants in Sweden shows them to have significantly lower employment rates as compared to Swedish born individuals.

<sup>5</sup> Half of the wage difference between A8 migrants and natives is explained by age, education and sex in a standard wage regression. The low levels of wages for A8 migrants observed in the LFS are consistent with the self-reported wage rates in WRS registrations. In 2008, 93% reported earning an hourly wage below £8.

immigration and crime. The next section discusses some theoretical considerations and highlights the importance of the different labour market prospects that the two waves faced, with particular reference to their propensity to commit crime.

### **III. Some Theoretical Considerations**

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

Formally, 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  $W$ ,  $U(W_C)$  the utility from a successful (i.e. not caught) crime where  $p$  is the probability of being caught and  $S$  the monetary-equivalent sanction if caught<sup>6</sup> then an individual decides to engage in criminal activity if

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

How useful is this framework for operationalising empirical models of crime for the two migration waves we study? For our purposes, its key prediction is that relative

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<sup>6</sup> One might wonder about the severity of sanctions on migrants. In general, migrants receive the same penalties as natives. However after a sentence has been served, migrants are liable to deportation from the UK. Section 32 of the 2007 UK Borders Act requires the Secretary of State to issue a deportation order against any foreign national convicted of a criminal offence and imprisoned for at least 12 months. However Section 33 makes clear that such an order cannot be given if doing so would violate UK obligations under the UN Refugee Convention or the European Convention on Human Rights. In other words, if an asylum seeker was eventually determined to be a legitimate claimant they would also be protected from deportation if they were sent to prison.

labour market opportunities matter (there is good evidence supporting this – see, *inter alia*, Gould et al, 2002, and Machin and Meghir, 2004). People without a job (where  $W = 0$ ) are more likely to participate in crime. So are those where the formal wage  $W$  is low relative to  $W_C$ .

It is evident from the discussion in Section II (about Tables 2a and 2b) that these crime predicting features (low employment rates, high unemployment rates, and low wages) are more marked for the asylum wave. Thus, it follows that, to the extent that the model is relevant, this is the group most likely to be connected to higher crime.

Differences between the legal labour market opportunities of asylum seekers and both natives and the A8 wave are, in reality, actually even more extreme than suggested by Table 2. Asylum seekers are forbidden from working during the first six (later extended to twelve) months of their claim being initiated. After this point, they can apply for permission to work until their case is decided. Evidence from the Refugee Council (2005) suggests that only about 10% of asylum seekers had been waiting less than six months for their asylum decision, whilst a third had been waiting over two years. Hence, the stock of asylum seekers is made up of a combination of those with no permission to work and claiming assistance from the state and those who are entitled to work because of the delays in reaching a final decision on their asylum claim. In addition, the level of benefits that are paid to asylum seekers is very low relative to other welfare benefits. For example, the weekly subsistence payment made to single adult asylum seekers in 2009 was £35.52 compared to £65.45 for those receiving unemployment benefit.

What about different sorts of crimes? People usually associate the Becker-Ehrlich model with property crimes and so the prediction of increased crime for the asylum wave

due to less favourable labour market opportunities is likely to be more strongly connected to this kind of crime. Intuitively, violent crime seems less sensible to consider in this way, especially in the context of immigration waves. Whilst a small literature (e.g. Grogger, 2000) does extend the Becker-Ehrlich model to violent crime (for Grogger through violence being complementary to drug crimes in the US), this seems less appropriate to the context we study where economic differences are likely to be central to the crime-work decision.

The economic model of crime is also silent about whether particular groups are more or less likely to be victims of crime. Nevertheless, we estimate empirical models of crime victimization below. One relevant observation for our analysis is that migrant groups (especially for the A8 wave) do tend to live in migrant communities and so this reduces the likelihood of being victimized by natives. We test this hypothesis in the empirical work that follows.

#### **IV. Longitudinal Models of Crime and Immigration**

In this section, we first estimate panel data models of the relationship between the two immigrant waves and recorded crime. The data we have are measured at the Local Authority (LA) level across England and Wales. We have 371 LA's which can be consistently identified over the period 1997-2008. Our primary source of data on crime comes from notified offences recorded by the 43 police forces across the country. Since 1999, this data can be disaggregated to the LA level. Notified offences are split into two categories: Violent offences and Property offences (the sum of Burglary, Robbery, Theft

of a Motor Vehicle and Theft from a Motor Vehicle). To convert these into crime rates we divide by the resident population aged over 15 years old.

Our data on asylum seekers comes from the Home Office publication *Asylum Statistics*. Data at the level of local authority is available because of the administrative rules by which asylum seekers are housed and subsidised while their application is being considered. As already noted, asylum seekers are forbidden from seeking employment in the UK and must either rely on their own resources or request assistance from the government. Following the passage of the 1999 Immigration and Asylum Act, this assistance has been administered by the National Asylum Support Service (NASS). The assistance takes two forms. For those who have accommodation (presumably with friends/family), NASS provides subsistence payments for food etc. For those without accommodation, NASS provides housing. NASS operated a dispersal policy that sought to locate asylum seekers across the country in a large number of locations and explicitly excluded London. The asylum seeker had no choice as to the destination to which he/she is sent and would often have no ties of any type to the area sent.<sup>7</sup> We have no data on the location of asylum seekers who do not receive any support from NASS. However, on average around 80 percent of asylum seekers do request assistance. The data is available from 2001.

The flow of immigrants associated with the A8 accession is measured using administrative data from the Worker Registration Scheme (WRS). While A8 workers were allowed access to the UK labour market from May 2004, such workers were

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<sup>7</sup> The 1999 Act required that in providing accommodation to asylum seekers the Secretary of State must have regard to the “desirability, in general, of providing accommodation in areas in which there is a ready supply of accommodation”. Furthermore, the Act explicitly states that regard may not be given to “any preference that the supported person or his dependents (if any) may have as to the locality in which the accommodation is to be provided” (s97).

required to register on the WRS. Thus, A8 migrants registered on the WRS when they first arrived in the UK and had a job. The WRS only measures the inflow of workers and so is not the stock of A8 workers at any point in time. However, we cumulate the data over time to approximate the stock.<sup>8</sup> The data is available at the LA level from May 2004 on an annual basis. Note that prior to 2004 A8 citizens were a small fraction of immigrants in the UK. The 2001 census shows they accounted for only 6% of all resident immigrants.

Our basic estimating equation relates spatial changes in crime rates to changes in migration as follows:

$$\Delta(\text{Crime/Pop})_{it} = \beta_1 \Delta(\text{Migrants/Pop})_{it} + \beta_2 \Delta \ln(\text{Pop})_{it} + \beta_3 \Delta X_{it} + T_t + \varepsilon_{it} \quad (2)$$

where  $\Delta$  denotes an annual change, Crime is the number of notified offences, Pop is the resident adult population, Migrants is either the number of asylum seekers or the registrations on the WRS, X denotes control variables such as the percentage of the population claiming welfare benefits and the share of young adults in the population and T contains a set of time dummies.

Table 3 reports the first set of results of estimating equation (2) for the asylum seeker wave, whilst Table 4 reports the results for the A8 wave.<sup>9</sup> Note that the sample period is different. We have data for 2002-2008 for the asylum seekers and 2004-2008 for the A8 migrants. Table 3 shows a positive relationship between asylum seekers and

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<sup>8</sup> We have replicated all our empirical results using the annual flow variable instead of the cumulated measure. Our results are robust to this alternative measure. In addition we have compared the stocks from the WRS data with 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 and aggregate the WRS data to the same level. For 2008, the correlation across PFAs between the two stock measures is 0.75. There is no evidence to suggest that there are significantly different outflow rates across the different areas, with the correlation of changes being 0.73.

