



Home Office

Sizing the unauthorised (illegal) migrant population in the United Kingdom in 2001

Jo Woodbridge

Home Office Online Report 29/05

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Summary

As in other countries, the number of 'unauthorised' or 'illegal' migrants (including failed asylum seekers) in the UK is unknown. However, a number of other countries have tried to develop methodologies to estimate this population. One of the methodologies, the Residual Method used in the USA, is the only one that currently can sensibly be applied in the UK. This report details how that methodology has been adapted to obtain an indication of the number of unauthorised immigrants living in the UK. It must be emphasised that this is just one method for such an estimation and that over-reliance must not be placed on the results in the absence of the means to produce other estimates using different methods.

The Residual Method takes as its starting point the foreign-born population recorded in the UK census conducted in April 2001 and then deducts an estimate of the foreign-born population here legally. The difference is an estimate of the number of unauthorised migrants in the UK.

Using the Residual Method, the total unauthorised migrant population (including failed asylum seekers) living in the UK in April 2001 has a central estimate of 430,000. These 430,000 constituted 0.7 per cent of the total UK population of 59 million. This compares to seven million estimated unauthorised migrants in January 2000 in the United States, 2.5 per cent of the total US population of just over 281 million.

Background

The 'unauthorised' or 'illegally resident' migrant population in the UK is made up of quite distinct categories. Broadly, these cover anyone who does not have valid leave to remain in the UK and will include:

- illegal entrants (including clandestine entrants and those using deception on entry by presenting false documents or misleading immigration officials);
- overstayers (those who have not left the UK after valid leave to remain has expired); and
- failed asylum seekers who do not comply with instructions to leave the UK, who are not appealing or who have exhausted their rights of appeal (including those who abscond during the process).

In addition, there will be migrants who are legally in the UK but are breaching the conditions of their leave to remain (particularly through working). This category is not included in the definition used in this report unless their leave to remain has been removed as a result of breaching the conditions of that leave.

A study¹, published in 2004 by the Home Office, reviewed a variety of methods used by researchers and government agencies in other countries to estimate the size of their unauthorised migrant populations and assessed the viability of using these methods in the UK.

The report considered 'direct' measures such as the *Delphi* method (obtaining best guesses from a range of people via surveys and taking the average as an estimate). It concluded that, whilst they provide valuable information, they are an incomplete census of opinion which cannot be independently verified.

The report suggested that some 'indirect' methods may offer potential in the UK, depending on whether the necessary data are available. These methods are based on the premise that an illegally resident person will be recorded in some way during their period of residency, through police records or employment records for example. An example is the *Capture-Recapture* method, which compares proportions of an unknown population (such as unauthorised migrants) found in samples of the general population. However, data sources showing immigration status do not hold sufficient detail and/or are not collated centrally (such as in the recorded crime statistics, data on court appearances or on the prison population). This method has, therefore, not been pursued any further.

The method most suitable for applying to the UK has been identified as the Residual Method devised in the United States. No other method currently appears to be feasible and this indirect method has,

¹ Pinkerton, C., McLaughlan, G. and Salt, J. (2004). *Sizing the illegally resident population in the UK*. Home Office Online Report 58/04.

therefore, been adopted in this report. The Residual Method compares estimates of legal migration with figures for the 'foreign-born' population, obtained from the census. As the data available differ between the UK and the US, the details of the method have had to be adapted for use in the UK but the underlying approach remains the same.

The United States' Residual Method

The US Census Bureau has used Demographic Analysis (DA) to assess the coverage of the US census since 1960. The DA serves to calculate the net undercount of the census, i.e. the extent to which persons actually resident are not counted in the census. It does this by comparing aggregate datasets, including the comparison of administrative statistics on mortality, authorised migration, unauthorised migration and emigration with the census results.

A Demographic Analysis Population Estimates (DAPE) research project² took this one step further. It sought to calculate the foreign-born population of the United States using government data on legal migration flows, both permanent and temporary, and compared the estimate to the census-provided figure. As part of this research the team had to assess the assumptions made about the size of the unauthorised component of the foreign-born resident population in the US. They used a residual method to calculate the foreign-born population. The method compared the census enumerated foreign-born with the expected foreign-born using administrative data held by the US Immigration and Naturalization Service (INS) to assess the completeness of coverage of the census. In doing so, they were able to calculate an estimate of the unauthorised component of the foreign-born population.

