Office for National Statistics

Quality of Long-Term International Migration estimates from 2001 to 2011

Executive Summary

ONS has conducted a review of the quality of Long-Term International Migration (LTIM) estimates over the decade from 2001 to 2011. These estimates are predominantly produced from the International Passenger Survey (IPS).

The review follows research conducted in light of the results of the 2011 Census for England and Wales, which found that the Census-based mid-year population estimate was 464,000 higher than the mid-year population estimates rolled-forward from the 2001 Census base. Several possible causes for the difference were cited but it was considered that the 'largest single cause is most likely to be underestimation of long-term immigration from central and eastern Europe in the middle part of the decade' (ONS, 2012a). The review extends this work to compare LTIM estimates to further data from the 2011 Census, as well as a range of other data sources across the decade from 2001 to 2011.

This review of the quality of LTIM estimates aimed to address the following questions:

1. **What evidence is there to suggest that long-term immigration was underestimated during the middle part of the decade between 2001 and 2011?**
   This includes an examination of alternative data sources and looks for evidence that immigration was inaccurately estimated (see Section 2).

2. **To what extent was any underestimation of immigration due to inadequate coverage of the IPS during 2004 to 2008?**
   This examines the coverage of the IPS from 2001 to 2011 and identifies evidence that shows the impact of improvements to the IPS that were fully implemented from 2009 (see Section 3).

3. **Were the adjustments made to calculate LTIM, for example to estimate the number of visitors who switched to become long-term migrants, adequate during this time?**
   This examines the methodology of calculating LTIM and assesses if the underlying assumptions remain fit for purpose in effectively measuring migration (see Section 4).

4. **What information about the quality of estimates of emigration can be deduced from comparisons with international migration data?**
   The quality of emigration estimates has been included for completeness, as it is used in the calculation of net migration (see Section 6).

The **key findings** of the review are as follows:

1. **There is evidence that shows the IPS missed a substantial amount of immigration of EU8 citizens that occurred between 2004 and 2008, prior to IPS improvements from 2009.** This is evident from comparisons of IPS data with a number of other data sources related to immigration. The EU8 migrants were missed due to IPS interviewing being concentrated at the time at principal airports, such as London Heathrow, London Gatwick and Manchester. During this time, many migrants from the EU8 countries were travelling on the increasing number of routes connecting their countries with the UK regional airports (the number of routes connecting UK airports with airports in EU8 countries increased from 30 in 2001 to a peak of 190 in 2007). Many of these routes were not covered, or not fully covered, by the IPS for migration purposes prior to 2009.

2. **The IPS has underestimated the migration of children**. There is evidence from comparisons with other data sources that estimates from the IPS of children under 15 years old are too low. Investigations have shown that this is not due to the weighting of the IPS, and clear instructions are given to interviewers that when children are sampled responses should be provided on behalf of the child, and not on behalf of any accompanying adult. Field procedures have already been improved, but the impact of this action may not be fully resolved until e-Borders data are available which will allow the direct comparison of passenger numbers by age with IPS data.

3. **The IPS improvements have both reduced the relative error around the IPS estimates, as well as improving the balance of the sample improvements to the IPS.** Starting in 2008, more regional airports were included in the IPS and there were an increased number of migration interviews at key regional airports such as Luton and Stansted. These improvements reduced the skew towards particular migrant groups (typically non-EU) who predominately travel through the main airports (mainly London Heathrow). The outcome of these improvements is that the IPS sample is much more balanced towards all groups of migrants.

   Comparisons between IPS data and other data sources showed that in the years since the IPS improvements, the trends in the IPS series more closely track those seen in other data sources.

   Data from the Civil Aviation Authority has shown that by the time the improvements to the IPS were implemented, the expansion of EU8 passenger numbers and routes had already begun to level off. This suggests that the IPS improvements were too late to capture the main wave of increased migration following EU accession in 2004, and explains why more long-term migrants from the EU8 were identified on the 2011 Census than would have been expected based on LTIM estimates.

4. **There is no evidence to suggest that the current methodology used in LTIM calculations needs adjusting.** An adjustment is made as part of the LTIM calculations to account for a proportion of people who stay longer in the UK than originally intended. These people originally arrived as visitors to the UK and switched to becoming migrants. The methodology groups people according to their citizenship. It has been suggested that a greater proportion of migrants from EU8 countries may have switched from being visitors to long-term migrants than was accounted for by the visitor switcher methodology (ONS, 2012a). However, analysis of visitor switcher data suggested that EU8 migrants were no more likely than other EU migrants to switch.

   Comparisons between LTIM estimates for the year ending March 2011 and implied migration flows from the 2011 Census demonstrate the improved quality of LTIM estimates following the improvements made to the IPS. There is, however, evidence that LTIM estimates of immigration of EU-born migrants are still lower than those implied by Census, although notably LTIM estimates are very close to Census estimates for EU8-born immigrants. By contrast, LTIM estimates were higher than implied Census estimates for immigration of New Commonwealth-born citizens.

The following **outcomes** emerge from this review:

1. Revision to net LTIM estimates

It seems that the underestimation of immigration between 2004 and 2008 occurred principally due to an inadequate sampling design and coverage of the IPS prior to 2009. As a result ONS has published within this review a revised set of net migration estimates for this period for the United Kingdom. These estimates, which are shown in Table 1 below, give an indication of what ONS now considers the magnitude of net migration to have been between 2001 and 2011.

Table 1 Revised net long-term international migration series for United Kingdom, calendar year, 2001-2011 Thousands

	Revised net migration estimates	Original LTIM net migration estimates	Difference between revised and original net migration estimates
2001	+ 179	+ 171	+ 8
2002	+ 172	+ 153	+ 19
2003	+ 185	+ 148	+ 37
2004	+ 268	+ 245	+ 23
2005	+ 267	+ 206	+ 61
2006	+ 265	+ 198	+ 67
2007	+ 273	+ 233	+ 40
2008	+ 229	+ 163	+ 66
2009	+ 229	+ 198	+ 31
2010	+ 256	+ 252	+ 4
2011	+ 205	+ 215	- 10

The adjustments applied increase the estimate of net migration across the decade from 2001 to 2011, but most particularly in 2005 to 2008, when the evidence suggests that the majority of migrants who were missed by the IPS immigrated to the United Kingdom.

Users who wish to see a more detailed breakdown of inflows and outflows of long-term international migrants between 2001 and 2011 by variables such as reason for migration, age and sex, citizenship and country of birth should continue to use the existing LTIM and IPS 1, 2 and 3 series tables, but should bear in mind the caveat that the headline net migration estimates have now been revised as outlined above. Please see Section 5 for additional guidance.

2. Continuing improvements to the IPS

ONS will address on-going issues with the quality of the LTIM for particular sub-groups of the population, for example children under the age of 15. These issues arise because migration estimates are still based on a relatively small annual sample of 4,000-5,000 migrants identified by the IPS. The quality of these estimates would be improved by further increasing the sample size of the IPS, but this would have substantial cost implications. It has been estimated that to halve the size of the confidence intervals around LTIM estimates would require a four-fold increase in the IPS sample size, and an accompanying four-fold increase in the cost of the survey from the current £5million per annum.

ONS are already exploring whether e-Borders data could be used to improve international migration and population estimates. The results of exploratory analysis on an early set of e-Borders data was published at the end of the Migration Statistics Improvement Programme (MSIP) in March 2012. Current research is investigating whether the data could be used to identify the travel history of migrants, and how the data could be used to improve the quality of

IPS estimates, for example by providing an age-sex breakdown of passenger flows which could feed into the weighting of the IPS. This analysis should resolve issues identified within this report of apparent underestimation of migrants under the age of 15.

The design of the IPS needs to continue to be responsive to changing migration trends. Although it is difficult to anticipate routes that migrants will favour in advance, it is possible to monitor new routes and passenger numbers and respond accordingly. For example, the number of boats sampled on the Dover-Dunkirk route has been increased from 2014 in order to improve the robustness of the sample on this route, and to potentially boost the sample of EU2 migrants, following the lifting of transitional controls in January 2014.

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1 Background and Aims

1.1 The ten years between 2001 and 2011 were a time of considerable change for international migration to and from the UK. On 1 May 2004, eight central and eastern European countries, known as the EU8, joined the European Union (EU), alongside Cyprus and Malta. The EU8 consists of the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. Sweden, Ireland and the UK were the only countries in the EU not to implement transitional controls on free movement for citizens of these countries. On 1 January 2007, Bulgaria and Romania joined the EU (these countries are referred to in this report as the EU2). By contrast these countries were subject to transitional controls on free movement when travelling to the UK, which were lifted on 1 January 2014.

1.2 Such important changes to EU membership and legislation led to rapidly changing migration patterns. These included increased immigration, particularly from EU8 countries, and the increased use of low-cost airlines and regional airports – both in the UK and mainland Europe – by international migrants. These changing trends prompted a review of how ONS collects data on international migration.

1.3 The Migration Statistics Improvement Programme (MSIP) called for a number of key changes to the methodology of the International Passenger Survey (IPS), the main source of data used by ONS to compile estimates of long-term international migration flows. These changes included increased interviewing at regional airports, including airports in Northern Ireland, and a change to the sampling methodology, designed to include more migrants in the sample. These changes are discussed in more detail in Section 3 of this paper. The MSIP also led to methodological changes beyond the IPS, such as using data from the Northern Ireland Statistics and Research Agency (NISRA) to account for land border crossings between Northern Ireland and the Republic of Ireland and improved methodologies to distribute international migrants to local authorities in England and Wales.

1.4 The 2011 Census gave ONS the opportunity to compare annual mid-year population estimates with the results of the Census, at a national and subnational level, and to analyse the differences between the two. In its simplest form, annual mid-year population estimates are made by taking a population estimate from a census (in the case of this time period, the 2001 Census), adding on births that have taken place in the year, subtracting deaths that have taken place in the year and adjusting for international migration flows to and from the UK for that year[1]. This process, known as the cohort component method, takes place each year through the decade. The Long-Term International Migration (LTIM) estimates that are the subject of this paper are a key component in this process.

1.5 When the annual population estimates for England and Wales for mid-2011 were compared with the results of the 2011 Census (rolled forward by three months to refer to the mid-year reference point), the Census-based estimate was found to be 464,000 higher than the rolled-forward estimate, a difference at the national (England and Wales) level of 0.8%. A thorough research and analysis exercise ensued to understand these differences, the results of which were published alongside a revised back series of mid-2002 to mid-2010 population estimates for England and Wales on 13 December 2012. Several possible causes for the difference were cited but the paper stated that the 'largest single cause is most likely to be underestimation of long-term immigration from central and eastern Europe in the middle part of the decade' (ONS, 2012a).

[1] Other adjustments are also made, for example to account for armed forces. For more information please see Methods guide for mid-2012 population estimates (ONS, 2012b)

1.6 This review into the quality of LTIM estimates between 2001 and 2011, is being conducted by ONS not only to establish whether, and if so how, immigration from EU8 countries in the mid-2000s was underestimated, but also to evaluate the effectiveness of the improvements made to the IPS in 2009.

1.7 This review aims to address the following areas:

- What evidence is there to support the assertion that long-term immigration was underestimated during the middle part of the decade between 2001 and 2011?
- To what extent was any underestimation of immigration due to inadequate coverage of the IPS, and what impact did the improvements made to the IPS from 2009 have on the quality of subsequent migration estimates?
- Were the adjustments made to calculate LTIM, for example to estimate the number of visitors who switched to become long-term migrants, adequate during this time?
- What information about the quality of estimates of emigration can be deduced from comparisons with international migration data?

1.8 There is no single, all-inclusive system in place to measure movement of migrants into and out of the UK. Therefore, it is necessary to use a combination of data sources to estimate long-term international migration. LTIM estimates are approximately 90% based on data from the IPS, which is described in more detail in Section 3. To estimate LTIM, the IPS data are supplemented by:

- Home Office data, which is used to calculate an adjustment for asylum seekers and their dependants.
- An adjustment to add in visitor switchers and remove migrant switchers. These are people who change their intentions, and are described in more detail in Section 4.
- NISRA data on migration to and from Northern Ireland based on GP registrations.
- Labour Force Survey (LFS) data to provide a geographical distribution of long-term immigrants for calibration of IPS inflow data.

1.9 It should be noted that the definition of a long-term migrant is;

> 'A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence.'
>
> - United Nations (1998)

1.10 On the basis of this definition, LTIM estimates of inflows and outflows to and from the UK are for all people changing their country of usual residence for at least a year, regardless of their nationality or visa status.

1.11 More information on the methodology used to calculate LTIM can be found in the Long-Term International Migration Estimates Methodology Document (ONS, 2014).

1.12 The remainder of the review is structured as follows. Section 2 provides comparisons between LTIM estimates and other migration-related data sources to assess what evidence there is that migration was underestimated between 2001 and 2011, and the groups which were most affected by this. Section 3 looks at how migration might have been underestimated during this time, focussing on the main data source for migration estimates, the International Passenger Survey (IPS). Section 4 continues to look at how migration might have been underestimated, this time focussing on the methodology used to produce the LTIM estimates from the IPS data. Section 5 provides a revised net migration series and guidance on interpreting this series in conjunction with existing LTIM tables. Section 6 explores the use of international data to assess the quality of emigration estimates. Section 7 concludes and Section 8 sets out the next steps for future improvements to the IPS and LTIM series.

2 Evidence of underestimation of long-term migration flows

2.0.1 This section compares estimates of migration flows from the LTIM series to implied migration flows from other data sources, to assess what evidence there is that migration of certain groups was underestimated during the decade from 2001 to 2011. A particular focus of the analysis is on the period from 2004 to 2008, as comparisons with 2011 Census data have suggested that immigration, particularly from EU8 countries, might have been underestimated during this time.

2.0.2 LTIM flows are compared with: Annual Population Survey (APS) implied migration, Patient Register Flag 4 registrations, Lifetime Labour Market Database (L2) implied migration, Allocations of National Insurance numbers (NINos) to adult overseas nationals and data on Entry Clearance Visas (ECVs) issued to non-EU nationals.

2.1 Comparison with APS implied migration flows

2.1.1 LTIM estimates of immigration by country of birth and age have been compared with APS implied migration flows. The APS is based upon the Labour Force Survey with some additional sample boosts to extend its geographical coverage. It would not be expected that migration flows on these sources would match exactly due to key definitional differences between the two sources noted below:

- **Sampling frame**: the APS only surveys residents in households, and excludes those living in communal establishments (unless these are covered by a proxy response of someone living in a household). The IPS (on which LTIM is based) samples passengers as they travel in and out of the UK, and LTIM includes an adjustment for asylum seekers. Therefore LTIM should include people living in communal establishments and households.

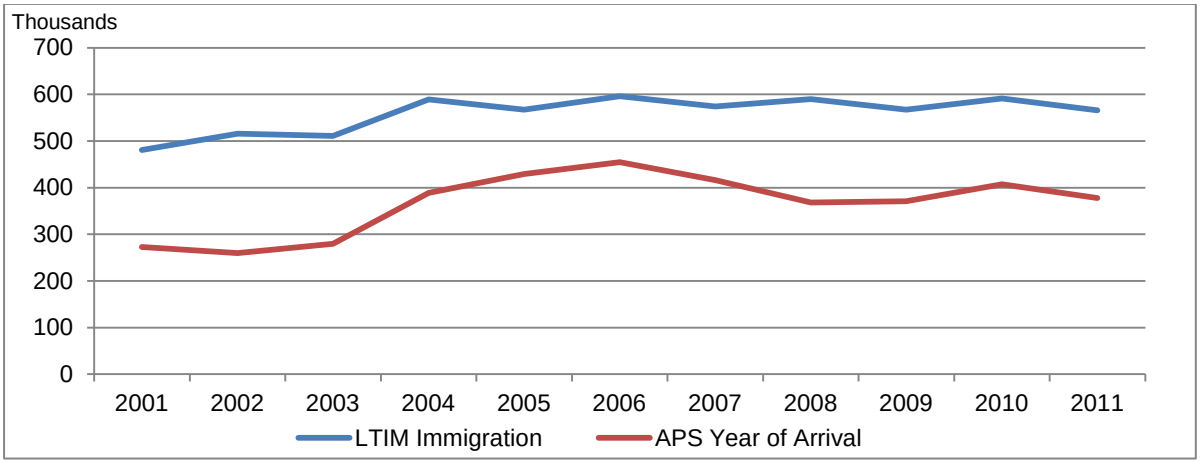
- **Definition of a migrant**: APS implied immigration estimates will include respondents who live in the UK for less than 12 months, who would not be included within LTIM immigration estimates.