<sup>9</sup> We have also estimated the model in log differences and clustering standard errors at both the police force area level and local authority level. Our results are robust to these alternatives.

total crime, though the estimated coefficient on the asylum seekers variable is not significant.

However, the picture alters when we discriminate between violent and property crime. For violent crime, we find a negative and borderline significant impact for asylum seekers whilst we find a significant positive relationship for property crime. The addition of controls does not substantively alter the results. We consistently find that violent crime is higher when the share of young people in the adult population is rising and that property crime is higher in areas with an increasing share of welfare benefit recipients. These effects are very much in line with the theoretical discussion. Interestingly, the coefficient on the asylum seeker variable is insignificantly different from that on the benefit claimant variable.<sup>10</sup> Given that the majority of asylum seekers are also in receipt of benefits (but not included in the benefit claimant data), this suggests that the two groups may have broadly similar effects on crime. Such a result may not be too surprising given the theoretical discussion emphasising the importance of economic incentives for crime determination.

As the estimates given in Table 4 show, the A8 results are very different. In this case, there is a significant negative relationship between immigrants and total crime, driven by property crime. The stark difference in property crime results between the two waves is consistent with our theoretical priors. Asylum seekers were more likely to engage in economic crime, as their outside options were very limited whereas the A8 migrants came with the explicit intention of gaining employment and had unrestricted access to the UK labour market. The impact on violent crime is broadly zero and, at the

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<sup>10</sup> The p-value of the test statistic is 0.433.

margin, the asylum wave appears somewhat less associated with violence than the A8 wave.

We have carried out a range of robustness tests, pushing the basic analysis further in several directions. These are shown in Tables 5, 6 and 7. Our first check for robustness focuses on the asylum wave. First, we include fixed-effects at the level of the Police Force (PF) Area. On average, there are 9 local authorities for each PF area. As the models are estimated in first-differences, the inclusion of PF area dummies controls for trends in crime rates at this level of aggregation. Columns 1 and 4 of Table 5 show these results for violent and property crime respectively. The effect on property crime almost halves and becomes borderline insignificant.

The next issue relates to the fact that, so far, we have treated the migrant location variable as exogenous. If, however, settlement location is a choice variable we might expect such choice to bias our estimates. For example, if immigrants choose to locate in areas of low crime, this would bias down estimates of the causal effect of immigrants on crime. Such an effect might work directly (i.e. immigrants find out where low crime areas are) or indirectly (i.e. immigrants move to areas with good employment prospects that also produce lower crime rates). Fortunately, for the asylum wave we can correct for this location endogeneity. As discussed above, those asylum seekers requiring accommodation are allocated to a location by the NASS. However, NASS chose the location based on the availability of unpopular or vacant housing stocks. Unsurprisingly therefore the sample of local authorities that received asylum seekers under the dispersal policy were more deprived than average. We have 82 local authorities that had some



asylum seekers provided with accommodation by NASS at some point since 2001 and 289 with no dispersal allocations.<sup>11</sup>

Table 6 provides some summary statistics on the differences between the two sets. For our purposes, the level of crime in a local authority is not relevant since we estimate fixed-effects models. Therefore, the simple fact that asylum seekers were disproportionately sent to deprived areas with higher crime rates does not mechanically produce a positive relationship between changes in asylum stocks and changes in crime rates. Of more concern would be if we found that the growth rate in crime before the dispersal policy began was different between those areas that were designated by NASS and those that were not. As the final rows of Table 6 show there is no evidence to suggest that this is the case.

We can therefore directly exploit this exogenous variation in location by re-estimating the asylum regressions and instrumenting the total number of asylum seekers in each local area by the number in dispersal accommodation in each local area. Columns 2 and 4 of Table 5 report the IV results.<sup>12</sup> The violent crime effect remains insignificant, though the coefficient switches from negative to close to zero. The impact on the property crime regression is stronger. The coefficient on the asylum seekers variable more than doubles and is strongly significant. This suggests that endogenous location choice is an important issue for this wave of immigrants and biases the estimated crime

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<sup>11</sup> In these calculations we include all London authorities as having no asylum seekers allocated via the dispersal policy. In practice some asylum seekers were located in London either because they did not need accommodation support, because their accommodation was grandfathered in when NASS was created or because of an exceptional decision to allow NASS accommodation to be provided in the capital. Our conclusions are robust if we instead include London local authorities with positive numbers of accommodated asylum seekers in the dispersal group. However to do so would bias our estimates of the relative characteristics of those locations explicitly chosen by NASS as part of its dispersal policy.

<sup>12</sup> Appendix Table 2 reports the IV first-stage regressions.

effect. When we also include PF area dummies the property effect is slightly attenuated but remains significantly positive.<sup>13</sup>

Analysing the results of the IV regressions separately for male and female asylum seekers provides further confirmation that selective choice of dispersal locations by the authorities does not mechanically lead to our findings. If it were the case that the authorities had chosen by accident or design dispersal locations that were about to experience a relative increase in crime, we should see the coefficient of the female asylum stock also being positive. There is no evidence to suggest that male and female asylum seekers were systematically sent to different dispersal locations, and females account for around 45% of the total stock. We find no significant effect from the female asylum stock on crime in any specification.

For the A8 wave we also include PF area dummies (columns 1 and 4 of Table 7) but their inclusion has little effect. For this wave we are not able to as precisely control for endogenous location choice as with the asylum wave as A8 migrants could choose to work anywhere in the UK. It is common in the immigration literature to use the locational choice of the stock of previous migrants from the flow country as an instrument for subsequent flows (see e.g. Card (2001) and Dustmann, Frattini and Preston (2008) with respect to wage effects of immigration in the US and in the UK; Bianchi, Buonanno and Pinotti (2008) for an application to crime and immigration in Italy). However as previously noted, the stock of such immigrants in the UK was small prior to the 2004 opening of the labour market and it is also not clear that the workers involved in the A8 flow would have had any strong attachments to previous settlers from these countries. As

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<sup>13</sup> Appendix Table 1 reports asylum IV regressions for more disaggregated crime categories.

an alternative we follow the approach of Lemos and Portes (2008). They suggest an instrument based on the availability of flights from the A8 to the UK. The intuition is that areas close to airports with frequent and varied connections to the A8 countries are more likely to attract the A8 flow. We use data from the Civil Aviation Authority that reports the number of A8 destinations flown to from every UK airport on annual basis. For each local authority the instrument is calculated as the log of the number of A8 destinations flown to from all airports within a 50 mile radius in the previous year. This is a plausible exogenous instrument and a first-stage regression gives an F-statistic of just under 8.

Columns 2 and 4 of Table 7 show the result of instrumenting the A8 migrant variable. As expected, the coefficients increase in absolute value, though the precision of the estimates falls substantially. The property crime effect is now positive but is insignificant and remains well below the size of the effect observed for the asylum wave. When we also control for the PF area trends, there is a further drop in the coefficient. While we are certainly not controlling for location endogeneity as precisely as we can for the asylum wave, our broad conclusion that higher property crime was significantly raised as a result of the asylum wave but not by the A8 wave remains intact. The impact on violent crime is indistinguishable from zero for both groups.

We can provide a little more evidence on the A8 wave by comparing arrest rates by nationality. Such data is neither published nor collected in the UK, but we made applications to every police force in England and Wales under the 2000 Freedom of Information Act requesting data on the number of arrests made each year since 2004 by

nationality and type of crime. Of the 42 police forces contacted, 27 provided at least some data.<sup>14</sup> By 2008, we have data covering 67% of total crime in England and Wales.