Developing a methodology for the UK

Different countries define migrants in different ways. The main bases³ are:

- geographical (country of birth);
- legal (settlement/citizenship); and
- social (ethnic groups).

The UK tends to discuss its migrant population in terms of ethnic groups but this does not provide details of legal status. As the method needs to include not only those with full settlement rights but also those who are in the UK on a temporary or a quasi-legal basis, the 'legal' basis is also not suitable. So, for the methodology detailed in this report, the 'country of birth' basis is preferred.

The foreign-born consist of permanent legal immigrants (those with settlement), temporary legal migrants (i.e. with temporary leave), quasi-legal migrants (such as cases held in backlogs) and unauthorised migrants. Stated as an equation, the foreign-born can be defined as:

$$FB = [L - (M_L + E_L)] + [T - (M_T + E_T)] + [Q - (M_Q + E_Q)] + R$$

where:

- FB = Foreign-born
- L = Permanent legal migrants
- T = Temporary legal migrants
- Q = Quasi-legal migrants
- M = Adjustment for mortality to migrants in the group represented by the subscript
- E = Adjustment for emigration of migrants in the group represented by the subscript
- R = Residual foreign-born (unauthorised migrants)

All elements in the equation apply to stocks as at April 2001 (date of the most recent census).

The US Residual Method calculates the 'flow' of unauthorised migrants by the difference in the numbers of foreign-born between two census dates. In the UK, a figure for the total unauthorised migrant population is required so the methodology developed for the UK is based on 'stock' data

² Costanzo, J., Davis, C., Irazi, C., Goodkind, D. and Ramirez, R. (2001). *Evaluating Components of International Migration: The Residual Foreign Born, 1990 and 2000*. US Bureau of the Census, Population Division Working Paper No. 61.

³ Bisogno, B. (2004). *A more comprehensive approach to defining migrant populations*. UN Economic Commission for Europe.

wherever possible. Stock figures for temporary migrants, for example, show migrants who still have a legal right to remain in the UK as at April 2001 but have not been granted settlement.

Derivation of data

Foreign-born

The total foreign-born population in the UK (excluding the EEA-born population as they are not subject to immigration control) is obtained from the census (2001). Although adjustments are made to the census for undercount, no explicit undercount estimates are available for the foreign-born population. The Office for National Statistics (ONS) has therefore suggested a range to be applied to allow for possible undercount of unauthorised foreign-born population (see Annex 3).

Permanent legal migrants

A permanent legal migrant (L) is defined as a foreign-born person living in the UK who has legal permanent residence (i.e. has been granted settlement in the UK). The definition does not imply that they will remain permanently in the UK: it is the permission that is permanent.

The only variable for which 'stock' figures are not available is the number of foreign-born persons who have been granted settlement and were living in the UK at the end of April 2001. 'Flow' data are therefore used to calculate the stock of legal migrants: the number of migrants granted settlement each year was obtained from published Home Office figures, and adjusted for likely emigration or death. This information has been obtained as far back as 1970.

It is assumed that all those arriving prior to 1970 – who were still living in the UK in 2001 – will have been granted settlement; therefore all these migrants have been included as 'legal permanent migrants' in the calculations. In practice, 1966 is used in preference to 1970; this is because those arriving between 1966 and 1970 will already be included in settlement statistics for 1970 onwards since it takes approximately four years to be granted settlement.

Settlement figures for those born in the EEA are under-recorded in Home Office statistics. However, since all EEA citizens are free to enter and remain in the UK, they are not relevant to the unauthorised population and so have been excluded from these calculations, apart from EEA citizens who were not born in the EU; they are included as legal permanent migrants. EEA citizens who were not born in the EEA need to be included as part of the legal population but these data are obtained from the International Passenger Survey (IPS), which is carried out by ONS. They are adjusted to avoid double-counting 'repeat migrants' (those who emigrate and then re-immigrate) in the calculations.