- **Nationality:** The IPS uses the nationality on an interviewee's passport, whilst nationality on the APS is self-declared. Neither survey records cases of dual nationality. For this reason many of the comparisons between LTIM and APS presented in this report are based on country of birth rather than nationality.

- **Asylum seekers:** Adjustments are made to the IPS estimates to include asylum seekers in LTIM estimates. It is unknown how many asylum seekers are included in population estimates from the LFS/APS, since some will live in communal establishments.

2.1.2 Figure 2.1 shows LTIM estimates of immigration from 2001 to 2011 plotted against APS estimates of implied migration for the same time period. The APS estimates are based on 2012 data and use the stated year of first and last arrival for each record, so that a record is counted as an inflow if they arrived for the first time or (where relevant) the last time in a given year.

Figure 2.1 Comparison of LTIM immigration estimates and APS implied migration, United Kingdom, 2001-2011

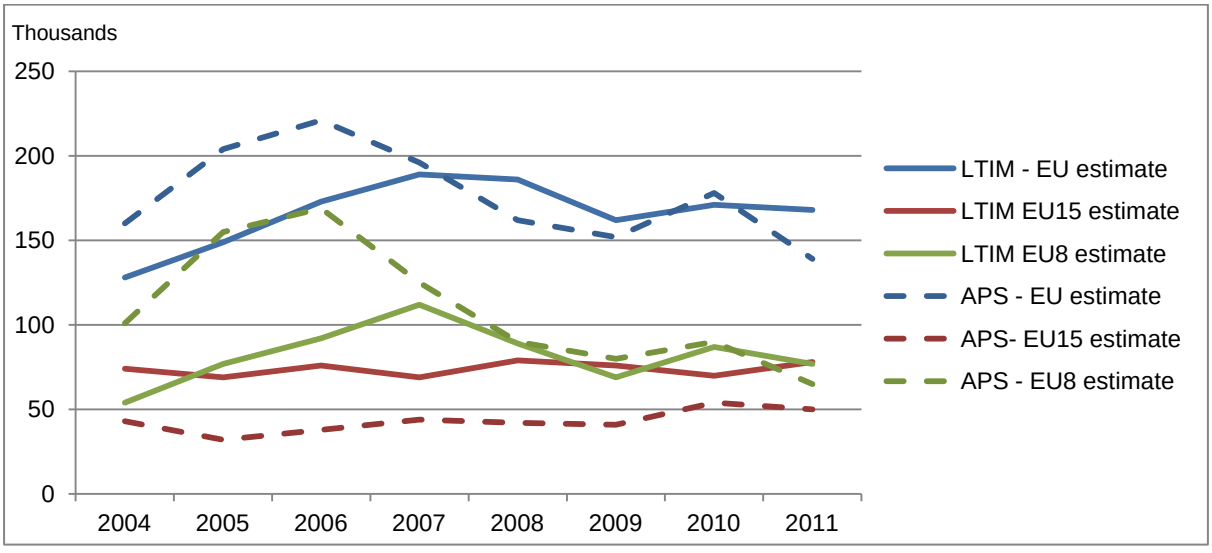


Source: Office for National Statistics

2.1.3 Figure 2.1 shows that LTIM immigration estimates and APS estimates by year of arrival show a similar trend over time, although LTIM estimates are consistently higher than the APS. Some of this can be accounted for by the definitional differences between the two sources, for example exclusion of people living in communal establishments from the APS. The difference may also be partly accounted for because people who have subsequently left the UK cannot be included in the APS sampling frame. It should also be noted that both sources are subject to sampling error, and would consequently have 95% confidence intervals around the estimates which are not shown in Figure 2.1. The gap between LTIM and APS estimates reduced around 2005 and 2006 to 138,000 and 141,000 respectively. In 2004 and earlier, the gap between the two sources was at least 200,000, and in 2008 it increased again to 222,000. This provides an indication that LTIM may have underestimated immigration between 2004 and 2008.

2.1.4 Figure 2.2 compares LTIM immigration estimates with APS implied migration estimates for EU-born (excluding UK-born) migrants from 2004 to 2011.

Figure 2.2 Comparison of LTIM immigration estimates and APS implied migration for EU born, United Kingdom, 2004-2011

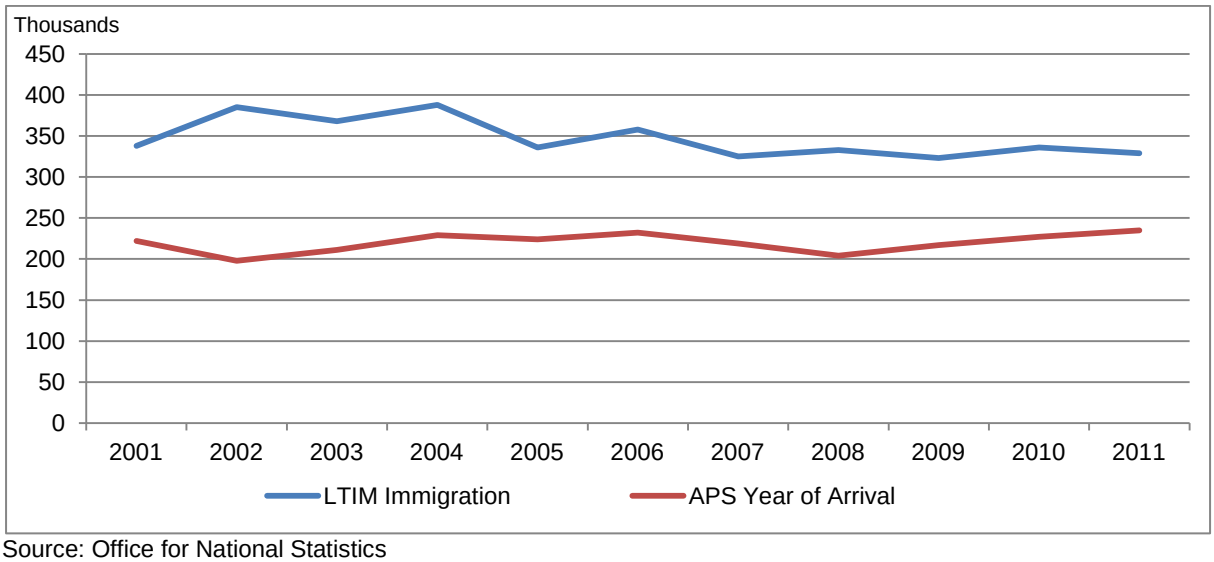


Source: Office for National Statistics

2.1.5 When EU-born migrants are considered overall, LTIM estimates were lower than APS estimates from 2004-2006, and were higher than APS estimates from 2007 onwards. Looking in more detail at particular subsets of the EU, we can see that LTIM estimates for EU15-born migrants were consistently higher than APS estimates over the whole time period. By contrast, LTIM estimates for EU8-born migrants were substantially below APS estimates in 2004-2006, but notably track APS estimates more closely after this point. This analysis suggests that prior to 2007, a number of EU immigrants to the UK might have been missed by the IPS, but this seems to have affected EU8 citizens more than EU15 citizens.

2.1.6 Figure 2.3 compares LTIM immigration estimates to APS implied migration flows for non-EU born migrants.

Figure 2.3 Comparison of LTIM immigration estimates and APS implied migration for non-EU born, 2001-2011

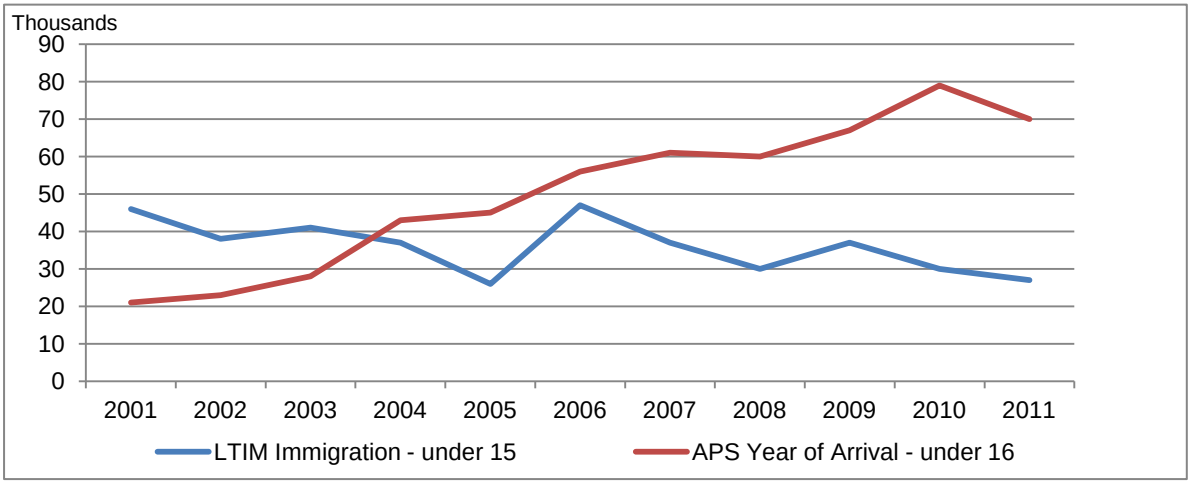


Source: Office for National Statistics

2.1.7 Figure 2.3 shows that LTIM estimates of immigration for the non-EU born are consistently higher than implied by APS year of arrival data. This would be expected as many non-EU born people would be in the UK for formal study and may live in communal student accommodation which is not included in the APS sampling frame. Individuals living in communal establishments may be included on the APS if a proxy response is completed for them by someone living in a private household, but this is less likely to happen for those who are born outside of the UK, who may not be directly related to anyone living in a private household within the UK. It is interesting to note that the gap between LTIM immigration estimates and APS implied migration estimates appears to have reduced over time for non-EU born migrants.

2.1.8 Figures 2.4-2.6 compare LTIM immigration estimates to APS implied migration estimates, for children (under 15/16 year olds), young adults (15/16 – 24 year olds) and working age adults (25-44 year olds).

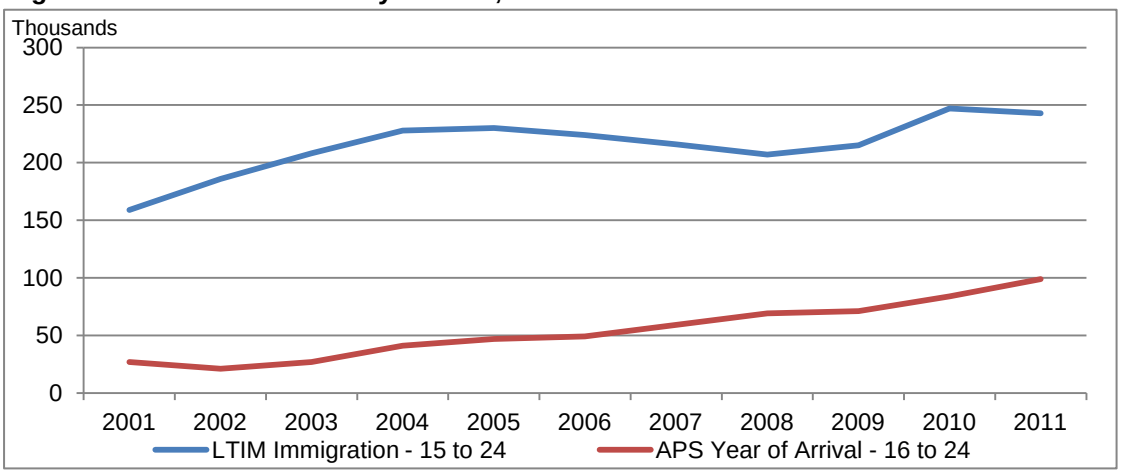
Figure 2.4 Comparison of LTIM immigration estimates for under 15 year olds with APS implied migration estimates for under 16 year olds, 2001-2011



Source: Office for National Statistics

2.1.9 Figure 2.4 shows that LTIM immigration estimates are higher than APS implied migration estimates for children until 2003, but are consistently below APS estimates from 2004 onwards. This may be indicative of potential underestimation of children on the IPS, on which LTIM estimates are principally based. ONS' plans to address this issue are outlined in Next Steps.

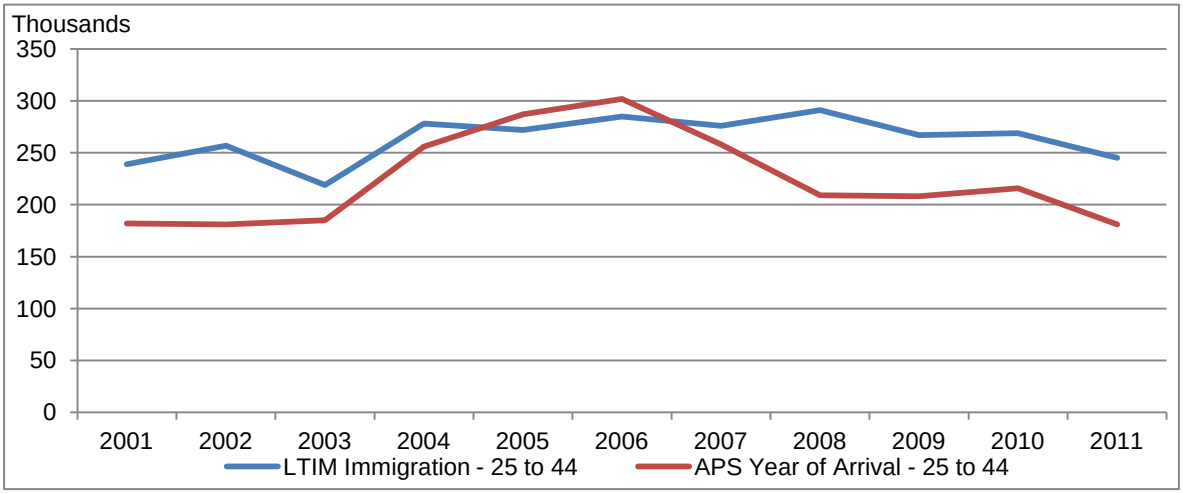
Figure 2.5 Comparison of LTIM immigration estimates for 15-24 year olds with APS implied migration estimates for 16-24 year olds, 2001-2011



Source: Office for National Statistics

2.1.10 Figure 2.5 shows that LTIM immigration estimates are substantially higher than APS implied migration estimates for the 15/16-24 age range. In part, this will be due to the fact that the APS does not survey communal establishments where many international students would live.

Figure 2.6 Comparison of LTIM immigration estimates with APS implied migration estimates for 25-44 year olds, 2001-2011



Source: Office for National Statistics

Figure 2.6 shows that LTIM immigration estimates show similar patterns to APS implied migration estimates for 25-44 year olds. APS estimates were higher than LTIM estimates in 2005 and 2006, but were lower than LTIM estimates in all other years. This potentially indicates that LTIM may have slightly undercounted this age group between 2005 and 2007.

2.1.11 *Summary of comparisons with APS implied migration flows*

- Overall there is evidence from the comparison with APS implied migration flows to suggest that LTIM immigration flows did underestimate migration from EU8 countries between 2004 and 2008. However, far greater coverage of immigration from the EU8 has been achieved since improvements were made to the IPS migration filter shifts to include more regional airports (including Luton and Stansted). These improvements will be discussed in more detail in Section 3.