In Table 8, we pool the data for all years and police forces and estimate the relationship between the share of A8 arrests in total arrests and the share of A8 citizens in the local population. A coefficient of one would be consistent with no differential effect of A8 citizens on local arrest rates. The results are broadly consistent with this neutrality. In column 1 we estimate a slightly larger coefficient than one but in column 3 we restrict the sample to data points that are consistently reported and the coefficient is insignificantly different from one.<sup>15</sup> Similar results are obtained when we focus on the smaller sample that isolates property crimes.

## **V. Immigration and Incarceration**

An alternative approach is to focus on incarceration, rather than reported crime or arrests. The main advantage of this approach is that we have data on the nationality of prisoners so that we can more directly link the immigration flows from particular countries to incarceration rates. Unfortunately such data is only available at the national level, so we will be identifying the link between the asylum and A8 waves and imprisonment by comparing the evolution of incarceration rates for the set of countries providing the flows to the incarceration rates of natives and of citizens of countries not involved in the two waves we focus on. In consequence this analysis is susceptible to the criticism that we

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<sup>14</sup> Those providing no data are police forces that do not collect nationality information at the time of arrest. Some forces only started systematically collecting such information in the last couple of years. We find no evidence that those forces which do not collect such data differ significantly from those that do.

<sup>15</sup> To identify the clean sample we make use of information provided from the relevant Police Force. For example, a number of forces report that some of the data, particularly in the first two years of our sample, was only collected on an ad hoc basis and that many arrest records have no nationality recorded. Such data points are excluded from the clean sample.

identify the asylum wave effect using nationality even though the majority of such nationals were unlikely to be asylum seekers. To mitigate this we focus only on the five largest asylum seeker nationalities but recognise that this analysis can at best only be considered supportive of the previous results. The A8 results are less prone to this criticism as the wave from 2004 dominates the stock of A8 citizens in the UK.

Our data on incarceration comes from the Home Office/Ministry of Justice publication *Prison Statistics*. From 1993, we have annual data on the nationality of every person held in prison in England and Wales. In addition we have data on type of offence an individual is convicted for, broken down by whether the individual is British or Foreign. To make use of these data we need to convert the raw numbers into incarceration rates. To do this we need the denominator i.e. the number of adults of each nationality resident in England and Wales each year. This requires some work. To begin with we have data on country of birth for those aged over 15 from the decennial census for 1991 and 2001. We smoothly interpolate between the two census years to produce annual totals. The census does not ask about nationality. To convert the country of birth figures into nationality figures we use the Labour Force Survey. This survey has consistently asked both country of birth and nationality since 1992. We pool all Spring surveys over the period 1992-2007 and estimate the factor relating country of birth to nationality for each country of birth, restricted to residents aged 15 and over. We then use this factor to adjust the census data to produce estimates of population for each year from 1991 to 2001. From 2004, the Office of National Statistics has produced estimates of population by nationality that we use directly. Finally for the years 2002 and 2003 we interpolate between 2001 and 2004.

We can graphically illustrate the results for our two immigrant waves of interest. We generate an asylum and an A8 incarceration rate by weighting each nationalities incarceration rate each year by the share of that nationality in the flow associated with the two immigrant waves. These flow shares are average estimates for the period 1997-2002 for the asylum wave<sup>16</sup> and 2004-2007 for the A8 wave. We then examine the trend in these incarceration rates before and after the waves occur relative to both the native incarceration rate and the incarceration rate of all immigrants from countries not included in the asylum or A8 wave. As we have data from 1993 to 2008 we are able in both cases to examine pre-wave trends to ensure that our results are not driven by differential trends that existed before the large flows occurred. Figure 3A and 3B show the trends for the two immigrant waves. It is clear that the incarceration rates for the Asylum wave rose rapidly as the size of the group expanded in the late 1990s and early 2000s, both in absolute terms and relative to the incarceration rates of both foreigners from non-Asylum countries and British citizens. The rise began to tail off toward the end of the sample period. In contrast the trend in incarceration rates for the A8 nationals almost exactly mirrored the trend for British citizens from 2004, suggesting no obvious impact of this wave on prison populations.

More formally, we can estimate the following model of incarceration:

$$\text{IncarcerationRate}_{it} = I_i + T_t + \theta \text{WaveDummy}_{it} + \mu_{it} \quad (3)$$

In (3), the Wave Dummy variable takes the value 1 for the immigrant wave observations for all years from the start of the relevant immigration wave (1997 for the Asylum Wave and 2004 for the A8 wave) and is zero for the earlier years and for the comparison group.

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<sup>16</sup> For the asylum wave we focus only on the largest 5 countries in terms of flow. For the period 1997-2002, these are in order of contribution Serbia & Montenegro, Somalia, Iraq, Afghanistan, and Sri Lanka. They represent 40% of applications over the period.

We also control for the group fixed effect and time fixed effects. A positive coefficient  $\theta$  would indicate a relative rise in incarceration rates following the immigrant wave. Results are given in Table 9. Consistent with the evidence from the charts, we find a significant jump in the incarceration rates of the asylum wave nationalities after 1997, with rates 0.19 percentage points higher than the non-Asylum control group. This is in addition to an average 0.16 percentage point higher incarceration rate. The estimated effect for the A8 group are insignificantly different from zero when compared to the British control group and are actually negative compared to the non-A8 control group. We conclude that there is strong evidence that the asylum wave led to a rise in incarceration rates for nationals of countries that were disproportionately represented in the asylum wave, relative to both natives and other immigrants, whereas the A8 wave had no discernible effect on the prison population. To the extent that there are more people in prison from A8 countries, this is simply a result of the massive rise in the size of those populations in the UK rather than evidence of increased incarceration rates.<sup>17</sup>

Finally, we look at the data on the type of crime for which the individual has been incarcerated. In this analysis we cannot distinguish across nationalities. However we can see whether the data support our previous results that suggest that neither wave had any observable effect on violent crime whilst property crime had increased as a result of the asylum wave but not as a result of the A8 wave. Note that the exact definition of offence types is different from those considered in Section 2 as the data is from the Prison Service rather than the Police. We therefore focus on two broad groups of offences: (a) violent

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<sup>17</sup> The number of prisoners from A8 countries rose from 145 in 2003 to 906 in 2008. This still represents only about 1% of the prison population. It should also be noted that the A8 prison population in years prior to the A8 wave were very small which explains the volatility in incarceration rates for this group in the early years of the sample as shown in Figure 3B.

offences and (b) non-violent economic offences – burglary, robbery, theft and handling, fraud and forgery and drugs.

Figures 4A and 4B show the trends for British and Foreign prisoners. For violent crime, the increase over time in offending is much stronger among the British than the Foreigners. Indeed there is essentially no change in the violent incarceration rate of foreigners over the whole period in spite of the two large immigrant waves that occurred. By the end of the sample there is no obvious difference between the two groups in terms of violence incarceration rates. By contrast the rise in non-violent incarceration was faster among the Foreign nationals relative to British up to 2003/4 but has then reversed substantially, though the gap remains larger than in the early 1990s. These results are all consistent with the regression results of Section IV.

## **VI. Crime Victimization**

As discussed in Section III, we are also able to consider whether there is any evidence of higher crime victimization for the two immigrant waves. We use data from both the British Crime Surveys from 2004 to 2008 and the New Deal for Communities Surveys from 2002 and 2004. The former is used for official victimization statistics and is a large representative sample of the UK population. The identification of the immigrant waves is by country-of-birth and year of arrival in the UK. This is unproblematic for the A8 wave but the measurement of the asylum wave has the problems of mis-identification discussed in Section II. To address this issue, the second data set is used which can explicitly identify asylum applicants from other non-British immigrants. Fortunately, the data contain similar questions on victimization as those used in the British Crime Survey.