Temporary migrants

All those who had a legal right to live in the UK for a specified period of time that included the end of April 2001 are included as temporary migrants (T). This category includes:

- persons granted refugee status who had not been granted settlement (i.e. prior to the rule change in 1998/99 that introduced indefinite leave to remain for refugees);
- persons granted Exceptional Leave to Remain (ELR); and
- managed migrants such as students or those on employment-related visas, where the leave granted either on admission or on extension was still valid at the end of April 2001.

These data have been obtained directly from IND's Casework Information Database (CID) and are adjusted for emigration and death of migrants. It is assumed that dependants are given the same leave as the main applicant so all statistics have been calculated to include dependants.

Quasi-legal migrants

All those who are authorised to be living in the UK, but without an established legal right to be here, are classified as quasi-legal (Q). This category includes those awaiting a decision on their asylum application and those awaiting the outcome of an appeal after their application to stay has been refused. Stock figures obtained from these backlogs as at the end of April 2001 have been incorporated into the calculations and adjusted for emigration and death.

Emigration

Information on foreign-born people departing the UK is obtained from the IPS. Emigration rates for the foreign-born population (excluding the EEA and adjusting for emigrants who subsequently re-immigrate) can be calculated for each year. These calculations use the information on departures from the UK as the numerator and the total foreign-born population obtained from the census and the Labour Force Survey (LFS) as the denominator. This method of obtaining emigration data is judged to be preferable to the US method of subtracting the 'expected' foreign-born from the enumerated foreign-born population in the census.⁴

As the level of emigration is highest in the first year or two after arrival⁵, two different emigration rates have been used. The first rate, for those living in the UK for over four years, is applied to those with settlement in the UK. The other, for those living in the UK for less than four years, is applied to those in the temporary and quasi-legal categories who are more likely to have been in the country for shorter lengths of time.

Deaths

In the US, survival rates for the legal immigrant population are calculated from life tables of the total population as they are thought to be a reasonable proxy for the legal immigrant population. By applying these survival rates to the legal immigrant population, estimates of the number of deaths that occurred in this population are obtained.

In the UK, figures for actual deaths of the non-EEA foreign-born population can be obtained from registrars and these, rather than general survival rates, have been used as data from registrars are likely to provide more reliable results than life tables of the total UK population. A death rate is then calculated as for the emigration rates.

Research carried out by ONS and the University of Edinburgh⁶ found that mortality varied by country of birth around the time of the 2001 census. There was high mortality in young adult men (20-44 years) born in Eastern Europe and the West Indies and in young adult women born in West Africa, East Africa and the West Indies. These are key groups as far as immigration is concerned but, as key variables to which the death rates are applied cannot be reliably produced by country of birth, the assumption that death rates are the same regardless of country of birth has necessarily been made. This is not likely to have a major impact on the overall calculation.

Limitations of the data

The figures used in the model for the total foreign-born population are relatively straightforward: they are 2001 census counts of the foreign-born population, excluding those born in the EEA as they are not subject to immigration control.

Estimating the legally resident population is considerably more complex than the total foreign-born population. There is a need to ensure that all those legally living in the UK are counted, but only once. Failure to do this would cause a significant under or overestimate of the unauthorised residual population.

Some categories are known not to be accounted for, or are over-counted, in the model.

- Commonwealth citizens are subject to standard immigration control unless they have 'right of abode' in the UK (see Annex 1). Limited details of 'right of abode' cases are captured on IND databases but these are not sufficient for this category to be included in the model. Some other non-EEA citizens also have right of abode.
- Some of those born in the EEA will not be EEA citizens and therefore, if in the UK in 2001, could be unauthorised to be so.

⁴ Mulder, T.J., Guzman, B. and Brittingham, A. (2002). *Evaluating Components of International Migration: Foreign-Born Emigrants*. Population Division Working Paper Number 62: US Census Bureau.

⁵ Rendall, M. S. and Ball, D.J. (2004). *Immigration, emigration and the ageing of the overseas-born population in the UK*. Population Trends 116: 18-27. ONS.

