



29 November 2007

## **AMENDMENT**

### **A Review of the Potential Use of Administrative Sources in the Estimation of Population Statistics**

A production error has been corrected in this document. The title of Chart 3 incorrectly stated 'excluding dependants'. This has now been changed to 'including dependants'.

ONS apologises for any inconvenience caused

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# **A Review of the Potential Use of Administrative Sources in the Estimation of Population Statistics**

## **Executive Summary**

This paper explores estimates of international immigration at local authority district level from three administrative data sources. These are (a) the Worker Registration Scheme (WRS), (b) National Insurance Number (NINo) allocations, and (c) the Patient Register Data System (PRDS) recording new registrations with General Practitioners (GPs). Reasons for differences between sources are explored with reference to outlier local authorities, where the differences are greatest. Comparison is also made with ONS estimates of immigration used in the mid-2006 estimates.

Overall a good level of consistency is found between some sources. This indicates that there is scope for using such sources in modelling or linking approaches to improve ONS estimates. However a number of outliers are identified where estimates are more divergent. These need to be explored further before improvements can be made. Among the most important reasons for differences between estimates are the populations covered by the sources, different length of stay criterion and non-compulsory registration with some sources.

## 1. Introduction

1.1 It is increasingly important to have high quality statistics on the population, and the main components of population change, for policy development and for planning and providing public services. Achieving this aim is challenging in the context of increasingly complex lifestyles and changes in the scale and patterns of migration to and from the UK. It is widely recognised that migration is the most difficult component of population change to measure and ONS is undertaking a substantial programme of development work in order to improve its migration statistics (the IMPS project<sup>1</sup>). This work highlighted some improvements to methodology that could be made immediately and these were implemented in the mid-2006 population estimates. Improvements to date have been largely based on making the best use of existing sample surveys, the International Passenger Survey (IPS) and the Labour Force Survey (LFS). It is noted that the sources for immigration measurement are not used consistently across the constituent countries of the UK.

1.2 The estimates from sample surveys are only reliable to an intermediate geography level. Other data sources are required to distribute international migrants within intermediate geographies to local authority level. Census data are used for this purpose in the existing method. International migrants are also included in administrative data sources and in some cases can be separately identifiable from them. For instance, individuals register to access NHS services or register to work. ONS uses administrative data sources in estimating internal migration flows within the UK (moves of people between areas of the country) and are keen to exploit these sources further. As part of the IMPS project, some initial research has been undertaken into how such sources might be used to improve population statistics. Potentially, administrative sources offer a rich source of data on international migrants, especially at local authority or small area levels where sample sizes from surveys are currently insufficient to provide reliable counts. They are also annually (or more frequently) updated unlike the Census; however, before they could be used, ONS would need to be confident that it was not simply introducing a different and potentially larger set of errors and can adequately explain outliers in the data.

1.3 The aim of this paper is to illustrate the recent counts and distributions of international migrants across England and Wales collected from the three key administrative sources and to help explain why there are differences between them. The sources compared are (a) the Worker Registration Scheme (WRS), (b) National Insurance Number (NINo) allocations, and (c) the Patient Register Data System (PRDS) recording new registrations with General Practitioners (GPs). Further information on the sources is provided in the second section of this paper, the Sources Overview. The third section of the paper presents a series of charts

comparing international in-migration at local authority level across England & Wales. The WRS and NINo data used in the comparison charts are already published at local authority level<sup>2</sup>. It is noted that WRS data are currently only available to researchers with a '.gov.uk' address. The PRDS data for mid-2006 are provided in Appendix A. Section four shows how counts from the PRDS compare to ONS' estimates of international migration based on the improved methods that were implemented in August 2007 which use a combination of sample surveys. Conclusions are drawn in the final section (Section five).

## **2. Sources Overview**

2.1 This section describes the administrative sources discussed in the paper. It explains why the data are collected, the populations covered and not covered, and identifies issues that are relevant when the data are used for the purpose of assisting with the estimation of international migration measurement. A more detailed discussion, including other sources available, is provided by Rees and Boden<sup>3</sup>.

2.2 A key strength of using administrative sources for statistical purposes is that they typically provide comprehensive counts, whereas survey estimates are subject to sampling and non-sampling errors. The comprehensive coverage facilitates analyses at sub-group level, including for low level geographies. In addition, administrative records often provide extra information such as gender, age, nationality, occupation, and place of residence or employment. One of the biggest disadvantages in using administrative sources is that the statistics derived from them are a by-product of an administrative system that is not designed primarily for statistical purposes. This implies a dependency on the coverage and quality of the administrative processes (for example, with respect to GP records, whether everyone registers with a GP or de-registers when they leave the country). A further disadvantage of administrative sources is the lack of control relative to surveys over what information is collected and over changes in the administrative processes or, in the extreme, the continued existence of the system.

2.3 There is no administrative source set up expressly for the purpose of international migration measurement. As a result, what administrative sources collect and who they cover may not match the definitions needed for and used in ONS' mid-year population statistics. Typically administrative sources will include some visitors and short term migrants who stay for less than twelve months as well as those who move for more than 12 months (long-term migrants). The international migration data used in the mid-year population estimates only include long-term migrants, in line with recommended UN definitions. In addition, the relevant administrative sources provide no, or very little, information on international emigration; indeed, not even good quality data exist from these sources on those in-migrants who subsequently leave the country because there is usually no incentive to de-register.