Table 10 shows the percent of individuals reporting that they have been a victim of crime in the twelve months up to the survey date.<sup>18</sup> Victimization rates are reported for UK born natives, the asylum wave, the five largest asylum countries, the A8 wave and other non-UK born individuals. Reassuringly, the data from both sources provide a similar picture, with both asylum and A8 waves having lower crime victimization rates than natives.

Table 11 shows statistical models that condition on additional survey variables. For the British Crime Survey, the key finding of the previous Table remains intact, namely that crime victimization is significantly lower for the two migrant waves we consider. For the New Deal Survey, we find that lower victimization rates for asylum seekers in the raw data are eliminated when controls are added such that rates appear to be essentially the same as those for natives.<sup>19</sup>

In summary, the results seem to suggest that differential changes in crime rates during the immigrant waves cannot be ascribed to crimes against immigrants. There is little empirical work on the factors affecting rates of crime and victimization against immigrants. For example, Krueger and Pischke (1997) find little evidence that crimes against immigrants in Germany can be explained either by economic variables or by the relative number of immigrants within a locality. They do however find substantial differences between West and East Germany in the rate of crimes against foreigners.

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<sup>18</sup> This includes all victimizations reported by individuals and inevitably features a number of very minor incidents that would not appear as crimes reported to the police, hence the relatively high percentages. The numbers are in line with Home Office crime rates based on the BCS victimization data (for example, in the year to 2009, there were 10.2 million household and personal victimizations in England and Wales).

<sup>19</sup> It should be noted that we have fewer control variables available in the second data set.

## **VII. Conclusion**

There is much popular commentary on the supposed links between crime and immigration, but a notable paucity of credible empirical evidence about the relationship. This paper has sought to fill some of this gap with an analysis on the response of crime rates to two very different immigration waves that hit the UK over the last decade. Our view is that the scale of these waves, their timing and their very different characteristics make them very suitable for the empirical analysis of crime and immigration.

The canonical Becker economic model of crime generates the key proposition that relative legal labour market opportunities are a fundamental driver of the decision as to whether to commit crime. The model is most obviously relevant for property-related crime since the motivation for violence is less clearly susceptible to an economic interpretation. The model therefore provides a useful framework in which to think about the likely crime rate response to the two immigrant waves we study. The asylum wave was associated with low labour force participation rates, high unemployment and low wage levels. Indeed, asylum seekers are prevented from obtaining legal employment whilst their application is being considered. By contrast the A8 wave was directly linked to the opening up of UK labour markets for citizens of these countries and unsurprisingly the participation rates of this wave are very high – in fact much higher even than natives. Wages tend to be lower though partly this is accounted for by the relative youth of the A8 wave. In addition given the large flows involved, the wage rate can come as no surprise to those choosing to seek work in the UK.

Using an array of different sources and empirical methods, our broad conclusions are simple and consistent with the theoretical framework. For property crime, we find

that crime rates are significantly higher in areas in which asylum seekers are located, but that no such relationship can be found for the A8 wave. This conclusion is robust when we attempt to control for the endogeneity of location choice and for crime trends within the Police Force Area. In contrast, for both waves we can find no significant relationship between immigrants and violent crime. The same picture emerges when we explore the time-series evolution of incarceration rates, which suggest a rise in the rate of incarceration of foreigners from asylum seeker countries as the asylum wave arrived in the UK, but no such rise for A8 foreigners as that wave arrived. The prison data also show that it is non-violent crimes that were driving these incarceration rates rather than violent crimes. Finally, we show that the results are hard to explain on the basis that the rise in crime may be a result of crime against immigrants. Interestingly we find that victimization rates are in fact, if anything, lower against the two waves than for natives in general.

It is natural to ask about the size of the property crime effect we find for the asylum wave. To give a sense of the magnitude on crime rates, consider the estimated coefficient from Column 6 of Table 5. This gives a value of 0.70 on the migrant/population variable in the property crime regression. Given the definitions of the variables this implies that raising the percentage share of the local population who are asylum seekers by  $x\%$  increases the property crime rate by  $0.70x\%$ . The size of the asylum population in the average local authority was of course very low over our sample period. Across all England and Wales it averaged 0.1% of the local adult population, so the average property crime rate might be 0.07% higher as a result – only around 2% of the average property crime rate of around 2.7%. Of course, some authorities had

appreciably more asylum seekers located in the area, though shares larger than 1% of the local population were extremely rare. This suggests that more attention should perhaps have been focused on the potential localized crime risks involved in the concentrated dispersal policy adopted by the authorities but that national crime rates were unlikely to have been strongly influenced by the arrival of the asylum wave.

Our results also suggest that focusing on improving the limited labour market opportunities of asylum seekers has scope to generate crime reductions, in addition to generating potential cost savings in terms of benefits. Since we are (rightly) obliged to consider all applications for asylum, it makes sense to allow applicants to seek work whilst their applications are being considered particularly given the long duration that final decisions on such applications can take. In addition job-training and language courses are likely to be particularly beneficial for such migrants. Such an approach can potentially significantly tilt the relative labour market opportunities of migrants relative to illegal activities. The disadvantage of such an approach is the risk that it signals to potential migrants that asylum application could be used as a method of seeking work in the UK rather than as a route for those fleeing persecution.

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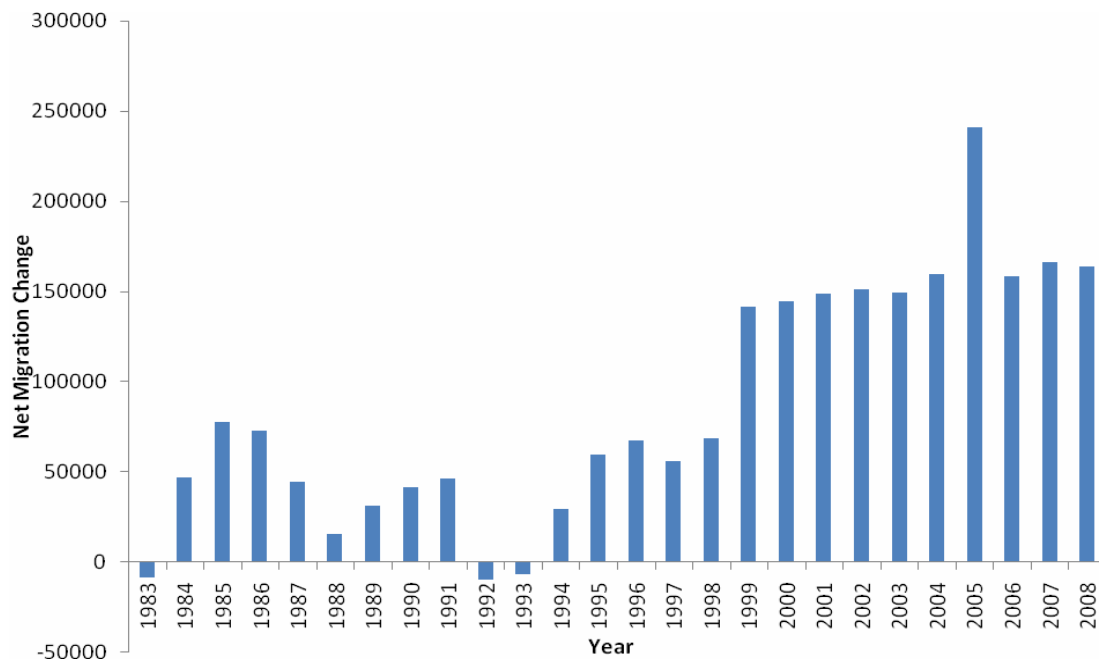