- There is some evidence from the APS that the IPS is undercounting immigration of children under 15 years old. This will need further investigation. By contrast, the IPS appears to be more effective than the APS at capturing migration of 16-24 year olds, many of whom are international students residing in communal establishments which are not included in the APS sampling frame.

2.2 Comparison with Patient Register implied migration flows

2.2.1 Implied migration flows can be estimated from the NHS Patient Register (PR), by analysing the number of people assigned a Flag 4 on the PR in a given year. A Flag 4 is assigned to individuals registering for a GP whose previous address was overseas. The number of Flag 4s assigned in each year is compared with LTIM immigration estimates for England and Wales by age and sex. No country of birth or citizenship information is available on the PR so comparison between LTIM immigration and PR implied migration by these variables is not possible.

2.2.2 There are a number of definitional differences between the two sources which would affect any comparisons made:

- **Time period:** LTIM estimates by age and sex are available by calendar year, whilst estimates for Flag 4s are available for mid years (ending 31 July). Comparisons have been carried out comparing a calendar year of LTIM (eg 2001) against its equivalent mid-year of Flag 4 (eg mid-2001).

- **Definition of a migrant:** An individual can register with a GP after living in the UK for at least 3 months and a Flag 4 may be generated if:

- An individual was born outside of the UK and enters England and Wales for the first time, and registers with an NHS GP.

- The previous address of an individual is reported as outside of the UK and time spent outside the UK is more than 3 months.

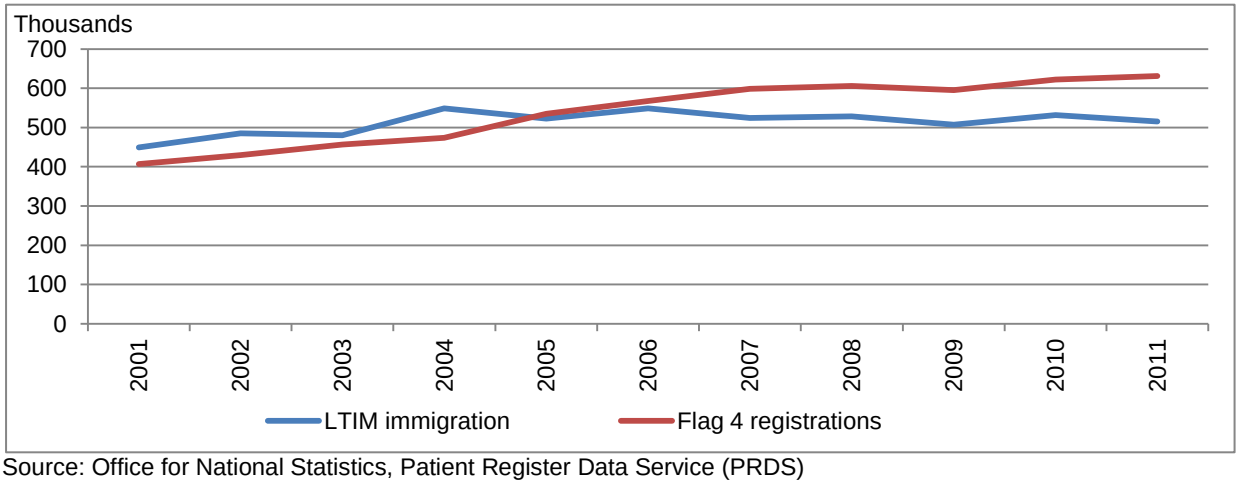
- By contrast the LTIM definition of a migrant is someone who changes their country of usual residence for a period of at least 12 months. Therefore, Flag 4s may be generated for individuals who are not long-term migrants to England and Wales (ie short-term migrants staying in the UK for 3-12 months or people who may be usually resident in the UK, but whose last address was abroad for 3-12 months).

- **Coverage:** Registration with a GP is not compulsory so some long-term migrants may never register. This affects the completeness of the Flag 4 data, particularly for certain groups of migrants such as young males who often have no immediate need to access health services. Even when a long-term migrant does register with a GP, there is often a lag between immigration and registration with a GP.

- **Internal migration:** Flag 4s are not retained on a patient's record when they move internally within England and Wales. The PR data is a snapshot, taken annually on 31 July. It would be possible for a migrant to register with a GP and then to move to another GP practice in the period between the annual snapshot of the PR. This would result in the international in-migration not being recorded on the PR. From the IPS, it is understood that a proportion of international long-term migrants will move away from their initial place of residence (often a large city such as London) relatively quickly after first migrating to the UK, particularly if they arrived to look for work.

2.2.3 Figure 2.7 shows a comparison of LTIM immigration estimates for England and Wales, against the number of GP registrations assigned a Flag 4 in 2001- 2011.

Figure 2.7 Comparison of LTIM immigration estimates and Flag 4 GP registrations, England and Wales, 2001-2011

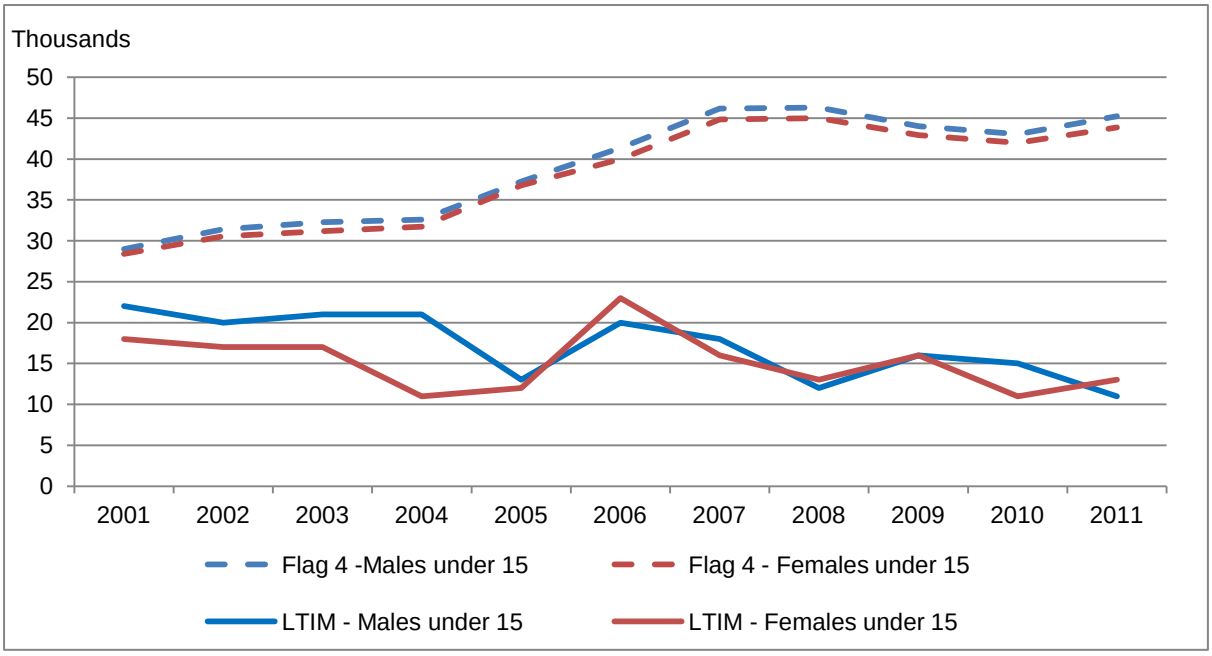


Source: Office for National Statistics, Patient Register Data Service (PRDS)

2.2.4 Figure 2.7 shows that until 2004, both LTIM immigration estimates and Flag 4 registrations show a similar trend, with LTIM estimates slightly higher than Flag 4 counts. However, from 2005 onwards, the number of Flag 4 registrations began to exceed LTIM immigration estimates, and the gap between the two series begins to widen from 2007 onwards. This may reflect a lag between new migrants coming to the UK from the EU following accession in 2004, and registering with a GP. The continuing rise in numbers of Flag 4 registrations when compared to LTIM might also reflect an increased tendency amongst GP practices to record Flag 4s as well as an increased tendency for migrants to register with a GP. Thus it seems likely that some of the new Flag 4 registrations from 2007 onwards were in fact existing migrants who may have been in the UK for a period of time, rather than newly arrived migrants.

2.2.5 Figures 2.8 to 2.10 compare LTIM immigration estimates to Flag 4 GP registrations by age group and sex for 2001 to 2011. It should be noted that the LTIM estimates for these sub-groups would have relatively large confidence intervals around them due to smaller IPS sample sizes, and therefore any year-on-year changes observed may be due to sampling error.

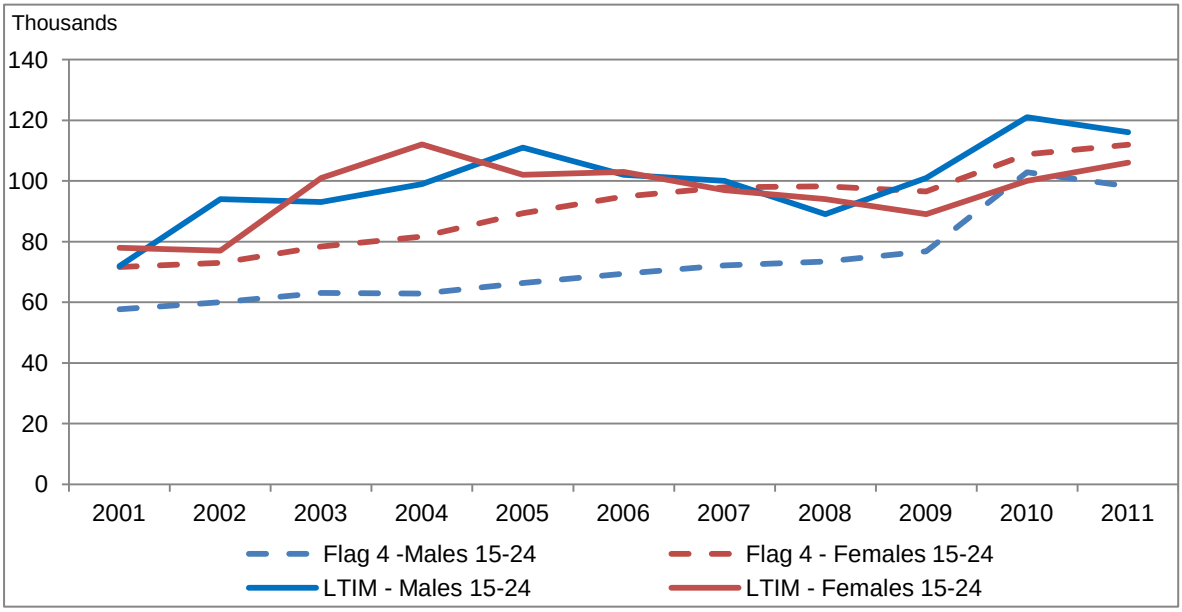
Figure 2.8 Comparison of LTIM immigration estimates and Flag 4 GP registrations by sex for people aged under 15, England and Wales, 2001-2011



Source: Office for National Statistics, Patient Register Data Service (PRDS)

2.2.6 Figure 2.8 shows that both sexes show a similar trend in relation to GP Flag 4 registrations, with a clear increase in the number of registrations between 2004 and 2007. By contrast, LTIM immigration estimates appear to rise and fall over the time period. From 2007 onwards, the LTIM immigration estimates tend to diverge away from the Flag 4 registrations, reaching a maximum difference of around 30,000 for both males and females in 2008. Since children would be likely to be registered with a GP following migration, this supports earlier findings from comparisons with the APS that the IPS (and therefore LTIM immigration estimates) may be underestimating children.

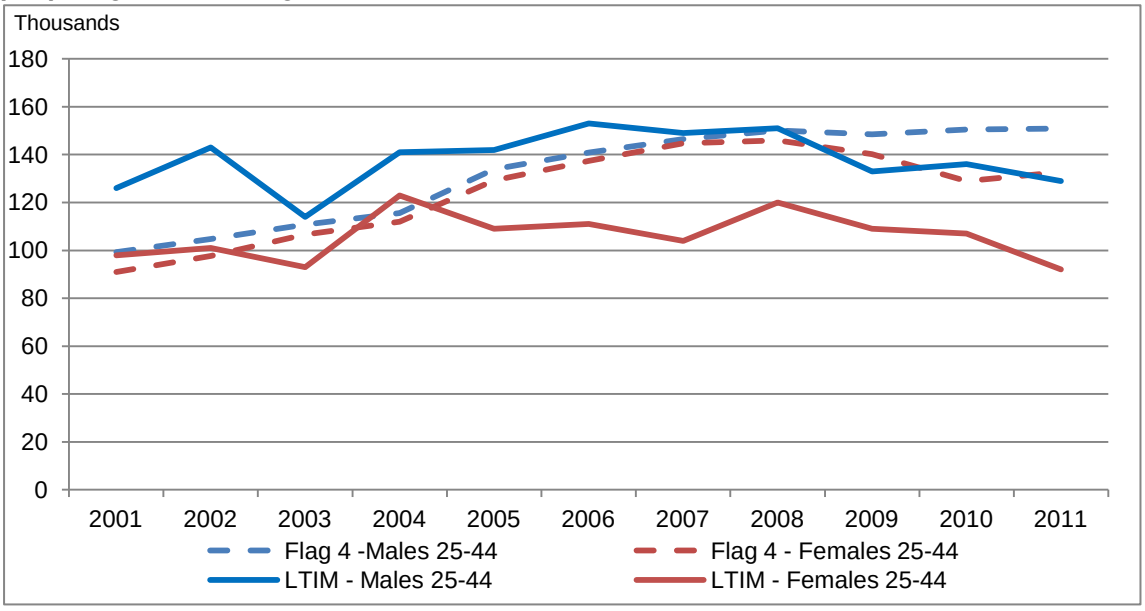
Figure 2.9 Comparison of LTIM immigration estimates and Flag 4 GP registrations by sex for people aged 15-24, England and Wales, 2001-2011



Source: Office for National Statistics, Patient Register Data Service (PRDS)

2.2.7 Flag 4 GP registrations and LTIM immigration estimates show a similarly increasing trend in 2001-2011 for the 15-24 age range. LTIM immigration estimates are consistently higher for males over this time period, which would be expected as young males are known to be less likely to register for health services. For females, LTIM immigration estimates exceeded Flag 4 GP registrations until 2007. After this point, the Flag 4 GP registrations series was highest which might provide some evidence that the LTIM series underestimated immigration of females in this age group, although both series can be seen to follow a similar trend and remained close.

Figure 2.10 Comparison of LTIM immigration estimates and Flag 4 GP registrations by sex for people aged 25-44, England and Wales, 2001-2011



Source: Office for National Statistics, Patient Register Data Service (PRDS)

2.2.8 Figure 2.10 shows that from 2005 onwards, Flag 4 registrations for females aged 25-44 exceed the LTIM immigration estimate. Flag 4 registrations for males aged 25-44 show a similar trend to those for females, but do not exceed the LTIM immigration estimate until 2009. This is again likely to be due to young males being less likely to register for health services than young females, and where registration does occur it is more likely to be with some lag from the migration event. It is interesting to note that the Flag 4 registrations series for females aged 25-44 shows a similar pattern to that for males and females aged under 15, shown in Figure 2.8. This may potentially be because females may register for health services at the same time as they register their children for these services.

2.2.9 Summary of comparisons with Patient Register implied migration flows

- Overall, until 2005 LTIM immigration estimates were slightly higher than Flag 4 registrations but both series showed similar trends. There is some evidence that there was a lag for many migrants between the migration event and registration with a GP. This was especially true for young males. However, over time, there is evidence of Flag 4 registrations increasing and exceeding LTIM estimates in the years following EU accession in 2004. There are key definitional differences between the two series that would explain some of the differences (for example a proportion of Flag 4 registrations may be short-term migrants). However, on the balance of evidence, it would appear that LTIM has underestimated immigration of certain groups of migrants, for example those aged under 15. This is similar to the findings from comparisons with APS implied migration flows, and will need further investigation.