## **2a. The Worker Registration Scheme (WRS)**

### ***Purpose***

2.4 Following expansion of the European Union on 1<sup>st</sup> May 2004, the Government put in place transitional measures to regulate access to the labour market and to restrict access to benefits for nationals from new member states. In order to work as employees, nationals moving to the UK from the so-called A8 countries\* are required to register with the WRS. Individuals who were already working legally on the 1st May 2004 are not required to register.

### ***Coverage***

2.5 The population covered on the WRS includes:

- Long-term international migrants from A8 countries working as employees in the UK;
- Visitors and short term migrants from A8 countries, staying for over a month, and intending to work as employees in the UK;
- Dependents of WRS applicants. It is likely that there is some double counting as dependents may also be registered in their own right on the WRS.

but excludes:

- Individuals from A8 countries who are self employed;
- A8 migrants staying for less than a month;
- A8 migrants who migrate or visit the UK for reasons other than work, for example including potentially many students;
- Migrants from non-A8 countries.

### ***Issues***

2.6 Other relevant issues on the published data used in this paper include:

- The data are based on the applicant's place of work rather than usual residence (the latter are required for ONS mid-year population statistics). Although residence is also collected, Home Office research indicates that workplace is more accurate on the WRS<sup>4</sup>;
- They are by date of application rather than date of entry into the UK (as used in ONS mid-year population statistics). The Accession Monitoring Report<sup>5</sup> publishes WRS data by the date the application form was completed;

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\* Eight of the ten countries joining the EU in May 2004 are referred to as the A8. These are the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia. Citizens from Cyprus and Malta are not required to register with the WRS.

- The data are published for the period May-2004 to March-2006 (a 23 month period). Data after March 2006 are published quarterly. To produce an estimate between mid-2005 and mid-2006, data between May-2004 and June 2006 (a 26 month period) are multiplied by 0.46 (12/26);
- In the comparisons in section 3, dependents of WRS applicants have to be included or excluded depending on the sources compared;
- WRS operates as a transitional arrangement following EU expansion in May 2004 so can not offer a permanent alternative or supplementary count. Data will not be available from the WRS after 2009, nor is it being collected from January 2007 for nationals from the latest accession countries (Bulgaria and Romania).

## **2b. National Insurance Number (NINo) Allocations**

### ***Purpose***

2.7 National Insurance Numbers are issued to individuals over the age of 16 and are used to record a person's national insurance contributions and social security benefit claims.

### ***Coverage***

2.8 The population covered includes:

- All non-UK born nationals aged 16+ working, planning to work or claim benefits legally in the UK;
- All registrations are included, regardless of how long individuals intend to stay.

but excludes:

- Dependents of NINo applicants, unless they work or claim benefits;
- Individuals from overseas not working, planning to work, or claim benefits - for example, this will include many students;
- Those with an existing national insurance number, for example returning UK nationals;
- Migrants who are not of working age if not claiming benefits.

### ***Issues***

2.9 Other relevant issues on the published data used in this paper include:

- The data refer to the financial year, 6<sup>th</sup> April to 5<sup>th</sup> April. ONS population statistics refer to mid-year or calendar year reference periods so there is an inconsistency with time periods;

- De-registration is likely to be an issue for short term migrants – so for any time period, the source may be counting people who have already left the country by the end of the time period;
- A8 migrants can be separately identified for comparison with WRS data.

## **2c. Patient Register Data System (PRDS)**

### **Purpose**

2.10 Patients register with GPs to access NHS services. A record, known as a 'flag 4', is made when a person states their previous address as outside the UK and has resided outside the UK for at least 3 months prior to their first registration with a GP in the UK.

### **Coverage**

2.11 The population covered includes:

- All people requiring access to NHS services through a GP, regardless of age or reason for visit. So, for example, many children and students will be covered;
- Individuals staying in the UK for longer than 3 months can register with a GP.

but excludes:

- Those not wishing to access NHS services from a GP;
- Those staying in the UK for under 3 months.

### **Issues**

2.12 Other relevant issues on the data used in this paper include:

- Information on country of origin is not routinely collected for all new registrations and so A8 migrants cannot be separately identified;
- The PRDS is due to be replaced by a new system (The Patient Data Service) in the longer term through the modernisation of NHS systems. Although registered as a requirement, it is unclear at this stage what information on international migration will be made available from this new source. ONS are continuing to liaise with Department for Health on these developments.

## **3. Comparison of International Migration from WRS, NINo and PRDS**

3.1 This section compares counts of international in-migrants from the three administrative sources for the year mid-2005 to mid-2006. The aim of the comparisons is to demonstrate how the data from these sources compare across all local authorities in England

and Wales, then identify and consider why divergent counts may occur. Comparisons are made using data that are publicly available where possible at local authority level. For context, table 1 provides total flow to England & Wales from the three administrative sources as well as the equivalent estimate made by ONS used in the mid-2006 population estimates. It is apparent from this table that the total flow on NINo allocations is highest when compared to the PRDS, WRS (A8 migrants only) and ONS estimates.

**Table 1 – Total International Migration Flow to England & Wales (mid-2006) from Three Administrative Sources and Estimates Produced by ONS**

	NINo (all)	PRDS (all)	NINo (A8 only)	WRS (A8 only)	WRS (inc. dependants)	ONS (all)
Total flow	595,500	567,500	236,100	170,700	185,800	492,300

3.2 The comparisons made between the sources are:

1. NINo (A8 migrants only) & WRS (A8 migrants, excluding dependents), (Chart 1);
2. PRDS & NINo (all new overseas additions), (Chart 2);
3. PRDS & WRS (A8 only, including dependents), (Chart 3).