FIGURE 1: ANNUAL NET CHANGE IN MIGRATION, ENGLAND AND WALES, 1983-2008

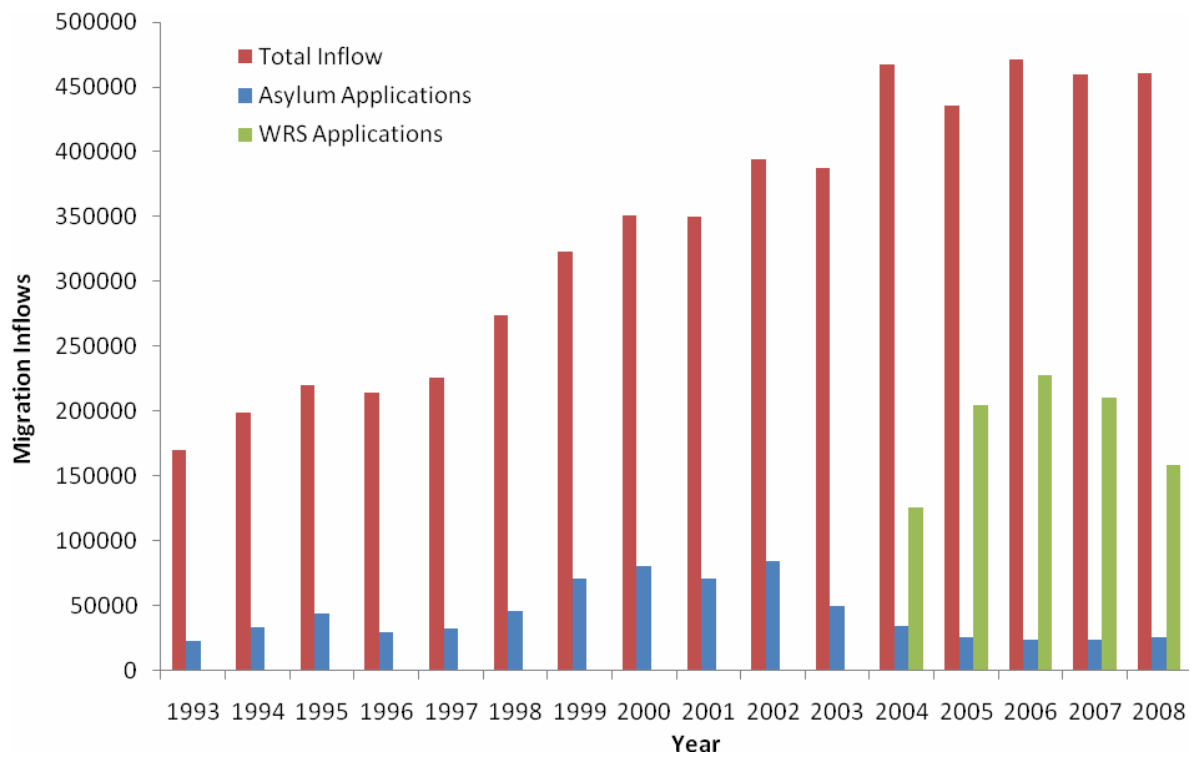


FIGURE 2: ASYLUM APPLICATIONS AND WRS REGISTRATIONS, 1993-2008



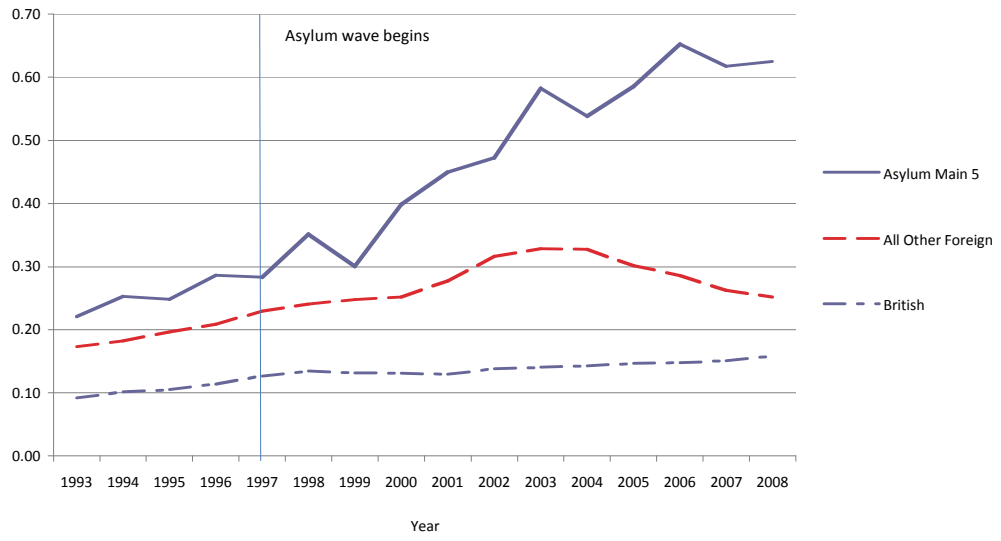


FIGURE 3A: INCARCERATION RATES FOR ASYLUM WAVE, 1993-2008

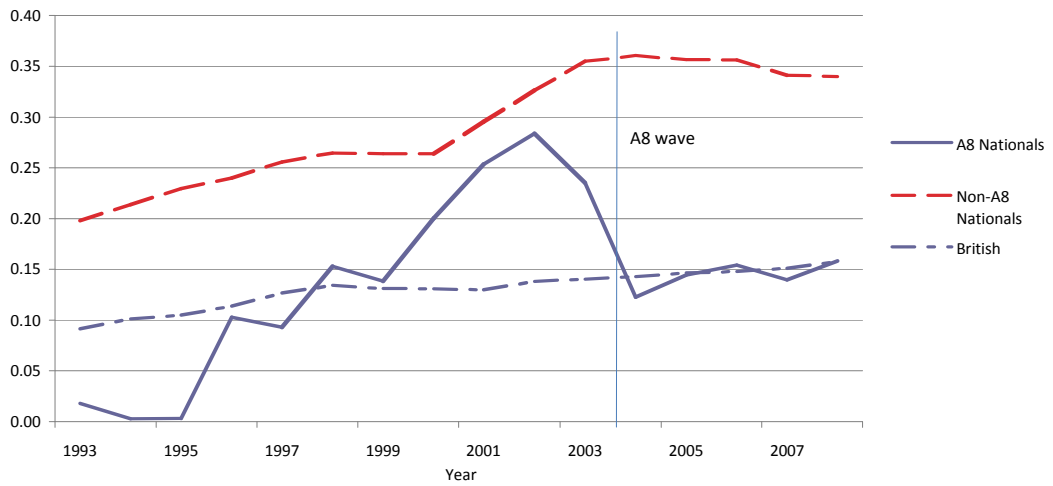


FIGURE 3B: INCARCERATION RATES FOR A8 WAVE, 1993-2008

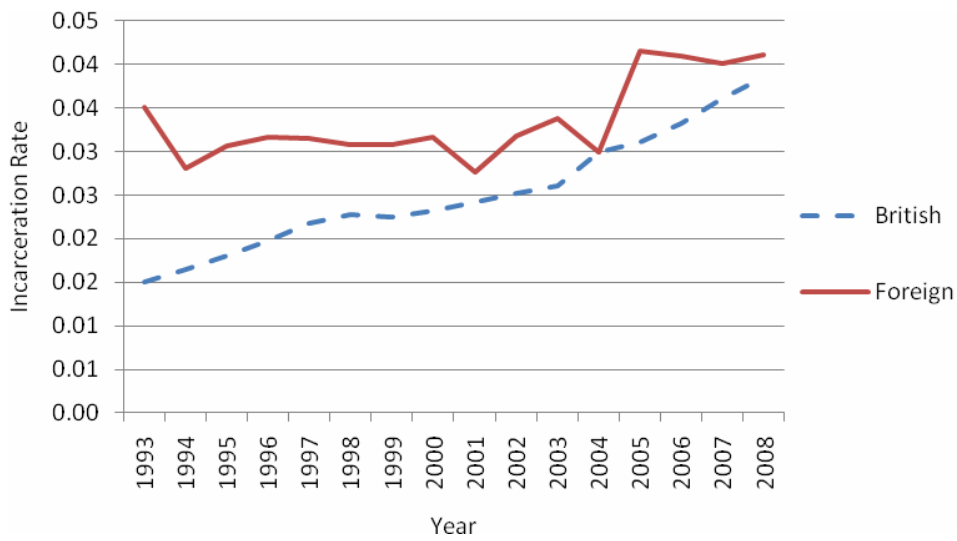


FIGURE 4A: INCARCERATION RATES FOR VIOLENT OFFENCES, 1993-2008

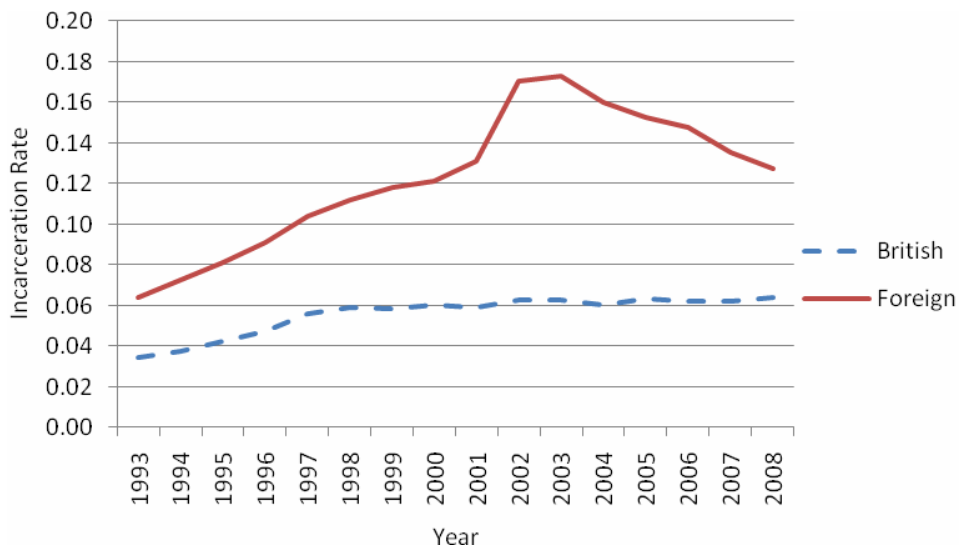


FIGURE 4B: INCARCERATION RATES FOR NON-VIOLENT ECONOMIC OFFENCES, 1993-2008

TABLE 1: COMPONENTS OF POPULATION CHANGE, ENGLAND AND WALES, 1983-2008

|           | Population at<br>Beginning<br>of Period | Change over<br>Period | Natural<br>Change | Net<br>Migration |
|-----------|---|-----------------------|-------------------|------------------|
| 1983-1987 | 49,581,600                              | 541,400               | 308,000           | 233,400          |
| 1988-1992 | 50,123,000                              | 752,600               | 627,000           | 125,600          |
| 1993-1997 | 50,875,600                              | 684,000               | 478,000           | 206,000          |
| 1998-2002 | 51,559,600                              | 1,012,500             | 358,000           | 654,500          |
| 2003-2008 | 52,572,100                              | 1,867,600             | 829,000           | 1,038,600        |
| 1983-2008 | 49,581,600                              | 4,858,100             | 2,600,000         | 2,258,100        |

*Notes:* Data from Population Trends, England and Wales, all ages.

TABLE 2A: SUMMARY STATISTICS FOR ASYLUM WAVE

|                    | British | Non-British<br>Non-Asylum | Non-British<br>Asylum |
|--------------------|---------|---------------------------|-----------------------|
| % Male             | 49.6    | 53.9                      | 60.4                  |
| Age                | 40.9    | 37.7                      | 35.2                  |
| % with Children    | 40.4    | 43.5                      | 52.7                  |
| % Single Person    | 21.9    | 15.9                      | 18.4                  |
| % No Qual          | 38.4    | 32.2                      | 51.7                  |
| % Degree           | 3.6     | 6.5                       | 4.1                   |
| % Poor English     | -       | 9.8                       | 32.3                  |
| Participation Rate | 60.4    | 62.3                      | 48.6                  |
| Unemployment Rate  | 14.7    | 17.7                      | 32.7                  |
| Annual Mean Wage   | 16267   | 15543                     | 12672                 |
| Annual Median Wage | 14300   | 13000                     | 10400                 |
| Sample Size        | 8063    | 3385                      | 514                   |

*Notes:* Data are tabulated from the 2004 Household Survey Data of the National Evaluation of the New Deal for Communities Programme. British are all those who identify themselves as British and Asylum are those who entered the UK as refugees. Sample are all Heads of Household aged 18-65 and all results are weighted to reflect the population in the selected areas.

TABLE 2B: SUMMARY STATISTICS FOR A8 WAVE