⁶ Griffiths, C., Brook, A., Wild, S. and Fischbacher, C. *Mortality by country of birth in England and Wales, 2001-2003*. ONS.

- If temporary migrants extend their leave and/or apply for settlement whilst they have unexpired leave, they will be counted more than once in the model if they have more than one valid permission as at the end of April 2001.
- No account is taken of switches of immigration status before leave has expired because a high proportion of successful switching (more than 60% overall and more than 80% of asylum-related switching) is from the 'visitor' category. All visitors (ordinary and business) are excluded from the model as they are not long-term migrants (this assumption is made in the US model also). If they then switch into a long-term migrant category, they are picked up in the data and included in the calculations.

Assuming that all Commonwealth citizens are subject to standard immigration control will increase the estimated number of unauthorised migrants but including all EEA-born people and those with more than one valid permission to be in the UK will reduce the number of unauthorised migrants. These categories push the estimate of unauthorised migrant numbers in opposite directions but the size of the overall effect is not known.

Figures for emigration and EEA citizens born outside of the EEA are estimated from the IPS, which covers only a sample of arrivals and departures. Using this source in the calculations means that any resulting estimates of the unauthorised resident population in April 2001 are subject to sampling variability⁷. Confidence intervals have been produced for the IPS data used in the model (see Annex 3).

Figures for foreign-born immigrants by year of arrival are required to estimate those still in the UK in 2001 who arrived prior to 1970 and also to calculate emigration and death rates for each year. These figures are obtained from another sample survey, the LFS. An article in the Statistical Journal of the UNECE⁸ states that the LFS underestimates the level of total annual immigration, mainly because it underestimates immigration of non-EU citizens. LFS figures in the model have therefore been 're-grossed', i.e. adjusted according to the proportions of non-EEA foreign-born in census figures.

Because of the limitations of the datasets involved in this model, alternative scenarios have been produced to show the range within which the unauthorised population is expected to lie. The various alternative assumptions cover possible undercounts in the census of unauthorised migrants and in the LFS of pre-1970 cases, alternative assumptions as to the types of cases held in IND backlogs and under/over-recording in the IPS. Details can be found in Annex 3.

Results

The unauthorised resident population in the UK in April 2001 has a central estimate of 430,000, and a range (based on taking all the most extreme assumptions discussed in Annex 3) of 310,000 to 570,000. These 430,000 unauthorised immigrants living in the UK in 2001 constituted 0.7 per cent of the total UK population of 59 million. This compares to seven million unauthorised migrants in January 2000 in the US,⁹ 2.5 per cent of the total US population of just over 281 million, using the same method. The comparison is especially positive for the UK when one considers that the US unauthorised population has been reduced by amnesties.

Further details on the model are provided in the annexes.

Acknowledgements

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⁷ Sampling variability, or sampling error, refers to statistical uncertainty that occurs because only part of the population is directly contacted. With any sample, differences are likely to exist between its characteristics and the larger group from which it was chosen.

⁸ Rendall, M.S., Tomassini, C. and Elliot, D.J. (2003). *Estimation of annual immigration from the LFS of the UK and continental Europe*. Statistical Journal of the UNECE 20(3-4): 219-234. IOS Press.

⁹ Office of Policy, Planning, INS. (2003). *Estimates of the Unauthorised Immigrant Population Residing in the United States: 1990-2000*. US Immigration and Naturalization Service.

Annex 1. Definitions based on the Immigration Rules

Immigration Rules do not apply to those persons who are entitled to enter or remain in the United Kingdom under Immigration (European Economic Area) Regulations 2000 or Commission Regulation 1251/70, or who have the right of abode under the Immigration Act 1971.

EEA nationals

An EEA national is a national of a member state of the European Economic Area, as at April 2001. The member states are those of the EU (in 2001: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK) and of EFTA (Norway, Iceland, Liechtenstein). Swiss nationals are now treated as EEA nationals for the purposes of the Immigration Rules but were not in 2001 so have not been treated as EEA nationals in the calculations as at April 2001. They could not now be counted in the unauthorised migrant group.