### 3a. Comparison charts

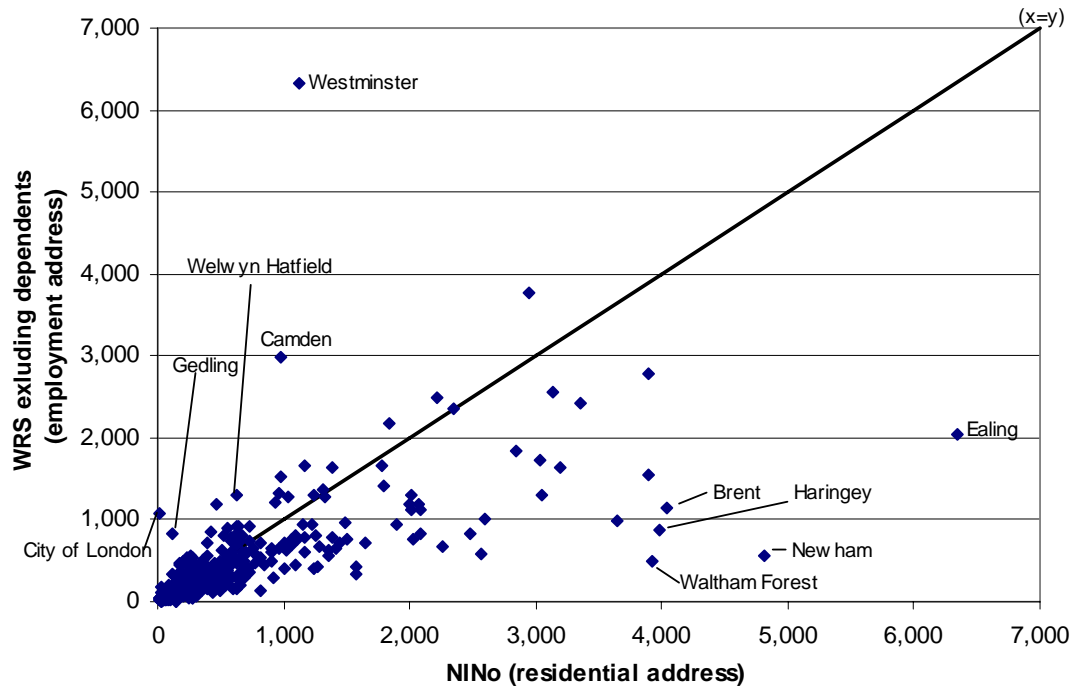
3.3 Data shown in charts 1 to 3 compare estimates of the numbers of in-migrants from the three different sources. Each chart includes an  $x=y$  line to demonstrate where the counts would be equal to each other. Outlier local authorities have been identified on each chart using the standardised residuals from a chi-square test<sup>†</sup>. The largest five standardised residuals either side of the line have been identified on each chart and are discussed further in section 3b. Finally, each chart also contains an  $R^2$  statistic to provide a measure of the association between both sets of estimates.

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<sup>†</sup> Standardised data are compared to avoid a predominance of very large differences (if absolute numbers are compared) or very small places (if percentage differences are compared).

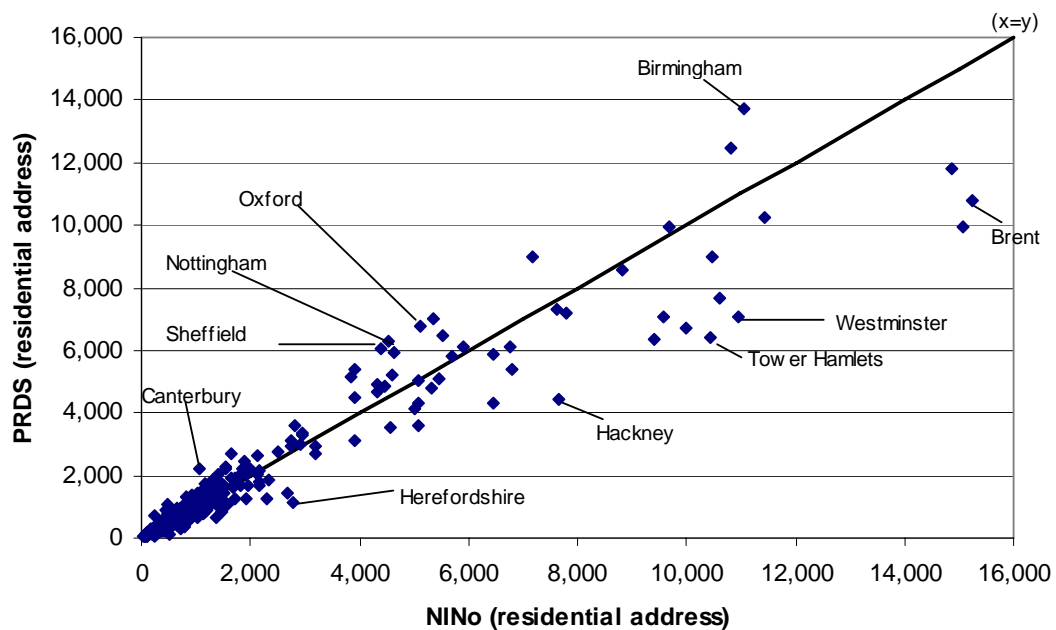
**Chart 1 – Comparison of mid-2006 International Migrants on the WRS (excluding dependents) and NINo Allocations to Migrants from A8 Countries**