|                    | British | Non-British<br>Non-A8 Wave | Non-British<br>A8 Wave |
|--------------------|---------|----------------------------|------------------------|
| % Male             | 49.6    | 49.3                       | 54.6                   |
| Age                | 41.3    | 38.0                       | 28.7                   |
| % White            | 93.1    | 65.0                       | 93.7                   |
| % Married          | 52.3    | 53.2                       | 35.7                   |
| % No Children      | 59.7    | 59.3                       | 70.5                   |
| % Degree           | 15.3    | 16.1                       | 7.2                    |
| Years of School    | 12.5    | 13.8                       | 14.8                   |
| Participation Rate | 77.6    | 71.9                       | 89.0                   |
| Unemployment Rate  | 4.9     | 7.1                        | 6.3                    |
| Mean Weekly Wage   | 423     | 432                        | 268                    |
| Median Weekly Wage | 350     | 242                        | 346                    |
| Sample Size        | 398113  | 42551                      | 2045                   |

*Notes:* Data are tabulated from the Labour Force Survey, Spring Quarters 2004-2009. British are all British citizens, A8 wave are all observations where country of birth is one of the A8 countries and year of arrival in the UK was 2004 or later, and non-A8 wave are all other non-British. Sample are all aged 18-65 and results are weighted using population weights.

TABLE 3: PANEL REGRESSIONS FOR ASYLUM WAVE CRIME RATES

|                               | (1)              | (2)               | (3)               | (4)                | (5)               | (6)               |
|-------------------------------|------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
|                               | All Crime        | All Crime         | Violent           | Violent            | Property          | Property          |
| $\Delta(\text{Asylum/Pop})$   | 0.231<br>(0.156) | 0.169<br>(0.155)  | -0.141<br>(0.092) | -0.196*<br>(0.092) | 0.373*<br>(0.119) | 0.365*<br>(0.119) |
| $\Delta \ln(\text{Pop})$      |                  | -0.015<br>(0.016) |                   | -0.008<br>(0.010)  |                   | -0.007<br>(0.012) |
| $\Delta(\text{Benefit Rate})$ |                  | 0.290*<br>(0.045) |                   | 0.012<br>(0.027)   |                   | 0.278*<br>(0.035) |
| $\Delta(\text{Young Share})$  |                  | 0.120*<br>(0.042) |                   | 0.146*<br>(0.025)  |                   | -0.026<br>(0.032) |
| Time Dummies                  | x                | x                 | x                 | x                  | x                 | x                 |
| Sample Size                   | 2597             | 2597              | 2597              | 2597               | 2597              | 2597              |
| R <sup>2</sup>                | 0.213            | 0.226             | 0.338             | 0.346              | 0.169             | 0.190             |

*Notes:* Regressions are run over the period 2002-2008. The dependent variable is  $\Delta(\text{Number of Crimes Recorded/Adult Population})$ . All regressions are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level.