Accession State nationals

These are nationals of the Czech Republic, Cyprus, Estonia, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia or the Slovak Republic. These Accession States became part of the EU on 1 May 2004 but as the Residual Method is applied as at the end of April 2001 these states are not included as EU/EEA nationals in these calculations.

Settled in the United Kingdom

The person concerned is free from any restriction on how long he/she may remain and is ordinarily resident in the United Kingdom.

Settlement rights of EEA nationals and their families

Any person (other than a student) who has been issued with a residence permit/document valid for five years, and who has remained in the United Kingdom in accordance with the provisions for four years may, on application, have permission to remain in the United Kingdom indefinitely.

Unless an EEA national has been deported from the UK (on the grounds of public policy, public security or public health) and subsequently entered the UK whilst still subject to a Deportation Order, no EEA nationals are ever considered to be residing illegally in the UK.

Returning residents

The leave of a person whose stay in the United Kingdom is subject to a time limit lapses on his/her going outside the common travel area if the leave was given for a period of six months or less. In other cases, leave lapses on the holder remaining outside the United Kingdom for a continuous period of more than two years. Therefore, if someone has been granted ILR (Indefinite Leave to Remain, i.e. settlement) in the UK, and is then out of the UK for over two years, the ILR status is lost and s/he has to reapply for entry clearance. These persons are removed from the model when emigrating from the UK. If they then return to the UK, they will be re-entered into the model in whatever category they arrive under.

Children born in the UK who are not British citizens

Unmarried dependent children under 18 years of age who were born in the United Kingdom, but whose parents were neither British nor settled in the United Kingdom at the time of their birth, are not British citizens and are therefore subject to immigration control. Such a child requires leave to enter where admission to the United Kingdom is sought, and leave to remain where permission is sought for the child to be allowed to stay in the United Kingdom.

In theory, some of these children should be included under the 'unauthorised population' but children will normally be granted the same leave as their parents. So, if the parents continue to meet the

Immigration Rules and remain in the UK, their dependent children will be granted leave in line. They are therefore not included separately in the calculations. Where children are born and abandoned in the UK they would normally be granted leave to remain up until an adoption went through or in line with their adoptive parents. These children are in the UK legally.

Children born outside of the UK whose parent(s) are settled in the UK

Children under 18 years of age who were born outside of the United Kingdom are required to seek leave to enter or remain in the United Kingdom if one or both of their parents are settled or are being admitted for settlement in the United Kingdom. They need to hold a valid United Kingdom entry clearance and must be accommodated adequately without recourse to public funds. These children will be included in statistics on admissions when they enter the UK and, eventually, in settlement statistics. Some will also be included in figures for EEA citizens born in non-EEA countries.

Leave to enter the United Kingdom

A person who is neither a British citizen nor a Commonwealth citizen with the right of abode nor a person who is entitled to enter or remain in the United Kingdom (such as an EEA citizen) requires leave to enter the United Kingdom.

A *Commonwealth citizen* will have the right of abode in the United Kingdom if he or she has remained a Commonwealth citizen throughout the period since 1 January 1983 and:

- whose parent had citizenship of the United Kingdom by birth; or
- in the case of a woman, was married to a man with the right of abode in the United Kingdom.

A person with the right of abode is expressed by the Immigration Act 1971 to be free to live in, and to come and go into and from, the United Kingdom. Any Commonwealth citizen not having the right of abode is subject to standard immigration controls.

Admission of certain British passport holders

A person in any of the following categories may be admitted freely to the United Kingdom on production of a United Kingdom passport unless his/her passport has been endorsed to show that s/he was subject to immigration control:

- a British Dependent Territories citizen;
- a British National (Overseas);
- a British Overseas citizen (BOC);
- a British protected person (BPP); or
- a British subject (BS) prior to 1981 not possessing citizenship of the UK.

Certain BOCs, BSs and BPPs can register as British citizens. The Act does not give BOCs, BSs and BPPs the right of abode in the United Kingdom. Those who do not apply to register as British citizens, who are awaiting the outcome of applications for registration as British citizens or who have been refused registration as British citizens will remain subject to immigration control and to any restriction endorsed in their passport. Similarly, BOCs, BSs and BPPs living overseas who have not registered and who wish to come to the United Kingdom must qualify under a specific immigration rule.