2.3 Comparison with L2 implied migration flows

2.3.1 The Lifetime Labour Market Database (L2) is an anonymised 1% extract of the National Insurance and PAYE System and various extracts from the Department for Work and Pensions (DWP) benefit systems. The L2 UK Population file is a dataset that is derived within DWP that collates information on individuals' activities within each tax year to enable a judgement to be made about whether a person is 'resident'. All outputs from the L2 are scaled by a factor of 100 to match population totals.

2.3.2 There are some key definitional differences between the two series that would affect any comparisons made between them:

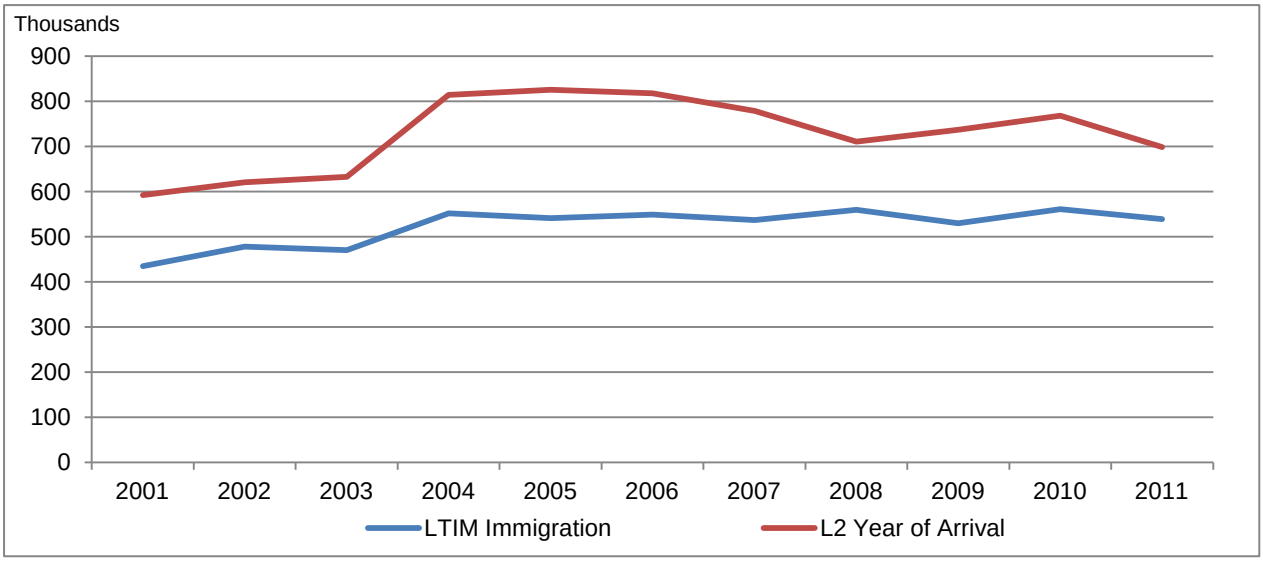
- **Definition of a long-term migrant:** LTIM uses the UN definition of a long-term international migrant (see Section 1). In the L2, each 'arrival type' is classified as either long-term or short-term. Any arrival with less than 52 weeks observable activity across the year of arrival and year of arrival+1 and where a departure is observed in either the year of arrival +1 or arrival+2 is classed as short-term in this dataset. Any arrival with 52 weeks activity across the two years (arrival year & arrival year+1), or where there is activity in the third year (no departure observed) is classed as a long-term arrival. On departure, if a person was classified as a long-term resident, they will be classified as a long-term departure.

- **Coverage:** The L2 data is collected for tax, benefit and national insurance purposes and therefore will not include migrants who have not registered for a NINo. The L2 dataset also excludes people under the age of 16, and certain special populations (eg foreign armed forces resident in the UK, people paid by foreign employers and not subject to UK tax or National Insurance whilst resident in the UK, and long-term prisoners). Military personnel (including foreign armed forces) and embassy staff are excluded from LTIM.

- **Methodology:** the methodology used on the L2 to determine residency can lead to incorrect classifications of people as resident/non-resident in any given year. For example, someone who is inactive on DWP systems for a period of time (eg a student who does not work) but who may still be resident, may be incorrectly classified as non-resident, and then be incorrectly counted as an arrival when they eventually become active on the L2 database again. This is particularly problematic for the 16-19 age group who are often in full-time education, or are not eligible to claim benefits.

2.3.3 Figure 2.11 compares LTIM immigration estimates for individuals aged 15 years and over, with L2 resident population estimates for 2001-2011.

Figure 2.11 Comparison of LTIM immigration estimates for individuals aged 15 years and over with L2 Year of Arrival data, United Kingdom, 2001-2011

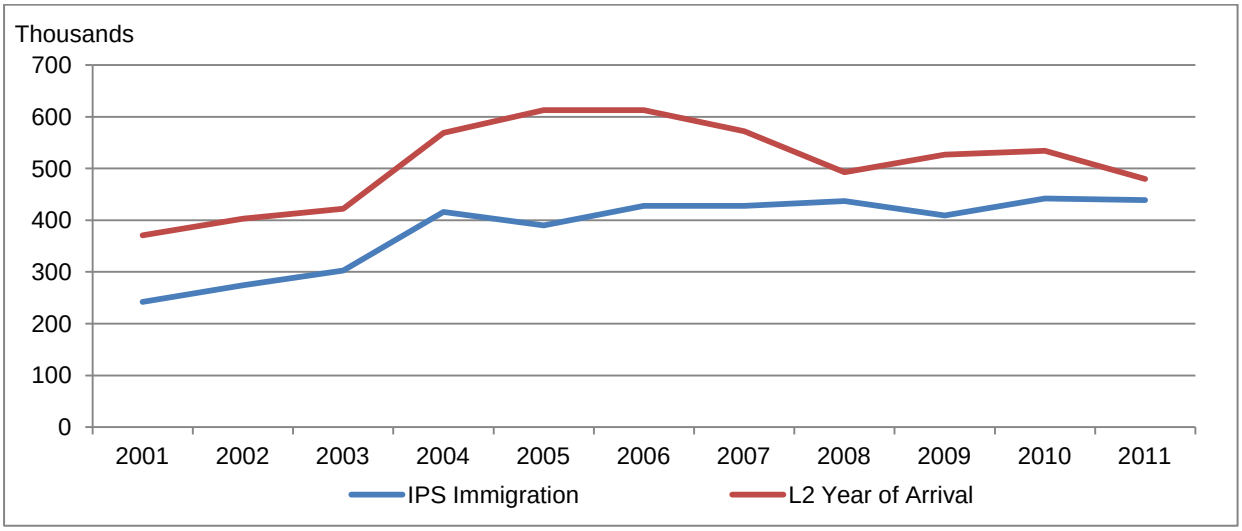


Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.3.4 Estimates of immigration based on L2 residency are consistently higher than LTIM immigration estimates. This difference is likely to be largely accounted for by definitional differences between the two series noted above, and in particular, the methodological issues which could result in someone being misclassified as non-resident in one year, and then as an arrival in the following year, when they have been continuously resident in the UK during this time. There is a larger increase in the number of people on the L2 between 2004 and 2007 compared with LTIM, which may be further evidence of the LTIM series potentially missing migrants from the EU8 at this time.

2.3.5 Figure 2.12 compares IPS immigration estimates for non-British nationals aged 15 years and over with L2 year of arrival data for non-British nationals for 2001-2011. Please note that IPS estimates are used as this comparison is not available for LTIM estimates.

Figure 2.12 Comparison of IPS immigration estimates for non-British nationals aged 15 years and over with L2 Year of Arrival data for non-British nationals, United Kingdom, 2001-2011

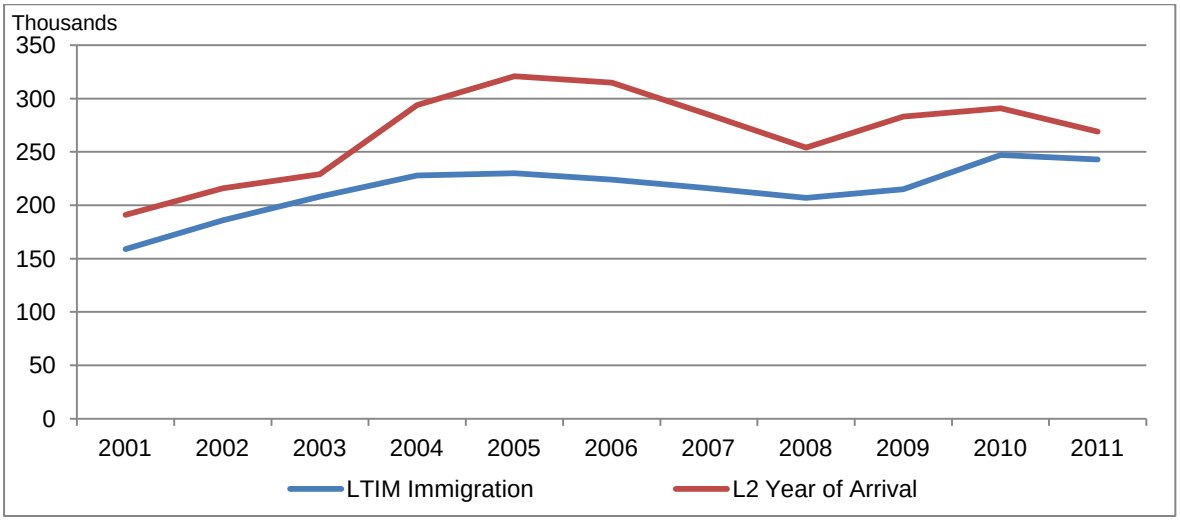


Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.3.6 Figure 2.12 shows that immigration estimates based on L2 year of arrival data, and IPS immigration estimates show a similar trend for non-British nationals for 2001-2011. Between 2004 and 2007, the series diverge to a greater extent, with IPS estimates much lower than L2 estimates. Many of the immigrants to the UK from the countries which joined the EU in 2004 migrated for work-related reasons, and would therefore have needed to register for a NINo. Notwithstanding the definitional differences between the two sources, this might indicate some underestimation of immigration on the IPS at this time.

2.3.7 Figure 2.13 compares LTIM immigration estimates for 15-24 year olds with implied immigration estimates from the L2 based on year of arrival for 16-24 year olds (the L2 does not include people aged under 16 years old).

Figure 2.13 Comparison of LTIM immigration estimates for 15-24 year olds and L2 year of arrival data for 16-24 year olds, United Kingdom, 2001-2011

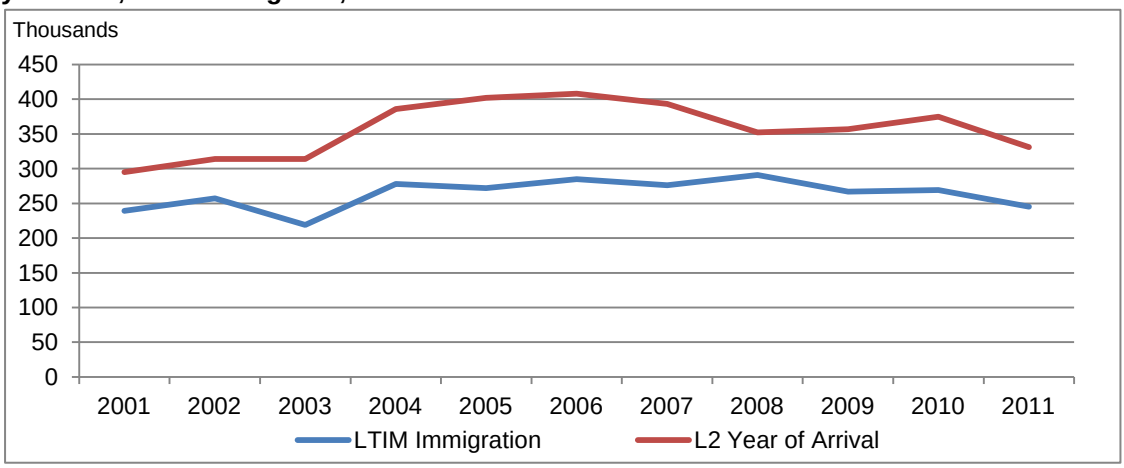


Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.3.8 The L2 implied immigration estimates are higher than LTIM estimates for the 15/16-24 age range. This may in part be due to methodological issues determining the residency status of economically inactive people in this age range (e.g. students). However, the gap between the two series is noticeably higher in 2004-2007.

2.3.9 Figure 2.14 compares LTIM immigration estimates with implied immigration estimates from the L2 based on year of arrival for 25-44 year olds.

Figure 2.14 Comparison of LTIM immigration estimates and L2 year of arrival data for 25-44 year olds, United Kingdom, 2001-2011



Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.3.10 The trend in LTIM immigration is similar to that of implied immigration from L2 year of arrival data for 25-44 year olds. The L2 implied immigration estimates are consistently higher than LTIM estimates. This will again be partly due to definitional differences between the two sources, although the gap between the sources is highest between 2004 and 2007, when it is thought that LTIM was underestimating immigration.

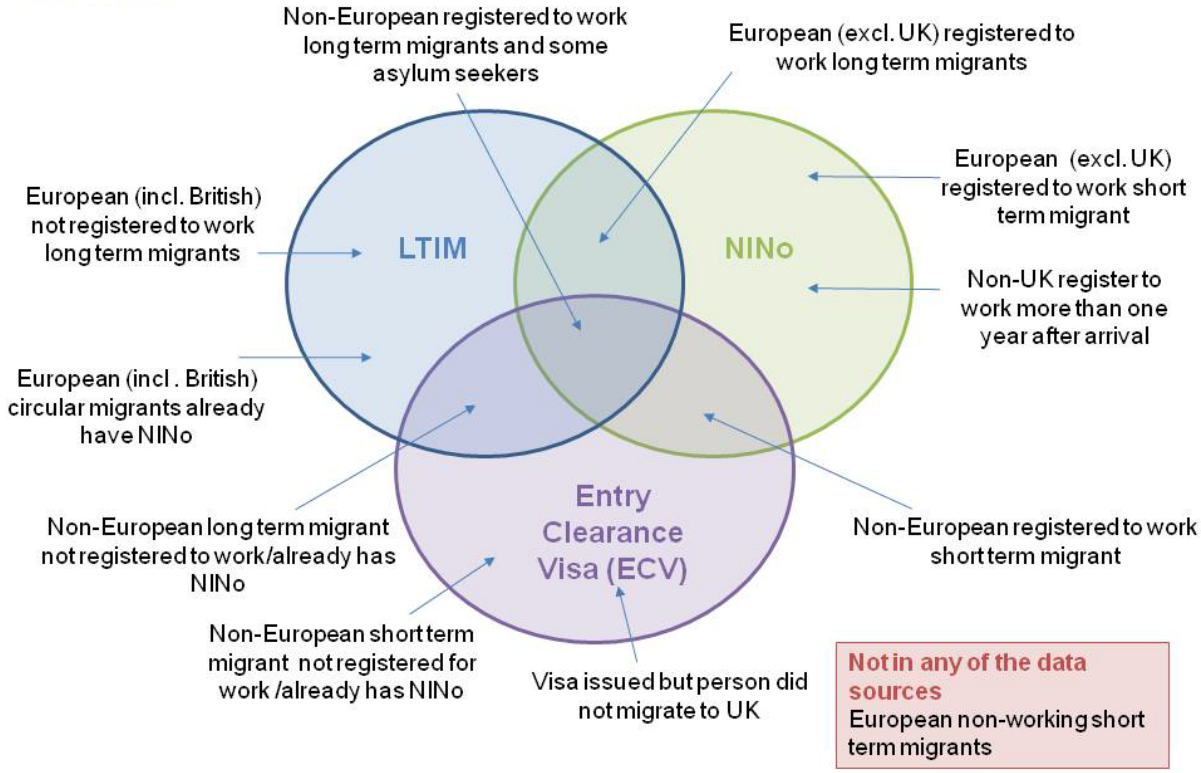
2.3.11 Summary of comparison with L2 implied migration flows

- In general, definitional differences make it difficult to analyse the differences observed between the L2 and LTIM data series. However, in common with other data sources, there is continuing evidence that the LTIM immigration series was too low between 2004 and 2007.