TABLE 4: PANEL REGRESSIONS FOR A8 WAVE CRIME RATES

|                               | (1)                | (2)                | (3)               | (4)               | (5)               | (6)                |
|-------------------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|
|                               | All Crime          | All Crime          | Violent           | Violent           | Property          | Property           |
| $\Delta(\text{Cum A8/Pop})$   | -0.064*<br>(0.031) | -0.085*<br>(0.032) | -0.022<br>(0.018) | -0.010<br>(0.019) | -0.042<br>(0.024) | -0.076*<br>(0.024) |
| $\Delta \ln(\text{Pop})$      |                    | -0.025<br>(0.018)  |                   | -0.020<br>(0.010) |                   | -0.005<br>(0.013)  |
| $\Delta(\text{Benefit Rate})$ |                    | 0.365*<br>(0.049)  |                   | 0.027<br>(0.029)  |                   | 0.338*<br>(0.037)  |
| $\Delta(\text{Young Share})$  |                    | 0.004<br>(0.052)   |                   | 0.088*<br>(0.031) |                   | -0.084*<br>(0.039) |
| Time Dummies                  | x                  | x                  | x                 | x                 | x                 | x                  |
| Sample Size                   | 1850               | 1850               | 1850              | 1850              | 1850              | 1850               |
| R <sup>2</sup>                | 0.097              | 0.125              | 0.185             | 0.188             | 0.219             | 0.256              |

*Notes:* Regressions are run over the period 2004-2008. The dependent variable is  $\Delta(\text{Number of Crimes Recorded/Adult Population})$ . All regressions are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level.

TABLE 5: PANEL REGRESSIONS FOR ASYLUM WAVE CRIME RATES – ROBUSTNESS CHECKS

|                              | (1)                | (2)               | (3)                | (4)               | (5)               | (6)               |
|------------------------------|--------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
|                              | Violent            | Violent           | Violent            | Property          | Property          | Property          |
| $\Delta(\text{Asylum/Pop})$  | -0.222*<br>(0.092) | 0.014<br>(0.130)  | -0.026<br>(0.127)  | 0.201<br>(0.116)  | 0.947*<br>(0.168) | 0.696*<br>(0.160) |
| $\Delta \ln(\text{Pop})$     | -0.032*<br>(0.011) | -0.009<br>(0.010) | -0.034*<br>(0.011) | -0.016<br>(0.014) | -0.012<br>(0.013) | -0.020<br>(0.014) |
| $\Delta(\text{BenefitRate})$ | -0.055<br>(0.032)  | 0.009<br>(0.027)  | -0.058<br>(0.032)  | 0.256*<br>(0.040) | 0.270*<br>(0.035) | 0.249*<br>(0.040) |
| $\Delta(\text{YoungShare})$  | 0.154*<br>(0.027)  | 0.140*<br>(0.025) | 0.151*<br>(0.027)  | 0.007<br>(0.034)  | -0.042<br>(0.033) | -0.001<br>(0.034) |
| Time Dummies                 | x                  | x                 | x                  | x                 | x                 | x                 |
| Police Force Area            | x                  |                   | x                  | x                 |                   | x                 |
| IV                           |                    | x                 | x                  |                   | x                 | x                 |
| Sample Size                  | 2597               | 2597              | 2597               | 2597              | 2597              | 2597              |
| R <sup>2</sup>               | 0.366              | 0.347             | 0.377              | 0.253             | 0.186             | 0.262             |

*Notes:* Regressions are run over the period 2002-2008. The dependent variable is  $\Delta(\text{Number of Crimes Recorded/Adult Population})$ . All regressions are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level. The instrumental variable is the number of asylum seekers in dispersal accommodation.

TABLE 6: SUMMARY STATISTICS FOR DISPERSAL AND NON-DISPERSAL AREAS, 2001

|                                    | All Areas | Dispersal Areas | Non-Dispersal Areas | t-test of means |
|------------------------------------|-----------|-----------------|---------------------|-----------------|
| Unemployment Rate                  | 2.5       | 3.3             | 2.0                 | 8.6             |
| Benefit Claimant Rate              | 11.0      | 13.6            | 9.5                 | 8.1             |
| Youth Share                        | 15.0      | 16.8            | 14.1                | 8.9             |
| Total Crime Rate                   | 5.2       | 6.8             | 4.3                 | 9.2             |
| Violent Crime Rate                 | 1.5       | 1.7             | 1.4                 | 4.2             |
| Property Crime Rate                | 3.6       | 5.1             | 2.9                 | 10.6            |
| Prior $\Delta$ Total Crime Rate    | -0.02     | -0.02           | -0.02               | 0.1             |
| Prior $\Delta$ Violent Crime Rate  | 0.13      | 0.19            | 0.09                | 1.1             |
| Prior $\Delta$ Property Crime Rate | -0.14     | -0.21           | -0.11               | 1.4             |
| Count                              | 371       | 82              | 289                 |                 |

*Notes:* The change in crime rates is the two-year change between 1999 and 2001. All figures are weighted by adult population in the local authority.



TABLE 7: PANEL REGRESSIONS FOR A8 WAVE CRIME RATES – ROBUSTNESS CHECKS

|                               | (1)                | (2)               | (3)               | (4)                | (5)               | (6)               |
|-------------------------------|--------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
|                               | Violent            | Violent           | Violent           | Property           | Property          | Property          |
| $\Delta(\text{Cum A8/Pop})$   | 0.006<br>(0.021)   | 0.342<br>(0.343)  | -0.073<br>(0.661) | -0.081*<br>(0.026) | 0.290<br>(0.421)  | 0.142<br>(0.820)  |
| $\Delta \ln(\text{Pop})$      | -0.039*<br>(0.012) | -0.056<br>(0.040) | -0.030<br>(0.074) | -0.015<br>(0.015)  | -0.051<br>(0.049) | -0.044<br>(0.092) |
| $\Delta(\text{Benefit Rate})$ | -0.039<br>(0.034)  | -0.036<br>(0.073) | -0.027<br>(0.128) | 0.316*<br>(0.042)  | 0.278*<br>(0.090) | 0.270<br>(0.159)  |
| $\Delta(\text{YoungShare})$   | 0.119*<br>(0.033)  | 0.210<br>(0.111)  | 0.111<br>(0.194)  | -0.057<br>(0.040)  | 0.025<br>(0.136)  | 0.009<br>(0.240)  |
| Time Dummies                  | x                  | x                 | x                 | x                  | x                 | x                 |
| Police Force Area             | x                  |                   | x                 | x                  |                   | x                 |
| IV                            |                    | x                 | x                 |                    | x                 | x                 |
| Sample Size                   | 1850               | 1703              | 1703              | 1850               | 1703              | 1703              |
| R <sup>2</sup>                | 0.236              | 0.063             |                   | 0.314              | 0.190             | 0.315             |

*Notes:* Regressions are run over the period 2004-2008. The dependent variable is  $\Delta(\text{Number of Crimes Recorded/Adult Population})$ . All regressions are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level. The instrumental variable is the log of the number of A8 destinations flown to from airports within a 50 mile radius in the previous year.