BOCs apply for leave on the same grounds as non-BOC cases and so will be included in the model in the same way. BOCs will also be included in the model as inflows of EEA citizens born in non-EEA countries if appropriate. The only difference is that they may apply for British Nationality registration on the grounds that they are BOCs.

Annex 2. Sources of data

Home Office (IND) databases

The administrative databases held by the Immigration and Nationality Directorate (IND) of the Home Office are used to process applications and appeals received. They therefore hold information on all those immigrating into the UK. All data obtained via these sources have been calculated to include dependants and exclude EEA nationals as at 30 April 2001 throughout the period covered.

Settlement data

Settlement on arrival (SOA) data and Settlement on removal of time limit (ROTL) data have been taken directly from statistics published by the Home Office¹⁰. These data are available since 1960 for total figures, but only since 1973 for EEA nationals as a separate category.

'Admissions' data

Figures are obtained directly from IND's Casework Information Database (CID). They show all admissions where the expiry date was on or after 30 April 2001 (i.e. the admission cases that were still legal at the time of the 2001 census). For the 2001 admissions data, the length of stay field is no longer reliable, so assumptions have been made that all controlled landings were for six months or more. Ordinary and business visitors have been excluded from the data, as have those returning from a temporary absence abroad and passengers in transit as these categories are not long-term migrants.

'Unexpired leave' data

Figures showing those who hold valid extensions to their permissions to stay as at April 2001 are obtained directly from CID. Although these data are not published, the quality of 'unexpired leave' data is reasonable; for example, only 1,100 cases contained conflicts between decision and expiry dates and all cases granted leave had expiry dates recorded.

'Quasi-legal' figures

These are cases where decisions have yet to be made on an application and so are based on backlog figures obtained from CID and manual counts. Figures for backlogs of general/settlement applications, asylum applications, and asylum, managed migration and entry clearance appeals, both in IND and at the IAA (Immigration Appellate Authority) as at the end of April are included (based on the available figures closest to this date). The figures have been obtained from the IND Annual Report 2000/01, the quarterly 'Asylum Statistics' publication and The Court Service Immigration Appellate Authority Business Plan 2001/2002. As some 'general/settlement' cases will already be included in the calculations, such as those awaiting settlement, only a proportion of the general/settlement backlog as at April 2001 has been included in the calculations (see Annex 3 for details of the different proportions used to obtain a range of estimates).

Census

Figures for the foreign-born population in the UK as at 29 April 2001 are required.

The census covers the entire population in the UK on a specific date. This will include those in communal establishments – which are necessary to record the unauthorised population living in such accommodation. The 'usually resident' population has been used in the calculations so as to exclude those just visiting the UK and has been adjusted to exclude those born in the EEA. This basis is consistent with the variables used in the rest of the calculations.

Census figures for 1971, 1981, 1991 and 2001 are also used to calculate the population denominators used in the annual emigration and death rates of the foreign-born population.

¹⁰ Home Office (2002). *Control of Immigration: Statistics UK Command Paper*. The Stationery Office.

Labour Force Survey (LFS)

The LFS is a survey of households living at private addresses in Great Britain; it has been conducted since 1973. Its purpose is to provide, when combined with data from the Northern Ireland LFS, information on the UK labour market. It is intended to be representative of the whole population but, as it surveys private addresses, it excludes most of those living in communal establishments (local authority homes, housing association homes/hostels, hotels, boarding houses, hostels amongst others) – this was 802,000 adults in 1991. The census includes them all. This means the LFS, by not sampling from communal establishments, excludes just over one per cent of the GB population.

The latest available versions of the LFS obtained from ONS for 1983-2001 are used in two parts of the model.

- Reliable data prior to 1970 are not readily available from IND or IPS sources. A breakdown of 2001 LFS data into the years in which migrants arrived in the UK is used to estimate the foreign-born population still in the UK in 2001, who had arrived prior to 1970.
- LFS data, re-grossed up to census totals, are used as the denominator for the two annual emigration rates (long-term and short-term migrants) and the annual death rates of the foreign-born population. Data for years prior to 1983 have been estimated using a polynomial trend fitted to data for later years.