$R^2 = 0.4032$



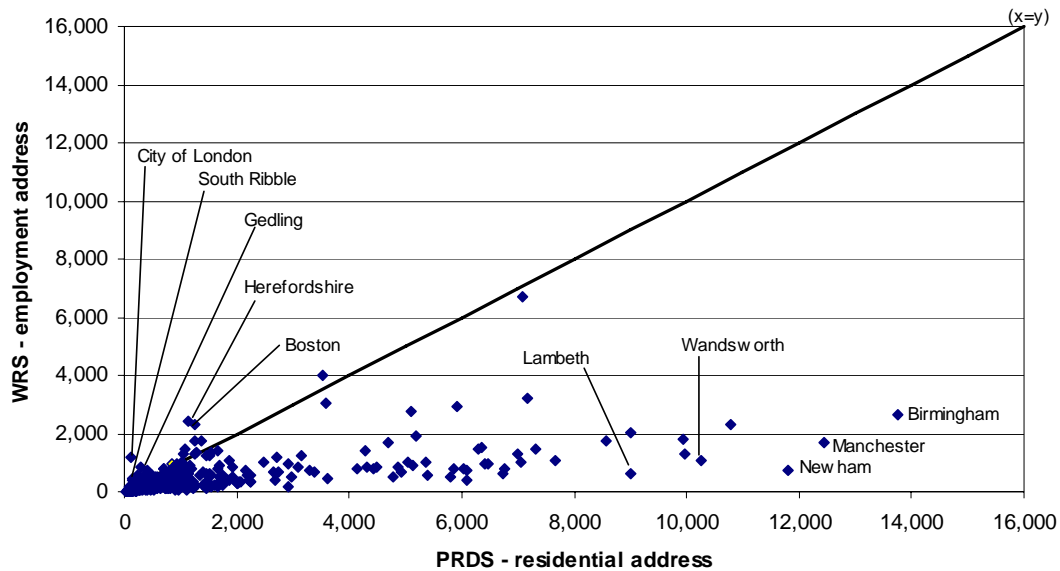
**Chart 2 – Comparison of mid-2006 International Migrants on the PRDS and NINo Allocations to Migrants from All Countries**

$R^2 = 0.9167$



**Chart 3 – Comparison of mid-2006 International Migrants on the PRDS (from all countries) and on the WRS (including dependents, from A8 countries)**

**$R^2 = 0.3648$**



3.4 To supplement the comparison charts, Table 2 shows the number and percentage of local authorities which are higher on either source. The table shows that for the majority of local authorities (70 per cent), NINo allocations (to A8 nationals) are higher than WRS registrations. There are a number of reasons why NINo allocations would be expected to be higher. Firstly, workers who are self-employed are not required to register on the WRS, but are required to have a NINo. Secondly, short-term visitors (staying for less than a month) are not required to register on the WRS but do require a NINo if they are to work or claim benefits. In 113 local authorities the WRS is higher than NINo allocations. A key reason for this is likely to be that WRS data are published on employment address rather than residential address (as for NINo allocations). On this basis, NINos are likely to be higher in some areas where individuals are resident but not employed.

**Table 2 – Number (and Percentage) of LADs where Migration is Higher in Charts 1-3<sup>‡</sup>**

Chart	Source A	Source B	Source A Higher	Source B Higher
1	NINo (A8)	WRS	262 (70%)	113 (30%)
2	NINo	PRDS	194 (52%)	180 (48%)
3	PRDS	WRS	342 (91%)	34 (9%)

3.5 As all migrants are eligible to register with a GP, it might be expected that the PRDS records more migrants than NINo allocations (where individuals will only register if they intend to work or claim benefits). Table 2 shows that in fact slightly more local authorities have higher international migrants recorded on NINo allocations than on the PRDS. This may relate to more short-term visitors (under a month) with NINos, while individuals generally can't register with a GP if they intend to stay for less than 3 months. Indeed, while short-term migrants are required to obtain a NINo before they can work legally, there is no need to register with a GP at all if NHS services are not required. As well as migrants never or delaying registration with a GP, it is also known that some national insurance numbers are allocated but never used.

3.6 The PRDS should, given the much larger migrant population covered, record more international migrants than the WRS - as long as sufficient migrants choose to register with a GP. Table 2 shows that in 91 per cent of local authorities the PRDS does indeed record more international migrants. The use of employment address is likely to be a reason why, in the remaining 9 per cent of cases, the WRS is higher in some LADs. Such places include Boston and Herefordshire where large numbers of international migrants are employed in agriculture.

### **3b. Why local authorities may be shown as outliers**

3.7 This paper does not discuss detailed migration estimates from all 376 LADs. Instead, the reasons why certain areas have been identified as outliers will be considered further in this section. The final paragraph of the section considers whether the sources are consistent with each other if outliers are excluded from the analysis.