TABLE 8: ARREST RATES BY NATIONALITY, A8 WAVE

|                        | (1)              | (2)              | (3)              | (4)              |
|------------------------|------------------|------------------|------------------|------------------|
| A8 Share in Population | 1.250<br>(0.090) | 1.040<br>(0.151) | 1.148<br>(0.089) | 1.026<br>(0.156) |
| All Crimes             | x                |                  | x                |                  |
| Property Crimes        |                  | x                |                  | x                |
| Clean Sample           |                  |                  | x                | x                |
| Sample Size            | 90               | 57               | 71               | 50               |
| R <sup>2</sup>         | 0.681            | 0.451            | 0.705            | 0.465            |

*Notes:* Regressions are run over the period 2004-2008. The dependent variable is the share in total arrests of A8 citizens. Standard errors in parentheses.

TABLE 9: DIFFERENCE-IN-DIFFERENCE ESTIMATES OF INCARCERATION RATES

|                | Asylum Wave          |                  | A8 Wave           |                   |
|----------------|----------------------|------------------|-------------------|-------------------|
|                | Non-Asylum Nationals | British          | Non-A8 Nationals  | British           |
| Wave Dummy     | 0.194<br>(0.081)     | 0.187<br>(0.096) | -0.078<br>(0.029) | -0.018<br>(0.040) |
| Group Dummy    | 0.156<br>(0.029)     | 0.286<br>(0.034) | -0.129<br>(0.016) | 0.013<br>(0.022)  |
| R <sup>2</sup> | 0.649                | 0.716            | 0.865             | 0.227             |

*Notes:* Regressions are run over the period 1993-2008. Wave Dummy equals 1 for the asylum/A8 group after the relevant wave begins and 0 before. Group Dummy equals 1 for the asylum/A8 group and zero for the comparison group. All regressions include the full set of time dummies. Standard errors in parentheses.

TABLE 10: VICTIMIZATION DESCRIPTIVE STATISTICS

| A: British Crime Survey, 2004-2008 |      |             |                       |             |              |             |
|------------------------------------|------|-------------|-----------------------|-------------|--------------|-------------|
|                                    | UK   | Asylum Wave | Asylum Wave Largest 5 | A8 Wave     | Other Non-UK | Sample Size |
| Crime Victim in Last Year (%)      | 31.6 | 22.4        | 23.7                  | 27.1        | 29.7         | 141378      |
| B: New Deal Evaluation, 2002-2004  |      |             |                       |             |              |             |
|                                    | UK   | Asylum      | Non-Asylum            | Sample Size |              |             |
| Crime Victim in Last Year (%)      | 35.4 | 31.0        | 29.6                  | 23725       |              |             |

*Notes:* Panel A from pooled British Crime Survey data (2004-5 to 2007-8 waves). The Asylum Wave percentages are weighted to reflect asylum shares as with earlier Tables. The Largest 5 Asylum Wave countries are: Afghanistan, Iraq, Serbia and Montenegro, Somalia and Sri Lanka. Panel B from pooled National Evaluation of the New Deal for Communities data (2002 and 2004 waves).

TABLE 11: VICTIMIZATION EQUATIONS, PR(CRIME VICTIM IN LAST YEAR)

|                          | British Crime Survey, 2004-2008 |                   |                   | New Deal Evaluation, 2002-2004 |                   |                   |
|--------------------------|---------------------------------|-------------------|-------------------|--------------------------------|-------------------|-------------------|
|                          |                                 |                   |                   |                                |                   |                   |
| Asylum                   |                                 |                   |                   | -0.142<br>(0.044)              | 0.047<br>(0.054)  | 0.032<br>(0.054)  |
| Asylum Wave<br>Largest 5 | -0.056<br>(0.024)               | -0.073<br>(0.024) | -0.076<br>(0.024) |                                |                   |                   |
| A8                       | -0.074<br>(0.019)               | -0.152<br>(0.019) | -0.155<br>(0.019) |                                |                   |                   |
| Other                    | -0.005<br>(0.006)               | -0.020<br>(0.006) | -0.021<br>(0.006) | -0.178<br>(0.019)              | -0.005<br>(0.031) | -0.016<br>(0.031) |
| Year Dummies             | Yes                             | Yes               | Yes               | Yes                            | Yes               | Yes               |
| Controls                 | No                              | Yes               | Yes               | No                             | Yes               | Yes               |
| Police Force Area        | No                              | No                | Yes               | No                             | No                | Yes               |
| Sample size              | 141378                          | 141164            | 141164            | 23725                          | 23725             | 23725             |

Notes: Standard errors in parentheses. Control variables for the BCS regressions are: age, gender, student, education (9 categories), urban/rural (8 categories), housing tenure (8 categories), number of children (10 categories), household income (15 categories), marital status (5 categories), years at accommodation (5 categories), ethnicity (5 categories), nationality within UK (5 categories). Years run from 2004 to 2008 and there are 42 police force areas. Control variables for the New Deal regressions are: age, gender, education (6 categories), region (9 categories), household income (9 categories), housing tenure (3 categories), years at accommodation (6 categories), household size (5 categories), household composition (4 categories), ethnicity (3 categories), employment status (3 categories), English language ability.

APPENDIX TABLE 1: IV PANEL REGRESSIONS FOR ASYLUM WAVE USING MORE DISAGGREGATED CRIME CATEGORIES

|                              | Violent            | Robbery           | Burglary          | Theft of MV       | Theft from MV     |
|------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|
| $\Delta(\text{Asylum/Pop})$  | -0.026<br>(0.127)  | 0.023<br>(0.030)  | 0.199*<br>(0.063) | 0.113*<br>(0.039) | 0.341*<br>(0.094) |
| $\Delta \ln(\text{Pop})$     | -0.034*<br>(0.011) | 0.001<br>(0.003)  | -0.006<br>(0.005) | -0.003<br>(0.003) | -0.012<br>(0.008) |
| $\Delta(\text{BenefitRate})$ | -0.058<br>(0.032)  | 0.072*<br>(0.007) | 0.102*<br>(0.016) | 0.040*<br>(0.010) | 0.034<br>(0.023)  |
| $\Delta(\text{YoungShare})$  | 0.151*<br>(0.027)  | 0.014*<br>(0.006) | -0.020<br>(0.013) | -0.011<br>(0.008) | 0.015<br>(0.020)  |
| Sample Size                  | 2597               | 2597              | 2597              | 2597              | 2597              |
| Share in Total               | 0.41               | 0.05              | 0.17              | 0.12              | 0.25              |
| R <sup>2</sup>               | 0.377              | 0.167             | 0.231             | 0.235             | 0.188             |

*Notes:* Regressions are run over the period 2002-2008. The dependent variable is  $\Delta(\text{Number of Crimes Recorded/Adult Population})$ . All regressions include time and police force area dummies and are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level. The instrumental variable is the number of asylum seekers in dispersal accommodation.

APPENDIX TABLE 2: IV FIRST STAGE REGRESSIONS

|                                       | Asylum Regression | A8 Regression      |
|---------------------------------------|-------------------|--------------------|
| $\Delta(\text{Dispersed Asylum/Pop})$ | 1.022*<br>(0.020) |                    |
| $\ln(\text{Airports}(t-1))$           |                   | 0.022*<br>(0.008)  |
| $\Delta \ln(\text{Pop})$              | 0.008*<br>(0.001) | 0.111*<br>(0.012)  |
| $\Delta(\text{Benefit Rate})$         | -0.004<br>(0.004) | 0.183*<br>(0.034)  |
| $\Delta(\text{YoungShare})$           | 0.020*<br>(0.004) | -0.285*<br>(0.037) |
| Sample Size                           | 2597              | 1703               |
| R <sup>2</sup>                        | 0.610             | 0.129              |
| IV F Stat                             | 2634              | 7.7                |

*Notes:* First-stage IV regressions run over the period 2001-2008 (for asylum regression) and 2004-2008 (for A8 regression). Regressions also include time dummies. All regressions are weighted by adult population. Standard errors in parentheses and \* indicates significance at the 5% level.