International Passenger Survey (IPS)

The IPS is a large multi-purpose survey that collects information from passengers as they enter and leave the UK.

IPS data¹¹ have been used to obtain information on emigrants who were born outside of the EEA (1975-2001) by year of arrival in the UK. These figures have been combined with the LFS/census figures for the foreign-born population in the UK to obtain emigration rates of the foreign-born population for each year. Figures for those who are 'repeat migrants' (for 1977-2001) have also been obtained from the IPS. These are removed from the calculations to avoid double-counting someone who is re-emigrating from the UK. Figures for other years are estimated based on a polynomial trend fitted to data for later years.

IPS figures are estimates and do not include allowances for:

- most asylum seekers and their dependants;
- 'visitor switchers' (persons admitted as short-term visitors who are subsequently granted an extension of stay for a year or more);
- 'migrant switchers' (persons who intend to be migrants at the time they take part in the IPS but, in reality, stay in the UK or abroad for less than one year); and
- migration to and from the Irish Republic.

Mortality statistics

Mortality statistics are published by ONS in the Review of the Registrar General on deaths in England and Wales, by the General Registrar of Scotland (GROS) and by the Northern Ireland Statistical Research Agency (NISRA). Annual death rates are then calculated as for emigration rates, using the LFS/census figures as the denominator.

Various data are not recorded in the mortality statistics for England and Wales. For example, 1993-95 data have some deaths of those born outside England and Wales incorrectly coded to England and Wales and so were permanently removed from the database. Figures for these years, and other missing data, have been estimated based on proportions seen in other years.

¹¹ Migration Statistics Unit, ONS (2001). *International Migration series MN no. 28: Migrants entering or leaving the United Kingdom and England and Wales, 2001*. ONS.

Data from NISRA, unlike data for the rest of the UK, are not published by country of birth. Lists of records for 2001 have therefore been analysed and the resulting proportion of foreign-born deaths used to estimate foreign-born deaths in previous years.

Annex 3. Alternative assumptions

This annex shows the effect of making a number of different assumptions where there is some uncertainty in the data. The effect on the calculations is summarised in Table 1.

Census undercount

Although the UK census (2001) was adjusted for undercount by geographical area, age, sex and ethnicity, there are no explicit undercount estimates available for the foreign-born population, either authorised or unauthorised¹². ONS has suggested a range of zero, ten and 20 per cent undercount for the unauthorised population. The central figure (ten per cent) is consistent with that used in the latest US model¹³, in which it is derived from a study of the undercount of unauthorised residents¹⁴. With no comparable study of unauthorised migrant undercount in the UK census available, and taking into account the application of undercount correction procedures already in the UK's census methodology, ONS suggests a range of zero, ten and 20 per cent as being appropriate. These possible undercounts are included in the lowest, central and highest estimates respectively, in Table 1.

IPS under/overcount

Figures for emigration are estimated from the IPS which is a sample survey. Using this source in the calculations means that any resulting estimates of the unauthorised resident population in April 2001 are subject to sampling variability. Figures from the IPS are key and any under/overcount will have a large effect on the results. Confidence intervals (95%) have therefore been produced for both of the variables in question. This means that we can be 95 per cent confident that the IPS estimates, for emigrants born outside of the EEA and for repeat migrants, lie within the ranges produced.

LFS undercounts

Overall figures from the LFS are already adjusted in the model to be in line with census figures. However, the issue of a differential non-response between post-1970 immigrants and pre-1970 immigrants may arise. A comparison between census and LFS data of those over 30 years of age shows that the LFS under-records pre-1970 immigrants by up to six per cent. Therefore zero, three and six per cent undercounts have been applied to the LFS figure for the number of migrants who arrived prior to 1970. The US model adjusts for undercounts to the 'lawful' population as well as for undercounts to the unauthorised population and a six per cent undercount in the LFS is consistent with the upper range used in the US model.