#### *a. Workplace definition used in published WRS data*

3.8 A number of London Boroughs are identified as outliers when comparing WRS data to other sources. An explanation for this is that the WRS uses a workplace definition whereas the others use a residence definition. While there are a large number of employment

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<sup>‡</sup> In a smaller number of cases counts from administrative sources are equal hence the total number of local authorities in table 2 does not always equal 376.

opportunities in central London (for example, in the City), it is generally less expensive to be resident elsewhere in the wider London area (for example in Newham, Brent or Ealing). This is confirmed by further exploration of individual WRS records (not shown) indicating that the number of individuals registered as resident, say in Westminster, is much smaller than registered as working there.

3.9 The workplace population of international migrants also differs from the resident population outside London. Research by the Audit Commission<sup>6</sup> (2007) using WRS data has shown that migrant workers tend to be prepared to travel further than other low paid workers. Areas outside London where the WRS is particularly high compared to other sources include Gedling, Boston, and Herefordshire. It may be the case that such travel to work patterns are specific to particular employment sectors, the later two districts noted above are likely to include particularly high levels of seasonal agricultural employment.

*b. Employment agencies in WRS data*

3.10 Investigation into individual record level data suggests that there are large numbers of WRS migrants registered to work with employment agencies. If the employment address given is that of the employment agency, they may actually work in another local authority. Initial data analysis of WRS records (not shown) indicates that Gedling is typical of an area where migrants state an employment agency as their employer when registering with the WRS. The discrepancy between WRS and NINo (A8) allocations in Gedling suggests that workers employed through such agencies may be prepared to travel between districts. Again this would indicate a relationship between employment sector and travel to work distance.

*c. Inclusion of more short-term migrants on NINo allocations*

3.11 A NINo is required to work or claim benefits regardless of length of stay. Research into short-term migration has suggested that, of all stays for less than a year, there is a particular skew towards stays of less than a month<sup>7</sup>. Individuals staying for less than a month are not required to register with the WRS whereas generally only individuals staying for longer than three months can register with a GP. Inclusion of very short visits on NINo allocations may help explain higher counts than on the WRS or through GP registrations in London Boroughs such as Westminster and Brent.

*d. Loss of international migration marker (flag 4)*

3.12 The 'flag 4' marker on PRDS data (indicating an individual is an international migrant) is lost if a migrant re-registers with a second GP within the same year. Research carried out by ONS<sup>8</sup> using International Passenger Survey data indicated that international migrants

initially moving to London were more likely to move to another region of the UK than international migrants initially moving to other regions. This may help explain the lower flag 4 data observed for some London local authorities, such as Westminster, Hackney and Brent.

*e. Short-term migrants accessing NHS services*

3.13 Short-term migrants may be less likely to register with a GP if they do not require access to NHS services during their stay. Herefordshire is typical of an area which is likely to have relatively high levels of short-term migration due to the seasonal nature of agricultural employment in the area. In the district the PRDS is lower than both NINo allocations and the WRS, despite the PRDS having wider population coverage.

*f. Wider coverage of PRDS data*

3.14 Each of the outlier areas identified on chart 2 with higher PRDS counts has a large student population. Some universities attract large numbers of foreign students and these universities may make particular effort to encourage students to register with a GP. While young adults are generally slower to register with GPs, students at many universities are encouraged to register when beginning their studies. However it is unclear whether universities are consistently encouraging students to register with GPs at their term-time address. ONS are currently undertaking research into how students might be better estimated within the mid-year estimates process. Foreign students are one of the main migrant groups not covered by NINo allocations or WRS data, unless they undertake paid work during their studies. PRDS data are also likely to be higher than the WRS as international migrants from anywhere in the world are covered by the former source whereas only A8 migrants need to register with the latter. Part of the explanation for outliers identified on chart 3 may relate to large flows of international migrants from non-A8 countries in areas like Newham, Manchester and Birmingham where immigration is particularly high.

3.15 In practice, there are likely to be interactions occurring between a-f, as described above, with effects working in the same or different directions. The complexity of different migrant populations being covered by different sources is demonstrated by the outliers in chart 2. Westminster is an area with a large international student population but the PRDS is much lower than NINo allocations in the Borough.

3.16 Analyses demonstrate that the sources show relatively consistent counts and distributions for the remaining local authorities if the outliers are removed. Comparing NINo and PRDS estimates, but removing the 10 per cent of local authorities with the largest differences, increases the  $R^2$  value from 0.9167 to 0.9723. This would suggest that the

administrative sources do provide a good level of consistency, although the outliers would have to be accounted for within the estimation process.

#### **4. Comparisons with ONS Mid-Year Population Estimates**

4.1 Improved methods for distributing international in-migrants to local areas have been incorporated in the first release of mid-2006 population estimates and in revisions to published estimates for mid-2002 to mid-2005, issued in August 2007. The three key administrative sources compared in this paper have also been compared to the improved local authority in-migration estimates<sup>§</sup>. A key issue with the administrative sources used in section 3 is that they cover different populations to those covered in the mid-year estimates. While the migrant counts will inevitably differ for this reason, it is still possible to consider the distribution across England and Wales. Comparisons made in this section concentrate on the PRDS given that the migrant population covered is closest to that used by ONS. Appendix B provides equivalent comparisons between ONS mid-2006 estimates and the WRS and NINo data.

4.2 Overall there are 230 (61 per cent) local authorities where the PRDS provides higher in-migrant estimates than the ONS estimate. This is largely due to the total number of in-migrants on the PRDS being 15 per cent (75,173) higher than recorded on the ONS estimates. The differences are not surprising for the reasons described above (for example, the PRDS will include people staying for between 3-12 months which the ONS numbers will not); however, it is important to note that this is not always the case with 146 local authorities having higher ONS estimates. To control for the large difference at national level, chart 5 compares the percentage of the England and Wales total for each local authority between the two sources. This comparison shows that, though there are still outliers, overall the estimates are closer to each other, the  $R^2$  value is 0.8668.