2.4 Comparison with NINo implied migration flows

2.4.1 Sections 2.4 and 2.5 show comparisons between IPS immigration estimates with administrative data on allocation of National Insurance numbers (NINos) to adult overseas nationals and Entry Clearance Visas issued respectively. Figure 2.15 illustrates the definitional differences between LTIM estimates, NINo data and Entry Clearance Visa (ECV) data. LTIM estimates are 90% based on IPS data, with additional adjustments for asylum seekers, flows to and from Northern Ireland and migrant and visitor switchers.

Figure 2.15 Definitional differences between LTIM, NINo and ECV data



Note that the overlap shown between the data sources in Figure 2.15 is not drawn to scale, and is therefore not indicative of the degree of overlap between the sources

2.4.2 Data on NINo allocations to adult overseas nationals are compared with IPS immigration estimates for non-British nationals who stated that their main reason for migration was work-related (either to fulfil a definite job or to look for work).

2.4.3 There are a number of definitional differences between the data sources:

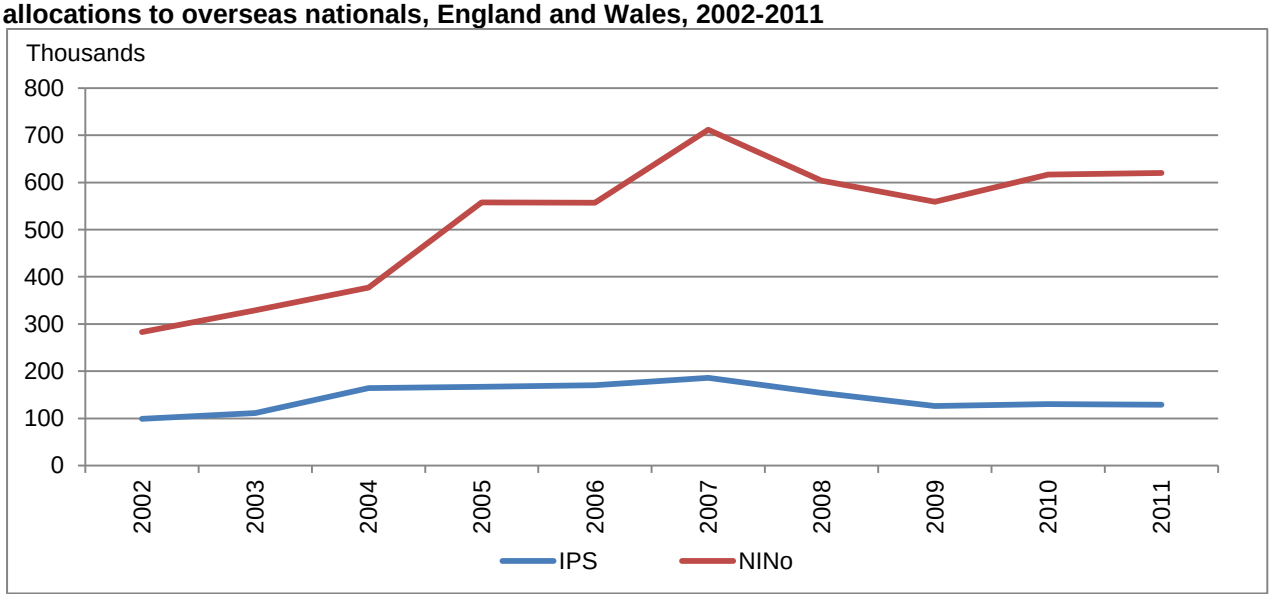
- **Definition of a migrant**: All overseas nationals aged 16 and over who have been allocated a NINo are on the National Insurance Recording and Pay As You Earn (NPS) system. Some of these individuals will be resident in the UK for less than 12 months, and therefore would not be included in LTIM estimates. Indeed some individuals may be allocated a NINo and then decide not to migrate to the UK at all.

- **Time period**: There may be a time lag between entering the UK and registering for a NINo. Additionally an immigrant in any given year may have a pre-existing NINo registration from a previous stay in the UK.

- **Coverage**: A proportion of long-term migrants will never have any requirement to apply for a NINo if they do not work, and have no interaction with the tax or benefits system.

2.4.4 Figure 2.16 compares IPS immigration estimates for non-British nationals who stated that their main reason for migration was work-related with data on NINo allocations to overseas nationals.

Figure 2.16 IPS work-related immigration of non-British nationals compared with NINo allocations to overseas nationals, England and Wales, 2002-2011

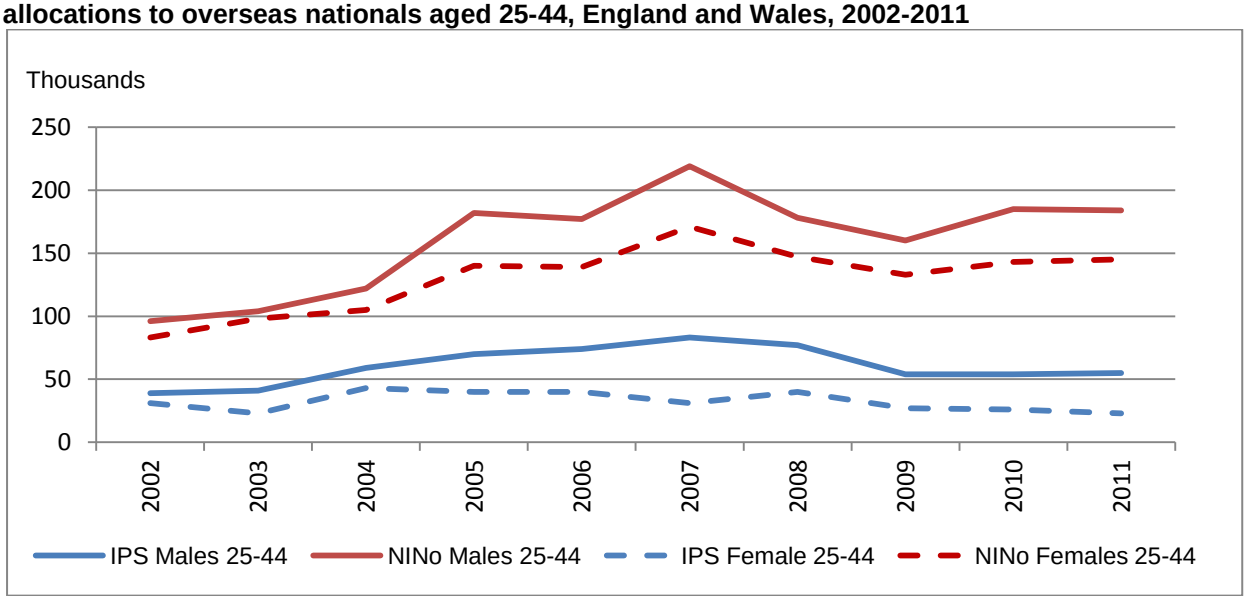


Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.4.5 IPS inflows are consistently lower and more stable than the NINo allocations data. This will in part be due to the NINo allocations data including visitors and short-term migrants. The NINo allocations data will also include overseas nationals whose main reason for migrating to England and Wales was not work-related (e.g. those who migrated for formal study) but who may have registered for a NINo in order to work part-time. These individuals may have been captured in IPS inflow estimates for reasons other than work-related.

2.4.6 Figure 2.17 shows that between 2004 and 2007, NINo allocations rose sharply. The corresponding increase in IPS immigration estimates was much smaller. Analysis of the IPS and NINo allocations data by age group and sex shows similar patterns to those in Figure 2.16 with a sharp rise in NINo allocations between 2004 and 2007 not matched by a rise in IPS immigration estimates. However, Figure 2.17 shows that the IPS appears to have been more effective at recording the increase in immigration for males aged 25-44 than for females aged 25-44.

Figure 2.17 IPS work-related immigration of non-British citizens aged 25-44 compared to NINo allocations to overseas nationals aged 25-44, England and Wales, 2002-2011

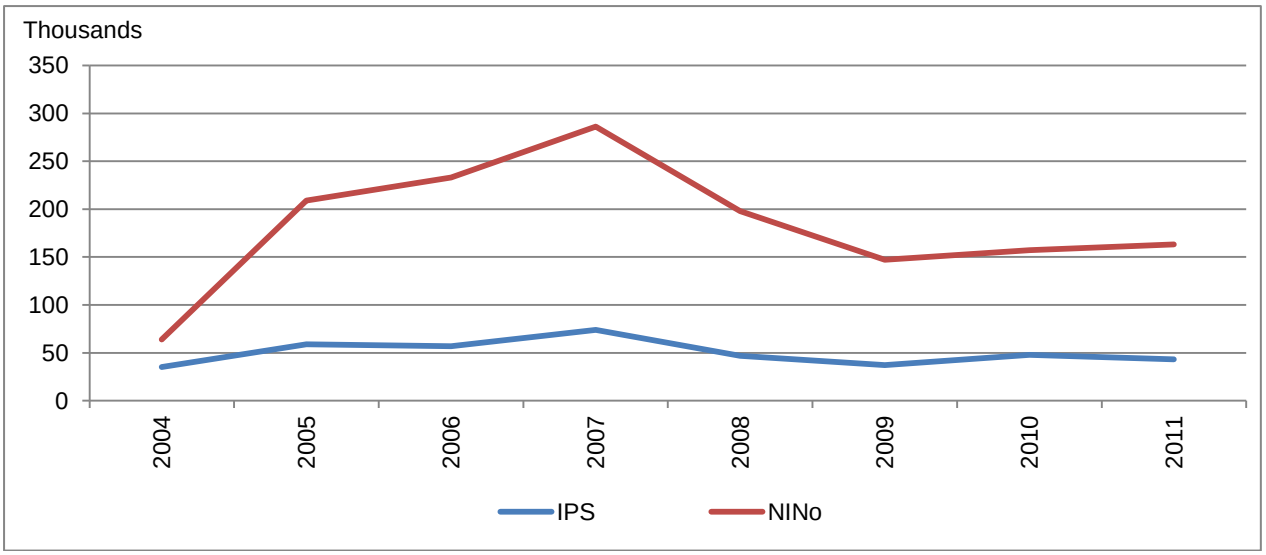


Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.4.7 For males aged 25-44, both NINo allocations and IPS work-related inflows show a sustained increase between 2004 and 2008. However, for females, the increase in NINo allocations in 2004 and again in 2007 is not reflected in the IPS inflow data which show an increase in 2004 and then remain stable, dropping slightly in 2007. One of the reasons for this difference would be if there was a lag between the migration event and registering for a NINo. The NINo allocations data also indicate that there were more males than females in this age group registering for a NINo at this time.

2.4.8 Figure 2.18 compares IPS immigration estimates for EU8 nationals who stated that their main reason for migration was work-related with data on NINo allocations to EU8 nationals.

Figure 2.18 IPS work-related immigration of EU8 nationals compared to NINo allocations to EU8 nationals, England and Wales, 2002-2011



Source: Office for National Statistics, Department for Work and Pensions (DWP)

2.4.9 Figure 2.18 shows that the large increase in allocation of NINos to EU8 nationals between 2004 and 2007 was not adequately reflected in IPS immigration estimates for work-related reasons for EU8 nationals. This reinforces earlier similar findings from comparisons to APS data. Since 2009, when improvements made to the IPS were fully implemented, the trends shown in the IPS and NINo allocations data are more similar.

2.4.10 Summary of comparisons with NINo implied migration flows

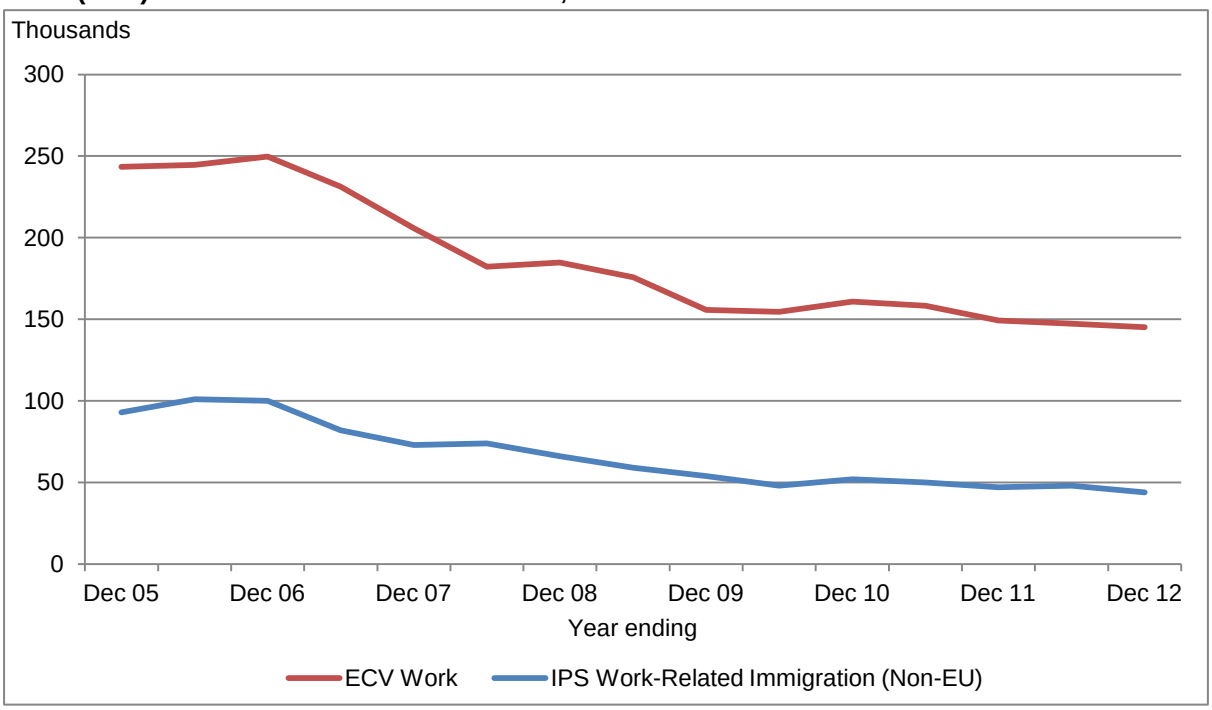
- Whilst much of the observed difference between IPS work-related inflows and NINo allocations data can be attributed to definitional differences (inclusion of visitors, short term migrants and those migrating to the UK primarily for reasons other than for work in NINo data), conclusions about the quality of the IPS data can still be drawn by comparing trends over time. It is clear that the increase in allocation of NINos to overseas nationals, and particularly EU8 nationals, after 2004 was not fully reflected in the IPS work-related inflow data, particularly females (aged 25-44).

2.5 Comparison with Entry Clearance Visa (ECV) data

2.5.1 Administrative data on entry clearance visas provide information on the nationality and reason for visit of those who are coming to the UK who are subject to immigration control. Nationals of the EU and EEA do not require a visa to enter the UK, although some do apply and are issued with visas.

2.5.2 Figure 2.19 compares data on work visas issued with IPS estimates of immigration for work-related reasons for non-EU citizens.