Managed migration stock not included in quasi-legal

The 'quasi-legal' figure is made up of backlogs of applications and appeals. All of the asylum backlogs should be included in the figure but the managed migration backlogs consist of 'general/settlement' cases. It is not now known what sort of cases made up the managed migration backlog as at April 2001 but a proportion will be applications for settlement. To avoid double counting these in the main calculations, only half of the managed migration backlogs are included as quasi-legal in the model. For the alternative scenarios, 90 and ten per cent of the stocks of managed migrants are included in the lower and upper estimates respectively.

Age-standardised mortality rate

The US model uses an age-standardised mortality rate in its calculations. This method has not been included in the alternative scenarios as the current calculations based on actual numbers of deaths are thought to be more robust. However, using an age-standardised mortality rate for all people in the

¹² Blackwell, L., Lynch, K., Smith, J. and Goldblatt, P. (2003). *Longitudinal Study 1971-2001: Completeness of Census Linkage, Series LS number 10*. London: ONS.

¹³ Office of Policy and Planning, INS. (2003). *Estimates of the Unauthorised Immigrant Population Residing in the United States: 1990-2000*. US Immigration and Naturalization Service.

¹⁴ Marcelli, E. A. and Ong, P.M. (2002) *2000 Census Coverage of Foreign-born Mexicans in Los Angeles County: Implications for Demographic Analysis*. Paper presented at the 2002 Annual Meeting of the Population Association of America, Atlanta, GA.

UK, based on deaths registered in 2001 and standardised to the mid-1991 UK population, produces a figure of 276,800 deaths. This will overcount the number of deaths of non-EEA born migrants in the UK, owing to the upward trend in numbers of deaths, so this result supports a lower figure being used, such as the 243,100-250,500 range used in the model.

Table 1: Summary of use of the Residual Method to size the unauthorised (illegal) migrant population in the United Kingdom, April 2001

Stage in calculation	Lowest estimate	Central estimate	Highest estimate
¹ Foreign-born with settlement in the UK (1970-2001)	1,899,900	1,899,900	1,899,900
² Foreign-born EEA citizens in the UK (1970-2001)	330,100	307,700	285,300
³ Emigration of legal foreign-born (1970-2001)	-225,400	-236,500	-247,700
⁴ Death of legal foreign-born (1970-2001)	-250,500	-246,800	-243,100
⁵ Foreign-born with settlement in the UK (prior to 1970)	751,100	728,000	706,300
⁶ Estimated foreign-born population with settlement, April 2001 ⁶⁼¹⁺²⁺³⁺⁴⁺⁵	2,505,200	2,452,300	2,400,700
⁷ Admissions with unexpired leave, April 2001	546,000	546,000	546,000
⁸ Extensions with unexpired leave, April 2001	254,700	254,700	254,700
⁹ Quasi-legal (backlogs), April 2001	195,000	174,600	154,100
¹⁰ Emigration of quasi-legal and temporary foreign-born	-209,200	-217,800	-225,600
¹¹ Death of quasi-legal and temporary foreign-born	-14,200	-13,800	-13,400
¹² Estimated temporary/quasi-legal foreign-born population, April 2001 ¹²⁼⁷⁺⁸⁺⁹⁺¹⁰⁺¹¹	772,400	743,700	715,700
¹³ Estimated total legal foreign-born population, April 2001 ¹³⁼⁶⁺¹²	3,277,600	3,195,900	3,116,400
¹⁴ Estimated undercount of unauthorised foreign-born in census	0	45,400	102,300
¹⁵ Total foreign-born population in UK, April 2001	3,583,100	3,628,500	3,685,400
¹⁶ Unauthorised (illegal) migrant population in UK, April 2001 ¹⁶⁼¹⁵⁻¹³	310,000	430,000	570,000
<i>Percentage of total UK population</i>	<i>0.5%</i>	<i>0.7%</i>	<i>1.0%</i>

Columns may not add due to rounding: figures in lines 1-15 have been shown to the nearest 100 in order to estimate to the nearest 10,000 in line 16.

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Email: publications.rds@homeoffice.gsi.gov.uk

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