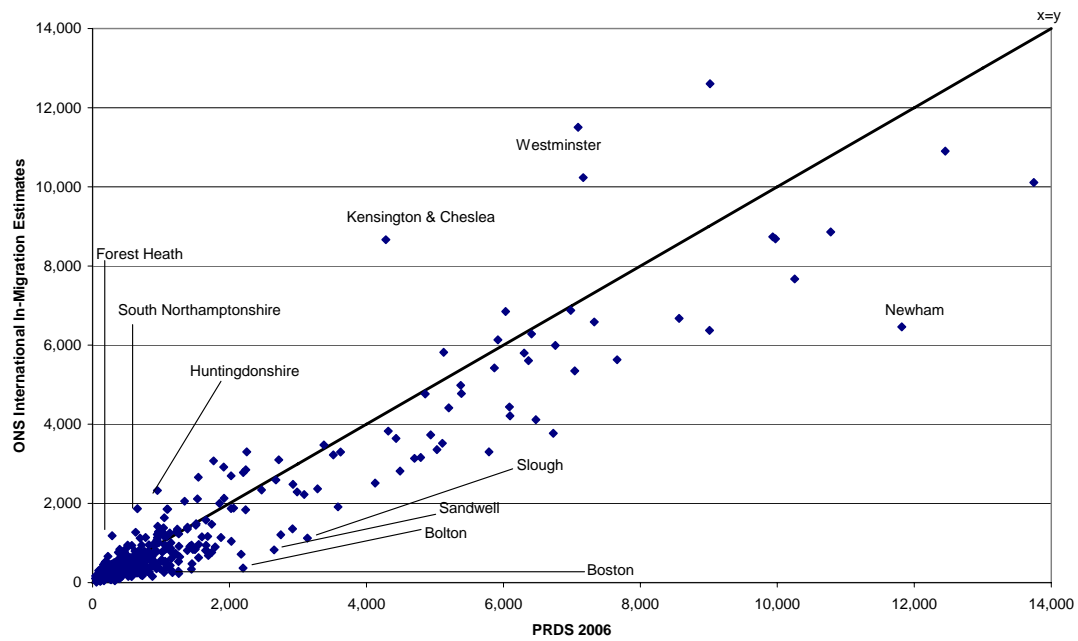
4.3 Outliers have been identified on charts 4 and 5 using the same standardisation approach as outlined in section 3.

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<sup>§</sup> ONS estimates of international migration at LAD level include moves between Eire and the UK. These methods are unchanged.

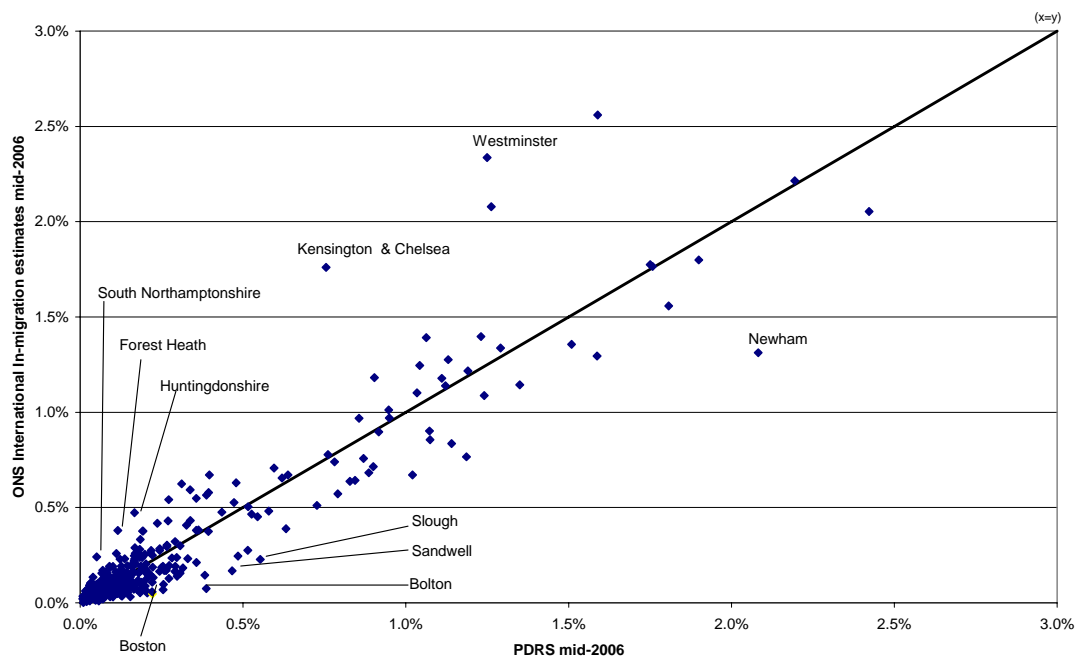
**Chart 4 – Comparison of mid-2006 International Migrants used in mid-2006 Population Estimates and on the PRDS**

$R^2=0.8668$



**Chart 5 – Comparison of Percentage Distribution of International Migrants to each LAD used in the mid-2006 Population Estimates and on the PRDS**

$R^2=0.8668$



4.4 London Boroughs are among the key outliers identified in chart 4. For example, ONS estimates are higher for Kensington & Chelsea and Westminster whereas Newham is higher on the PRDS. These Boroughs illustrate the difficulty of using a single source to count or distribute international migrants. As described in section 3.12, the PRDS count for Westminster may be too low as a result of the loss of the 'flag 4' marker upon re-registration with a GP. However other potentially important factors could include second home owners and foreign students not registering with a GP in Westminster. It is however difficult to quantify these effects. Reasons for Newham being lower on ONS estimates may relate to short-term migrants on the PRDS.