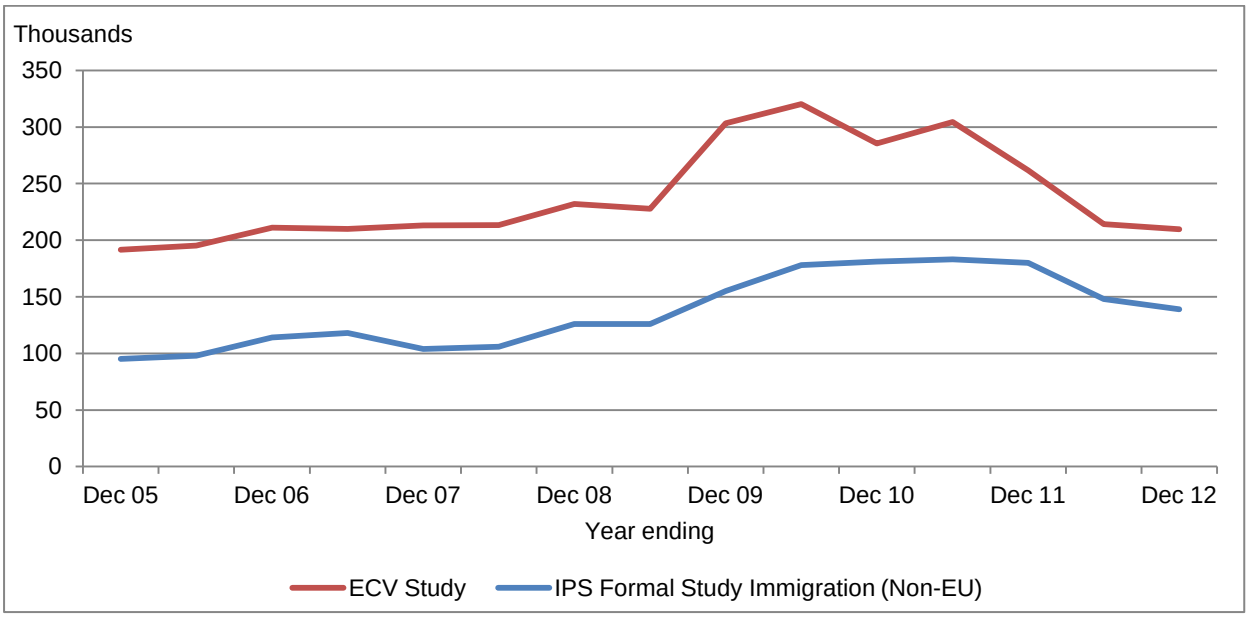
Figure 2.19 IPS work-related immigration of non-EU citizens compared with Entry Clearance Visas (ECV) issued for work-related reasons, 2005-2012



Source: Office for National Statistics, Home Office

2.5.3 IPS estimates for immigration for work-related reasons for non-EU citizens show a similar trend over time to the number of ECVs granted. It would be expected that the number of visas issued exceeded IPS estimates of immigration, as the visa data includes visas lasting less than12 months. The gap between the two series has reduced from 150,000 in the year ending December 2005 to 101,000 in the year ending December 2012. Figure 2.20 compares data on study visas issued with IPS inflows for formal study for non-EU citizens.

Figure 2.20 IPS work-related immigration of non-EU citizens compared with Entry Clearance Visas (ECV) issued for formal study, 2005-2012



Source: Office for National Statistics, Home Office

2.5.4 As with work-related visas, the IPS estimates for immigration for formal study among non-EU citizens show a similar trend over time to the number of visas issues for study. Once again, it would be expected that the number of visas issued would exceed the IPS estimates as a proportion of the visas would be for less than 12 months. The difference between the two series varies over time, peaking at 142,000 in the year ending June 2010 and reaching a minimum at 62,000 in the year ending March 2012.

2.5.5 Summary of comparison with Entry Clearance Visa (ECV) data

- Overall the ECV and IPS data follow similar trends over time. It would be expected that the IPS estimates would be lower than the ECV data as the latter will also include short-term migrants, so this does not signify further evidence of underestimation of immigration on the IPS.

2.6 Conclusion of comparisons of LTIM and IPS estimates with other data sources

When comparing LTIM estimates to other data sources, it is important to recognise that some differences would be expected due to definitional differences between the sources. Despite this caveat, it is possible to draw some conclusions about the quality of the LTIM data series between 2001 and 2011 from these comparisons with other data sources.

- There is evidence from a number of data sources that the LTIM series for immigration of EU8 migrants was too low in the years following accession in 2004. For example, LTIM immigration estimates were substantially below APS implied immigration estimates for 2004-2006. By contrast LTIM immigration estimates for the EU15 were higher than APS estimates for this period. After 2009, when the IPS improvements were fully implemented, the LTIM immigration estimates were much closer to the APS implied immigration figures for the EU8.

- Evidence from data on allocations of NINos to adult overseas nationals shows that the increased allocation of NINos to EU8 nationals after 2004 was not fully reflected in IPS work-related inflows. It would be expected that the number of NINos allocated would be higher than the IPS work-related inflow estimates due to short-term migrants, visitors and long-term migrants whose main reason for migration was not work (e.g. those who migrated to study but also applied for a NINo in order to work part-time whilst studying). The observed differences between the two series were greater for females aged 25-44 than for males aged 25-44.

- There is some evidence from the comparison of LTIM estimates for under 15 year olds with implied migration estimates from the APS for under 16 year olds and GP Flag 4 registrations data for people aged under 15 that the IPS might not be adequately capturing immigration of children. By contrast, it has been shown that the IPS includes more migrants aged 16-24 than the APS, partly because many of these may be students living within communal establishments which are excluded from the APS sampling frame.

3 How was long-term international migration underestimated? - Examining data sources

3.0.1 Comparisons between LTIM immigration estimates and other migration-related data sources have indicated the LTIM estimates may have been too low between 2004 to 2008, particularly for certain groups of migrants such as those from EU8 countries. Section 3 and Section 4 will consider the possible causes of this underestimation of immigration. Section 3 will look at the data sources which feed into LTIM estimates, and Section 4 will look at the methodology used to calculate LTIM.

3.0.2 LTIM estimates are approximately 90% based on data from the International Passenger Survey (IPS). The IPS is a large multi-purpose sample survey which is carried out by ONS at the major entry and exit points of the UK (airports, seaports and Channel Tunnel/Eurostar). The survey collects data on international migration, as well as travel expenditure and tourism.

3.0.3 Around 100 million passengers enter the UK and a further 100 million passengers leave the UK on an annual basis. In total, between 700,000 and 800,000 IPS interviews are conducted each year for migration purposes. Of these, between 4,000 and 5,000 interviewees are identified as long-term international migrants. This suggests that approximately 1 in every 200 passengers (0.5%) are long-term international migrants.

3.1 Coverage of EU8 migrants on the IPS

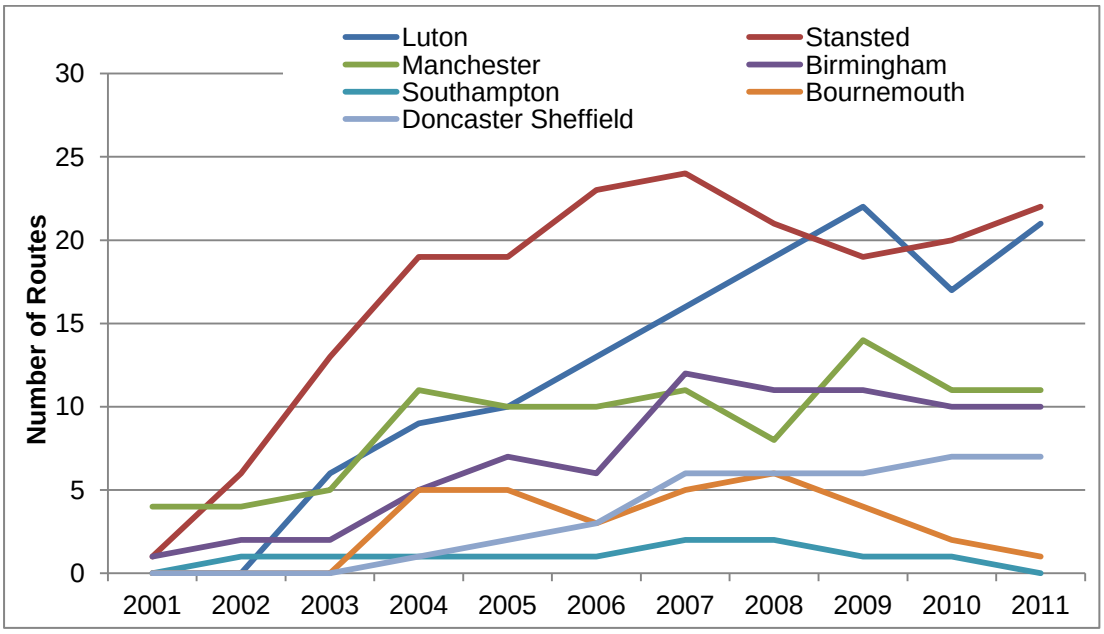
3.1.1 A reconciliation exercise carried out in light of the 2011 Census found a difference of 464,000 between the census population estimate and the rolled forward mid-year population estimates. 250,000 of this difference was attributed to underestimation of immigration of EU8 nationals in the middle part of the decade between 2001 and 2011 (ONS, 2012a). Analysis presented in Section 2 of this review has provided further evidence that LTIM estimates for immigration of EU8 migrants were too low between 2004 and 2008.

3.1.2 In the years following the 2004 EU accession, there was a considerable increase in the number of passenger journeys and routes connecting the EU8 countries with the UK. Data from the Civil Aviation Authority (CAA) shows that 1.8 million passenger journeys were made between the UK and EU8 airports in 2001. This had increased to 9.8 million in 2008, the highest figure for any year in the decade. Regarding routes, there were 30 passenger air routes between the UK and EU8 countries in 2001, increasing to a peak of 190 in 2007. The numbers of passengers and routes have both declined slightly since then, to 8.6 million and 171 respectively in 2011.

3.1.3 The largest increases in passengers and numbers of routes were for Poland; in 2001, 453,000 passengers travelled by air between the UK and Poland using six different routes. In 2007, 5.0 million passengers travelled using 102 different routes. It is important to note that not all air passengers will be long-term international migrants. However, whilst increasing air passenger numbers are not a direct measure of increasing migration, they might be a strong indicator of it, particularly for those countries whose citizens undertake less tourist or business travel to and from the UK.

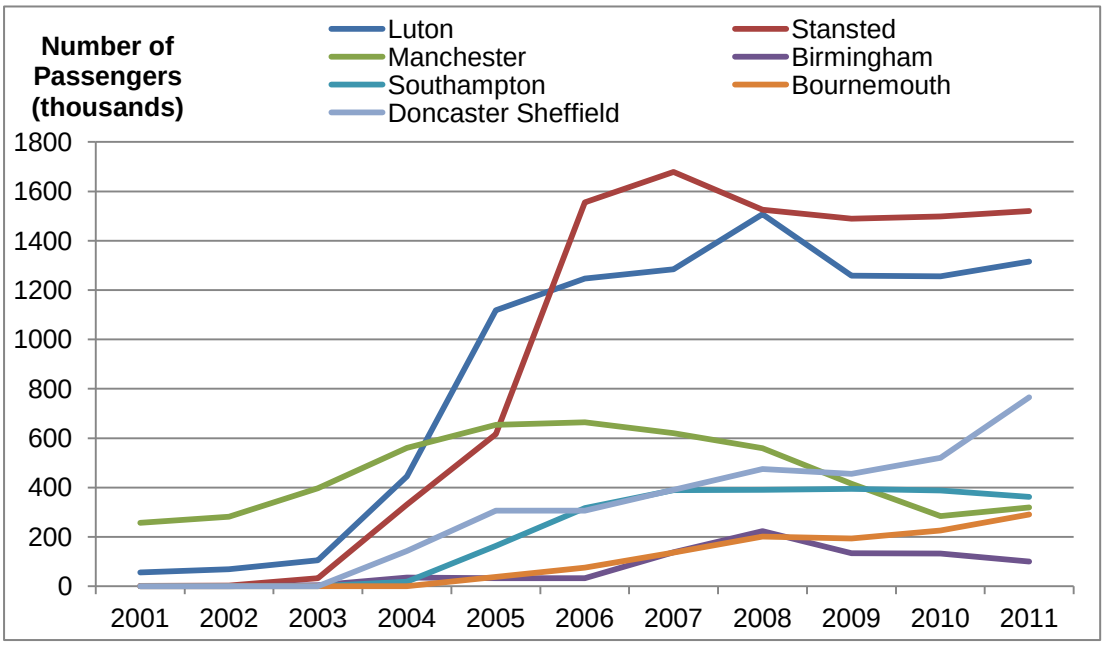
3.1.4 In the earlier part of the 2000s, IPS interviewing was concentrated in larger airports, such as Heathrow, Gatwick and Manchester. Therefore, any migrants travelling to and from the UK via smaller regional airports were less likely to have been interviewed by the IPS. This diversification of passenger routes between 2003 and 2007 may have caused underestimation of EU8 migrants. This is confirmed by analysis of CAA data which show a significant increase in the number of EU8 citizens travelling on routes not covered, or not fully covered for migration purposes, by the IPS prior to 2009, when improvements (detailed in Section 3.2) were made to the IPS design (see Figures 3.1 and 3.2).

Figure 3.1 Number of passenger routes between selected UK airports and EU8 countries, 2001- 2011



Source: Civil Aviation Authority (CAA)

Figure 3.2 Number of passenger journeys between selected UK airports and EU8 countries, 2001- 2011



Source: Civil Aviation Authority (CAA)

3.1.5 Figures 3.1 and 3.2 show that the largest increases in the number of routes and the number of passenger journeys were at Luton and Stansted airports, with smaller increases recorded at Doncaster, Sheffield, Southampton, and Bournemouth airports. Since none of these airports were fully covered by the IPS for migration purposes prior to the implementation of improvements in 2008, it is easy to see how a large number of immigrants from EU8 countries would have been missed by the IPS interviewers before 2008.

3.2 Improvements to the IPS

3.2.1 In response to the recommendations of the Inter-Departmental Task Force on Migration Statistics, published in 2006, ONS initiated a Port Survey Review (PSR) which in turn led to a number of improvements being made to the IPS between 2007 and 2009. These improvements are summarised in Table 3.1.

Table 3.1 Improvements made to the IPS since 2007

January 2007	Inclusion of migration filter shifts for emigration. This enabled a three-fold increase in the number of emigrants sampled.
April 2008	Boost in the number of migrant contacts through establishment of migration filter shifts at Luton, Stansted and Manchester (also taking place at London Heathrow and London Gatwick) Additional shifts for Dover-Calais & Dover-Dunkirk ferry crossings Additional shifts for Eurotunnel shuttle between Cheriton (Channel Tunnel terminal) and Coquelles (Channel Tunnel terminal) Additional ordinary shifts at some other airports (e.g. Birmingham) Introduction of interviewing at Southampton, Bournemouth and Robin Hood (Doncaster) airports All migration filter shifts to include short-term migrants (previously only long-term migrants were included) Heathrow Terminal 5 interviews begin
2009 onwards	Survey redesign so that emphasis is on identifying migrants, with a sub-sample of these contacts being interviewed for balance of payments and travel and tourism purposes Sampling interval set to be as many as possible – eg higher when port is busier Additional sites added to sample design including Belfast International (by July 2009) and Aberdeen airports, and the Portsmouth-Bilbao sea route Introduction of a common weighting method across all ports and routes. The new approach followed the same principles previously applied only to 'main' airports and was more sophisticated than that applied previously to the other ports and routes.

3.2.2 The aims of the improvements made to the IPS were to:

- Improve the balance of the sample and make it less skewed towards migrants arriving and leaving through London Heathrow airport
- Increase the number of migrant contacts, particularly for outflows
- Improve the reliability of estimates of migrants known to predominately use other routes (e.g. regional airports), notably those from the EU accession countries.

3.2.3 Table 3.2 shows the number of contacts on the IPS from 2001 to 2011. It clearly shows the three-fold increase in the number of contacts for emigrants in 2007, when the number of migration filter shifts being carried out was increased. This greater number of contacts should have improved the quality of the IPS estimates. With the current design approximately 3,000 long-term immigrants and 2,000 long-term emigrants are sampled on the IPS annually. This number varies from year to year and may not directly correspond to the relevant migration figures produced from the estimation process, as these are weighted according to total passenger flows.