4.5 An issue causing differences for some of the remaining local authority outliers (Forest Heath, South Northamptonshire and Huntingdonshire) is coverage of foreign armed forces in the ONS estimates. Since the mid-2006 estimates, dependents of foreign armed forces travel into and out of the UK on commercial flights and so are sampled in the International Passenger Survey. In turn this means they are included in ONS' immigration estimates. Though this does not affect most local authorities, the impact is large in the small number with US armed forces bases. Dependents of foreign armed forces generally do not register to access NHS services so are not included on PRDS data.

## **5. Conclusions**

5.1 This paper presents an analysis of local level comparisons of three administrative sources which are key sources covering international migrants. The focus of the paper was on using data which are already publicly available, specifically data from the Worker Registration Scheme and National Insurance Number allocations. Registrations with GPs to migrants from outside the UK (from the Patient Register Data System) were also compared. It was noted that the strengths of these sources include that the migrant counts do not include sampling error and that they are available at individual record level. However the populations they cover are not the same as that used in the mid-year estimates. Most importantly, the administrative sources discussed in this paper will include some visitors and/or short-term migrants. A further limitation with all the administrative sources considered is the lack of information they provide on emigration.

5.2 A number of reasons were identified in the paper as to why counts differ. Some of the key reasons are:

- Large populations are excluded from some of the sources e.g. students (WRS/NINo);
- Non-compulsory registration can lead to delays in registration or potentially migrants not registering at all (PRDS);

- The loss of the international migration marker if there is an internal migration move shortly after the initial move (PRDS);
- Different length of stay criterion;
- Referencing to place of work rather than place of residence (WRS).

There is also uncertainty around some of the long-term availability of some of the sources. The WRS is only in place as a transitional measure and the PRDS is due to be replaced by the Patient Data Service in the longer term. ONS are keen to ensure that the PRDS' replacement can collect improved information on international migrants.

5.3 Among the outliers identified in section 3.3 was a particular concentration of London Boroughs. Key reasons why London Boroughs tend to appear as outliers are the workplace/residence definition used, the loss of 'Flag 4's' on re-registrations with GPs and the delay in registration with GPs of some groups. However other factors may also be important such as international students and short-term migrants. Comparison between PRDS and ONS' international migration estimates for mid-2006 also showed that London was one of the areas where estimates were most divergent. International migration to Central London Boroughs tended to be low on the PRDS, whereas to outer London it was relatively high.

5.4 Areas likely to have short-term migrants also tended to be outliers in comparisons, particularly areas with large amounts of agricultural employment. Examples of these types of area include Herefordshire and Boston.

5.5 It is concluded that, when considering international migration across all local authorities, there are discrepancies which are not always in line with what would be expected given the migrant populations covered. Perhaps most importantly, counts from the sources are not in the same direction for all areas, discrepancies between sources have been shown to be in both directions. If sources had been consistently in the same direction, it might have been possible to directly use the distribution from these sources.

5.6 The migrant populations covered by PRDS data have been shown to be most in-line with the population covered in ONS' mid-year population statistics. However, estimates from the PRDS do not provide a distribution across London consistent enough with other sources to be used directly. There are also inconsistencies between sources outside London. Analysis carried out in this report should form the basis of further work to be undertaken into administrative sources. In particular research is required to explain why estimates are divergent. The reasons put forward in this paper are only indicative of the likely causes.

5.7 In summary, research within the IMPS project to date shows that:

- There are significant differences in the local authority data collected from these three key administrative sources. This is not surprising because they are all measuring something different and have not been designed to specifically measure international migration, or to be consistent with each other. If greater consistency is to be achieved, then the data collected from these administrative sources need to be better tailored by Departments to meet the need for improved migration data;
- Using any one administrative source, in preference to another and without any adjustment, linking or modelling, is unlikely to meet the requirement for improved migration statistics on a consistent basis across local authorities. Nor is there any measure that ONS has to assess the quality of such estimates from any particular source for any individual local authority;
- The reasons for the observed differences between sources are complex, especially when many factors are influencing this in different directions. An effective administrative sources model would ideally need to (1) be robust over time within individual local authority areas and (2) be consistent across local authorities. Achieving (1) is likely to be very difficult in itself because it is likely that the factors affecting the sources, as described in the paper, are also changing over time and/or are subject to discontinuities (eg. if a University has a campaign to encourage its students to register with their local GP);
- There is no evidence to date from the IMPS project to suggest that the use of these key administrative sources without adjustment, linking or modelling would provide an improvement on the current ONS population estimates, across all local authorities (indeed, the evidence tends to suggest the opposite). This will not come as a surprise to many users who understand the complexity of these sources and it does not imply that administrative data can not be valuable at the individual local authority level or that approaches can not be developed to make more effective uses of these data in the future.

5.8 ONS will be taking forward the exploration of administrative sources through the recommendations of the Taskforce on Migration Statistics. These recommendations include exploring the linking of records from administrative sources and the use of administrative sources other than those explored in this paper e.g. HESA data for students and School Census data for migrants and their families. During the next phase of the work, ONS is also keen to learn more from the experiences to date that some local authorities have had in reconciling sources and in trialling different modelling approaches. This will be particularly important in identifying whether and how short term migrant estimates can be best produced by ONS at a regional and local authority level.

## References

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<sup>1</sup> Improving Migration and Population Statistics (IMPS) updates can be found at:

[www.statistics.gov.uk/statbase/Product.asp?vlnk=14834](http://www.statistics.gov.uk/statbase/Product.asp?vlnk=14834)

<sup>2</sup> WRS data is published on the Local Government Analysis and Research Website ([www.lgar.local.gov.uk](http://www.lgar.local.gov.uk)). NINo data is published on the Department for Work and Pensions Website ([www.dwp.gov.uk](http://www.dwp.gov.uk)).

<sup>3</sup> Rees and Boden (2006) *Estimating London's New Migrant Population*, published at:

[www.london.gov.uk/mayor/refugees/docs/nm-pop.pdf](http://www.london.gov.uk/mayor/refugees/docs/nm-pop.pdf)

<sup>4</sup> See notes to published WRS tables at [www.lgar.local.gov.uk](http://www.lgar.local.gov.uk)

<sup>5</sup> Home Office (2007) *Accession Monitoring Report*, published at:

[www.ind.homeoffice.gov.uk/aboutus/reports/accession\\_monitoring\\_report](http://www.ind.homeoffice.gov.uk/aboutus/reports/accession_monitoring_report)

<sup>6</sup> Audit Commission (2007) *Crossing Borders: Responding to the local challenges of migrant workers*, published at:

<http://www.audit-commission.gov.uk/reports/NATIONAL-REPORT.asp?CategoryID=&ProdID=05CA5CAD-C551-4b66-825E-ABFA8C8E4717>

<sup>7</sup> Smith and Sharfman (2007) *The Feasibility of making short-term migration estimates*, Population Trends No 127

<sup>8</sup> Office for National Statistics (2007) *Improved Methods for Estimating International Migration Geographical Distribution of Estimates of In-migration*, published at:

[www.statistics.gov.uk/downloads/theme\\_population/Geog\\_distn\\_in-migs.pdf](http://www.statistics.gov.uk/downloads/theme_population/Geog_distn_in-migs.pdf)

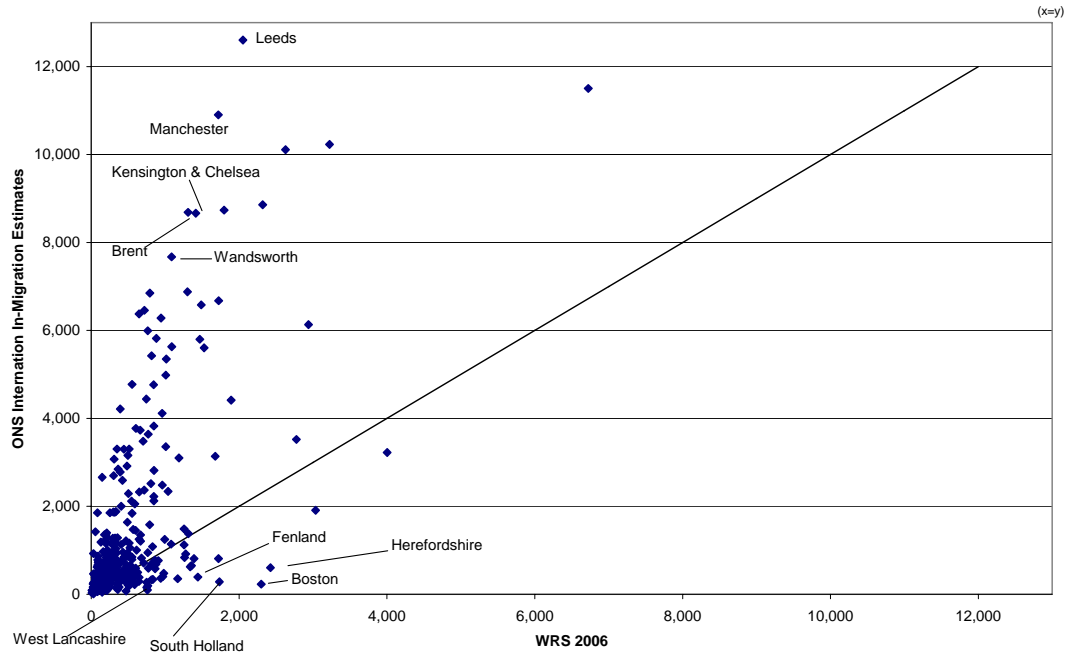
**Appendix A – PRDS ‘Flag 4’ Data Mid-2006 at Local Authority District Level**

[www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/appA.xls](http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/appA.xls)

**Appendix B – Comparisons with ONS International In- Migration Estimates**

**Chart B1 – Comparison of mid-2006 International Migrants used in mid-2006 Population Estimates and on the WRS**

**R<sup>2</sup> = 0.4195**



**Chart B2 – Comparison of mid-2006 International Migrants used in mid-2006 Population Estimates and NINo Allocations**

**R<sup>2</sup> = 0.7834**