Table 3.2 IPS contacts, 2001-2011

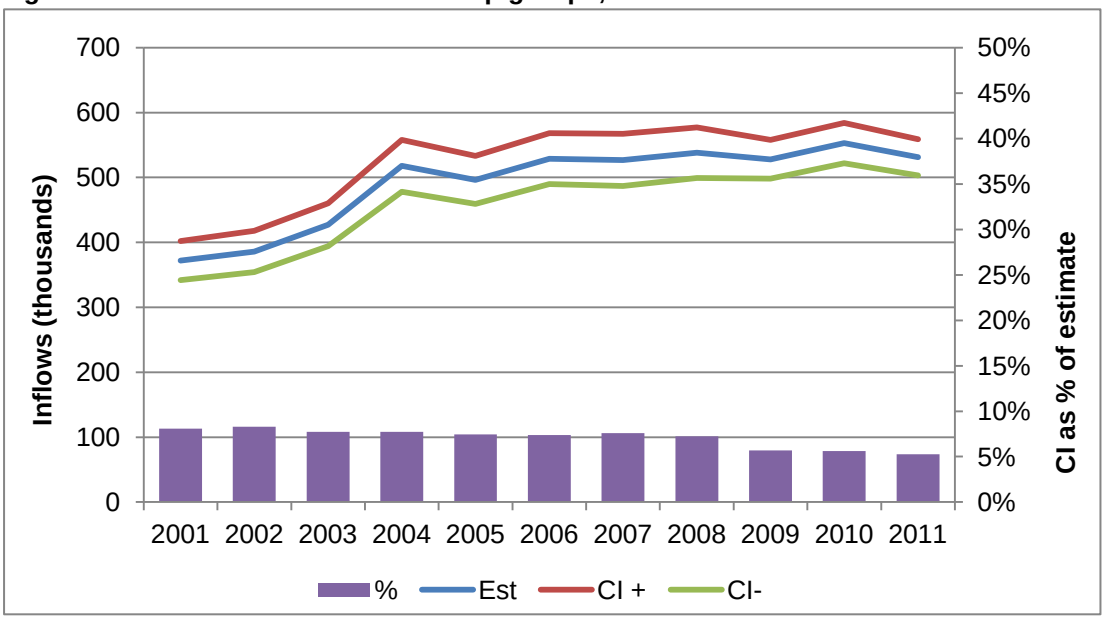
	Immigration contacts	Emigration contacts
2001	2,375	687
2002	2,477	765
2003	2,394	706
2004	2,801	755
2005	2,965	781
2006	3,005	789
2007	3,091	2,362
2008	2,886	2,231
2009	2,341	2,043
2010	2,990	1,888
2011	2,620	1,824

3.2.4 Evidence shows that the improvements made to the IPS which were fully implemented in 2009 have enhanced the quality of migration estimates. Approximately 95% of passengers entering and leaving the UK are now covered by the sample design. The remainder are either passengers travelling on those routes too small in volume or too expensive to be covered by the IPS, or those travelling at night[2].

3.2.5 Figures 3.3 and 3.4 show the changes in the size of the IPS confidence intervals in relation to the size of the estimate for IPS inflows and outflows for 2001 to 2011.

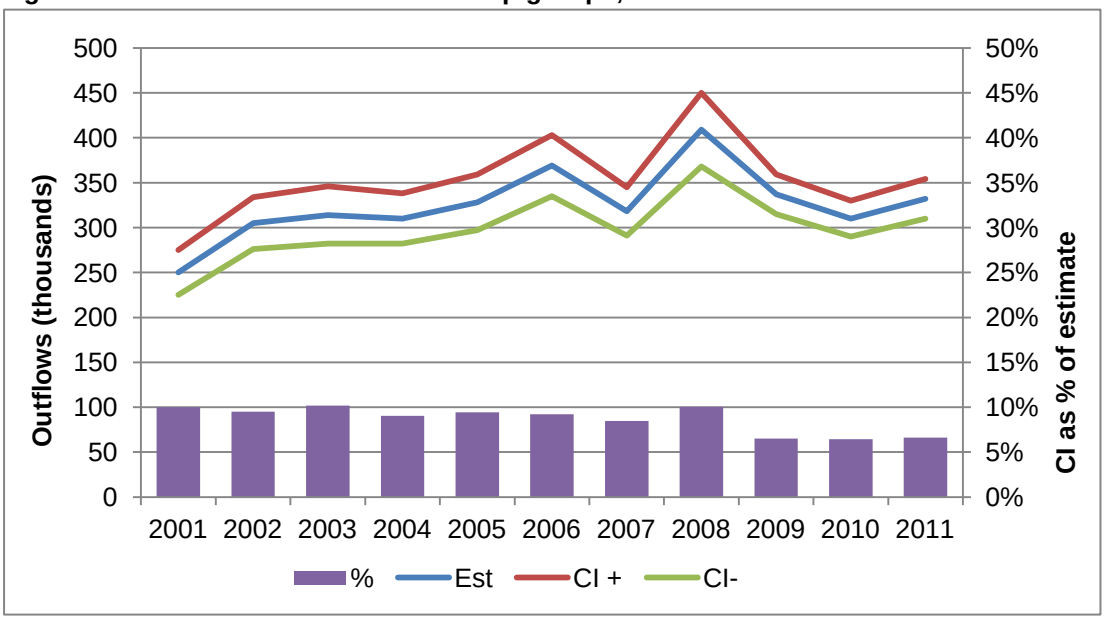
[2] Interview shifts at airports run between the hours of approximately 06:00 and 22:00.

Figure 3.3 IPS inflows for all citizenship groups, 2001- 2011



Source: Office for National Statistics

Figure 3.4 IPS outflows for all citizenship groups, 2001- 2011

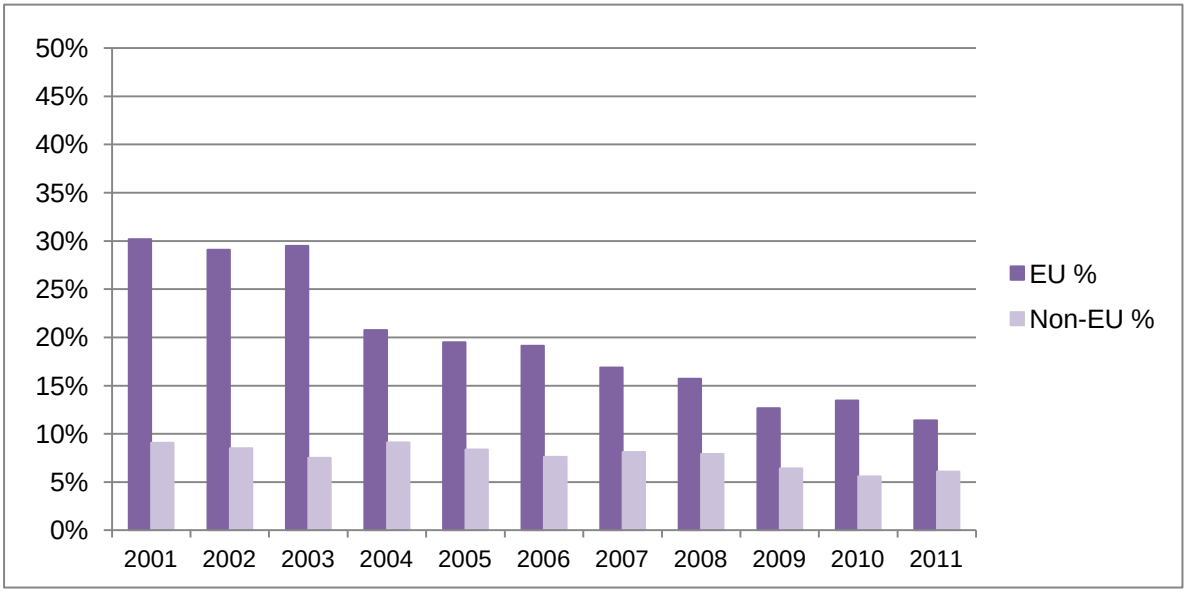


Source: Office for National Statistics

3.2.6 Figures 3.3 and 3.4 show that the size of the confidence intervals in relation to estimates for overall inflows and outflows have reduced between 2001 and 2011, from 8.1% to 5.3% for inflows and from 10.0% to 6.6% for outflows. For both inflows and outflows, the largest year-on-year reduction in the confidence interval size took place between 2008 and 2009. This suggests that the changes made to the IPS methodology in 2009 to increase the number of migrant contacts led to less uncertainty around the IPS estimates reflected by smaller confidence intervals.

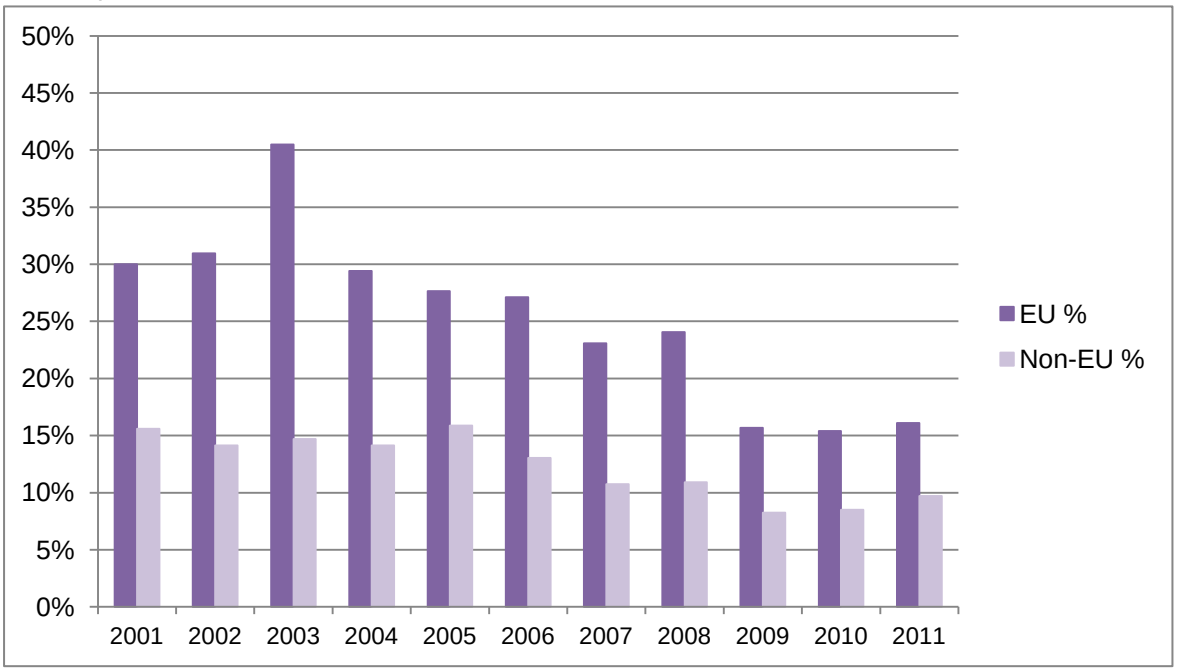
3.2.7 Figures 3.5 and 3.6 show the size of IPS confidence intervals relative to the estimates for inflows and outflows of EU and non-EU citizens from 2001 to 2011.

Figure 3.5 IPS confidence interval as a percentage of IPS inflow estimates for EU and Non-EU citizens, 2001- 2011



Source: Office for National Statistics

Figure 3.6 IPS confidence interval as a percentage of IPS outflow estimates for EU and Non-EU citizens, 2001- 2011



Source: Office for National Statistics

3.2.8 For both inflows and outflows there was a noticeable decrease in the size of the confidence interval relative to the estimate between 2003 and 2004, and again between 2008 and 2009. The first decrease is likely to have been caused by more contacts on the IPS with EU migrants following EU enlargement in 2004. The second drop in 2008-2009 coincides with the introduction of the IPS improvements, and is more noticeable on outflows than inflows, which is consistent with the improvements which concentrated particularly on improving the sampling of those leaving the UK through the introduction of migration filter shifts.

3.2.9 Figures 3.5 and 3.6 show that the changes to the IPS had a greater impact on the relative size of the confidence intervals for estimates of immigration and emigration of EU citizens than of non-EU citizens. This shows that the changes reduced to some extent the skew towards those migrant groups (typically non-EU citizens) who predominately travel through the main airports (particularly London Heathrow). Nonetheless, due to the number of migrants sampled, the relative size of the confidence intervals for non-EU citizens is still lower than that for EU citizens.

3.2.10 Summary of impact of improvements to the IPS

Comparisons of LTIM estimates to other migration-related data sources in Section 2 indicated that LTIM estimates were too low for EU8 migrants during 2004-2006, but that there was much closer agreement between the two sources after 2008. This suggests that the improvements made to the IPS did improve the quality of LTIM estimates from 2009 onwards. However, Figures 3.1 and 3.2 showed that by the time the improvements to the IPS were implemented, the increase in both EU8 passenger numbers and routes had already begun to level off and, for some routes, decline. LTIM estimates of EU8 immigration also decline in 2008, suggesting that the improvements of the Port Survey Review may have come too late to capture the key increase between 2004 and 2007 in immigration.

3.3 Comparison of LTIM estimates with census implied migration flows

3.3.1 Another way of assessing the impact of the improvements made to the IPS is to compare LTIM estimates to implied migration flows from the 2011 Census. Table 3.3 compares LTIM flows into England and Wales for the year ending 31 March 2011, with 2011 Census estimates by country of birth of the number of people who were usually resident in England and Wales on Census day (27 March 2011) but whose usual address was abroad one year before the Census day. This can be taken as an estimate of implied migration flows to England and Wales in the year leading up to the Census.

3.3.2 There are some definitional differences between the two sources. For example, although Census respondents were asked to give their usual address one year ago, this does not necessarily mean that they would have lived at that address for 12 months or more, and thus would be considered to be usually resident at that address by the standard definition. This may affect the comparison with LTIM which employs the UN definition of a long-term international migrant where someone must enter or leave the country for a period of at least 12 months to be counted as a long-term migrant.

Table 3.3 Comparison of LTIM to Census implied migration flows by country of birth, England and Wales

Thousands

	LTIM immigration estimate	LTIM confidence interval (±)	Census estimate	Difference between LTIM and Census estimate
All countries	525	29	612	-87
United Kingdom	73	13	159	-86
European Union	143	19	174	-31
EU15	63	12	82	-19
EU8	70	15	71	-1
Non-European Union	308	17	280	28
Old Commonwealth	30	6	30	0
New Commonwealth	148	11	107	41
Other Foreign	131	12	143	-12

Source: Office for National Statistics

Note: For LTIM estimates UK born includes those born in England, Wales, Scotland, Northern Ireland, the Channel Islands and the Isle of Man. For Census estimates UK born includes those born in England, Wales Scotland and Northern Ireland only.

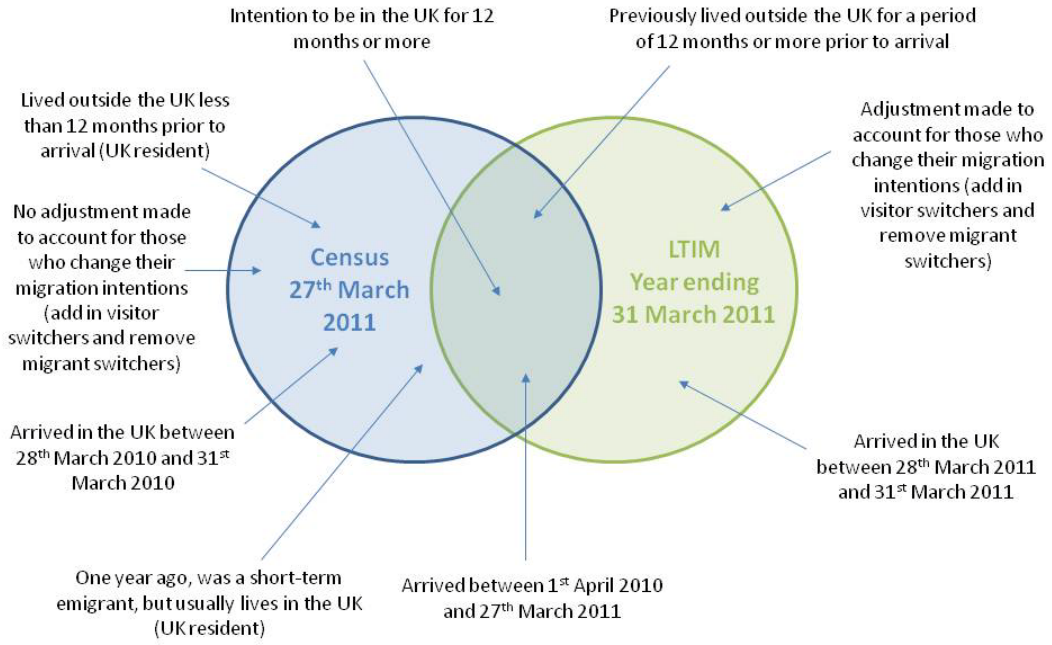
3.3.3 The Census estimate for the number of usual residents with an address abroad one year before Census day was 612,000 (to the nearest thousand). This compares with an LTIM estimate of immigration for the year ending March 2011 of 525,000. The Census estimates for usual residents with an address abroad one year before Census day who were born in the EU (174,000) and the EU15 (82,000) are both higher than the equivalent LTIM immigration estimates for the year ending March 2011. The Census estimate for the EU8 (71,000) is similar to the LTIM estimate for the year ending March 2011 for the EU8-born of 70,000.

3.3.4 There are several possible causes for the differences observed between Census estimates and LTIM immigration estimates. It should also be noted that both LTIM and Census estimates have 95% confidence intervals associated with them. The overall Census population estimate for England and Wales has a 95% confidence interval of plus or minus 0.15% (equivalent to plus or minus 83,000 people).

3.3.5 The definitional differences noted above may also explain some of the observed differences between Census and LTIM estimates. These definitional differences are shown in the Venn diagram in Figure 3.7. There is a slight difference between the time periods to which the Census and LTIM estimates refer (year ending 27 March 2011 and year ending 31 March 2011 respectively), but the impact of this would be minimal. The Census estimate will include some individuals who were abroad one year before Census day, but who did not change their country of usual residence for a period of at least 12 months. Such individuals would be included in estimates of short-term international migration, and would be excluded from LTIM estimates.

3.3.6 For example, it is noticeable that there are 86,000 fewer UK-born people recorded on LTIM immigration estimates for England and Wales compared to implied migration estimates from the 2011 Census based on people who had an address abroad one year before Census day. The reason for the difference is that many of the people recorded on the Census as having an address abroad one year before Census day would have been overseas for less than 12 months. Therefore they would have been counted as a short-term emigrant. They would not have been included in long-term immigration estimates as they will never have established usual residence overseas. Short-term international migration occurs on a larger scale than long-term international migration. For example, in the year to mid-2010, estimates of short-term international migration (STIM) indicate that there were 267,000 migrant flows of British citizens from England and Wales to countries outside the UK for stays of 3 to 12 months.

Figure 3.7 Definitional differences between LTIM and implied Census immigration estimates



Note that the overlap shown between the data sources in Figure 3.7 is not drawn to scale, and is therefore not indicative of the degree of overlap between the sources.

3.3.7 The Census implied migration estimate is the same as the LTIM immigration estimate for individuals born in the Old Commonwealth (30,000). However, the LTIM immigration estimate for individuals born in New Commonwealth countries for the year ending March 2011 (148,000) is approximately 41,000 higher than the Census implied migration flow. IPS estimates show that 64.1% of people immigrating to England and Wales in the year ending March 2011 who were born in the New Commonwealth did so to undertake formal study. It is possible that some of these individuals were students, who potentially were not recorded on the Census as New Commonwealth citizens.

3.3.8 Table 3.4 shows a comparison of implied migration flows from the Census with IPS estimates for the year ending 31 March 2011 of immigration of people born outside of the UK by age and sex for England and Wales.

Table 3.4 Comparison of IPS estimates of immigration to Census implied migration inflows for non-UK born usual residents, by age and sex, England and Wales

Thousands

	IPS estimate of inflow	IPS confidence interval (±)	Census estimate	Difference between IPS and census estimate
All persons	423	26	456	-33
Under 15	18	6	59	-41
15-24	194	18	153	41
25 - 44	191	17	206	-15
45-60/64	17	5	28	-11
60/65 and over	4	3	10	-7
Males	235	20	233	2
Under 15	10	5	30	-20
15-24	104	14	75	29
25 - 44	109	12	110	-1
45-64	10	4	15	-5
65 and over	2	2	4	-2
Females	188	16	222	-34
Under 15	8	3	29	-21
15-24	89	11	78	11
25 - 44	82	11	96	-14
45-60	7	3	13	-6
60 and over	2	1	7	-5

Source: Office for National Statistics

Note: For IPS estimates non-UK born excludes those born in England, Wales, Scotland, Northern Ireland, the Channel Islands and the Isle of Man. For Census estimates non-UK born excludes those born in England, Wales Scotland and Northern Ireland only.

3.3.9 Table 3.4 shows that the differences between the IPS estimates of immigration to England and Wales for the year ending March 2011 and Census estimates for non-UK born usual residents with an address abroad one year before Census day varies by age group and sex. Overall the Census estimates of implied immigration for the non-UK born population are 33,000 higher than the IPS estimates. Breaking this down by sex, the Census and IPS estimates are similar for males, but the IPS estimates are lower than Census estimates for females. Breaking the figures down by age, the largest differences are for under 15s, for which the Census estimates are higher than the IPS estimates, and for the 15-24 year olds where the Census estimates are lower than the IPS estimates.

3.3.10 The IPS estimates of immigration are consistently lower than Census estimates for Under 15s. Potential underestimation of immigration of children on the IPS was also highlighted in comparisons between LTIM and APS implied migration flows, and LTIM and Flag 4 GP registrations in Section 2. ONS will investigate this further as set out in the Next Steps.

3.3.11 The IPS estimates are 41,000 higher than Census estimates for 15-24 year olds, with males making up 29,000 and females 11,000 of the difference. Previously it was noted that there were an additional 41,000 individuals born in New Commonwealth countries estimated on LTIM immigration flows compared to the Census (Table 3.4). The higher number of 15-24 year olds on the IPS compared to Census adds weight to the suggestion that some of the discrepancy between LTIM and Census estimates may be accounted for by New Commonwealth-born people migrating to England and Wales to undertake formal study.

3.3.12 IPS estimates for females are 34,000 lower than Census estimates overall, with the largest differences for Under 15s and 25-44 year olds. Earlier comparisons between IPS data and figures for allocations of NINos to adult overseas nationals showed that the difference between the two data series was wider for females aged 25-44 than for males aged 25-44.

3.3.13 Table 3.5 shows the results of a comparison between LTIM immigration estimates and Census data on year of last arrival for non-UK born usual residents. The data compared are LTIM immigration estimates for the year ending December 2010, with Census estimates for the number of people who arrived during 2010. Data for earlier years will be more affected by the fact that a proportion of individuals who arrived in a given year will have subsequently left the UK prior to the 2011 Census. The Census data for year of arrival in 2011 on the other hand is incomplete as it only includes 3 months of data up to Census day.

Table 3.5 Comparison of LTIM estimates of immigration to Census implied migration inflows based on year of arrival for non-UK born usual residents, 2010, England and Wales

Thousands

	LTIM immigration estimate	LTIM confidence interval (±)	Census estimate	Difference between LTIM and Census estimate
European Union	147	20	188	-41
EU15	63	12	79	-16
EU8	72	15	85	-13
Non-European Union	313	17	318	-5
Old Commonwealth	29	5	28	1
New Commonwealth	152	11	122	30
Other Foreign	132	12	167	-35

Source: Office for National Statistics

Note: For LTIM estimates UK born includes those born in England, Wales, Scotland, Northern Ireland, the Channel Islands and the Isle of Man. For Census estimates UK born includes those born in England, Wales Scotland and Northern Ireland only.

3.3.14 Table 3.5 shows that LTIM estimates are lower than Census estimates for immigration from the European Union. The Census estimates for arrivals in 2010 of EU8-born migrants are closest to the LTIM immigration estimates. However, it should be noted that some of those who arrived in 2010 would have already left the UK by Census day and would not therefore be included in the Census estimates. Additionally, the Census data relates to year of last arrival, not first arrival; some of these individuals might have first arrived in England and Wales prior to 2010 and subsequently lived overseas for a period of less than 12 months, before returning to the UK in 2010. In these cases, LTIM would have recorded them in their year of first arrival, prior to 2010.

3.3.15 LTIM estimates of immigration from the New Commonwealth are again higher than those implied by the Census year of arrival data. The estimates for individuals born in Old Commonwealth countries are very close between the two sources, whilst LTIM estimates are lower than Census estimates for individuals born in Other Foreign countries.

3.3.16 Summary of comparison of LTIM estimates with implied migration flows from the 2011 Census

- Overall LTIM and IPS estimates report lower immigration from the EU than implied by the Census implied migration flows. It is interesting to note that the two sets of estimates were closer for EU8 born migrants than EU15 born migrants.

- The IPS estimates for migration of children under 15 years old are lower than Census estimates. Further evidence that the IPS might be underestimating migration of children was found in the comparisons between LTIM and APS implied migration flows, and between LTIM and Flag 4 GP registrations. ONS' plans to address this apparent underestimation are set out in the Next Steps.

- Whilst IPS immigration and Census implied immigration estimates are close for 25-44 year old males, IPS estimates are much lower than Census implied migration estimates for 25-44 year old females. This supports earlier evidence from comparisons between IPS data and figures for allocations of NINos to adult overseas nationals which suggested that the IPS might not as effectively capture immigration of females in this age group as it does their male counterparts.

- LTIM immigration estimates are higher than implied Census migration estimates for individuals born in New Commonwealth countries, and are higher for non-UK born usual residents aged 15-24. These are potentially students which have not been recorded on the Census as New Commonwealth-born.

3.4 Conclusions on the impact of the design of the IPS on migration estimates

3.4.1 Between 2004 and 2008 the design of the IPS was inadequate to cope with rapidly changing migration trends. There was a large increase in the number of passengers travelling on routes not covered, or not fully covered for migration purposes, by the IPS. Although improvements were made to the design of the IPS between 2007 and 2009, these improvements may have been implemented too late to capture the large migration flows which occurred immediately following the accession in 2004. This led to the underestimation of EU8 immigration observed when the 2011 Census population estimates were compared to rolled forward mid-year population estimates.

3.4.2 From 2009 onwards, the confidence intervals around the migration estimates were noticeably smaller, particularly for estimates of immigration of EU citizens. This is likely to be in part due to increased flows of migrants between the EU and the UK particularly following accession in 2004 increasing the number of IPS contacts for this group, and also because the improvements to the IPS were particularly focussed on increasing coverage at regional airports, which are more likely to be used by EU citizens than non-EU citizens.

3.4.3 More recent comparisons to Census data suggest that whilst overall improvements have been made, the LTIM series is lower than implied immigration estimates for people born in the EU. However, LTIM immigration estimates are closest to the Census estimates for EU8 born migrants, supporting the assertion that improvements made to the IPS were effective in improving estimates of immigration for this group.

3.4.4 IPS estimates for children under 15 years old and for females aged 25-44 year olds are lower than implied migration estimates from the Census. These findings are supported by comparisons between LTIM and IPS immigration estimates to other data sources in Section 2. ONS' plans to investigate this further are set out in Next Steps.

3.4.5 IPS and LTIM immigration estimates were shown to be higher than Census implied migration estimates for individuals born in the New Commonwealth, and for non-UK born usual residents aged 16-24. This might suggest that LTIM has captured international students who may have been included on the Census, but not as New Commonwealth born.

4 How was long-term international migration underestimated? – Examining the methodology

4.0.1 LTIM estimates are based on the migration intentions of travellers who respond to the IPS, with adjustments made for asylum seekers, flows to and from Northern Ireland and for the small proportion of these travellers who change their intentions and become migrant or visitor switchers.

4.0.2 A migrant switcher is a person who intends to enter, or leave, the UK for a period of at least 12 months, but who actually stays, or stays away, for less than 12 months. A visitor switcher is someone who intends to enter, or leave, the UK for a period of less than 12 months, but who actually stays, or stays away, for longer than 12 months.

4.0.3 The analysis in this section focuses on the validity of the assumptions underlying the visitor switcher methodology, and the differences between the stated intentions and actual behaviour of migrants between 2001 and 2011.

4.1 Visitor switcher methodology

4.1.1 Before 2003, no adjustments were made for migrant switchers, and visitor switcher adjustments were made using Home Office visa data. From 2003 a change was made to the methodology (and applied to the LTIM series back to 1991), which assumed that 5% of immigrants and 1% of emigrants become migrant switchers. Visitor switcher fractions were calculated for the first time by ONS using fixed proportions, and applied back to 1991.

4.1.2 The current visitor switcher methodology was implemented in 2006 and applied to LTIM estimates back to 2004. In response to a need for more robust estimates of visitor switchers, new IPS questions were introduced in 2004 to collect data on migrants who did not intend to stay in or leave the UK for longer than a year, but subsequently did. These data are then used to provide a more informed indication of how many visitors will change their intentions and become migrants.

4.1.3 The likelihood of becoming a visitor switcher can vary depending on citizenship and place of last or next residence. For example, EU citizens, with the right to live and work in the UK, are more likely to be able to change their migration intentions than non-EU citizens, who are subject to more immigration or visa restrictions. In order to take this into account, the current visitor switcher adjustment is calculated separately for four different groups:

- Inflows of EEA citizens moving to the UK;
- Inflows of non-EEA citizens moving to the UK;
- Outflows of EEA citizens travelling to EU countries;
- Outflows of EEA citizens moving to non-EU countries and outflows of non-EEA citizens.

4.1.4 For each group the following calculation is made:

$$\frac{\text{Respondents who did not intend to stay in, or leave, the UK for longer than a year, but subsequently did, } \textit{over previous three years}}{\text{The sum of three 3-year rolling averages for the number of potential visitor switchers}^{1} \text{ in (y-1) to (y-3), (y-2) to (y-4) and (y-3) to (y-5)}} \times \text{Respondents who stated an intention to stay in their destination country for 6-12 months or possibly 12 months, } \textit{this year (y)}$$

[1] A potential visitor switcher is a respondent who stated an intention to stay in their destination country for 6-12 months or 'possibly 12 months'.

4.1.5 The use of a sum of three 3-year rolling averages for the potential number of visitor switchers in the denominator is an attempt to calculate the size of the pool from which the actual visitor switchers over the last 3 years (counted in the numerator) emerged. Some of these visitor switchers may have arrived several years ago, and it ensures that this lag is taken into account when calculating the potential pool of visitor switchers. For more information on the current visitor and migrant switcher methodology see the LTIM Methodology document. More detail on the changes that were made in 2006 to the methodology can be found in ONS (2006).

4.1.6 There are two major coverage issues with the current visitor switcher methodology:

- The questions on the IPS cannot identify visitor switchers who never subsequently leave/return to the UK, or do so for visits of less than 3 months. This is because individuals who never subsequently cross the UK border cannot be sampled by the IPS, and cost constraints preclude asking the switcher questions for people intending to stay/stay away from the UK for less than 3 months. Research based on IPS data and reported in ONS (2006) indicates that approximately 15% of out-migrants and 10% of in-migrants never subsequently cross the UK border, or do so for visits of less than 3 months.

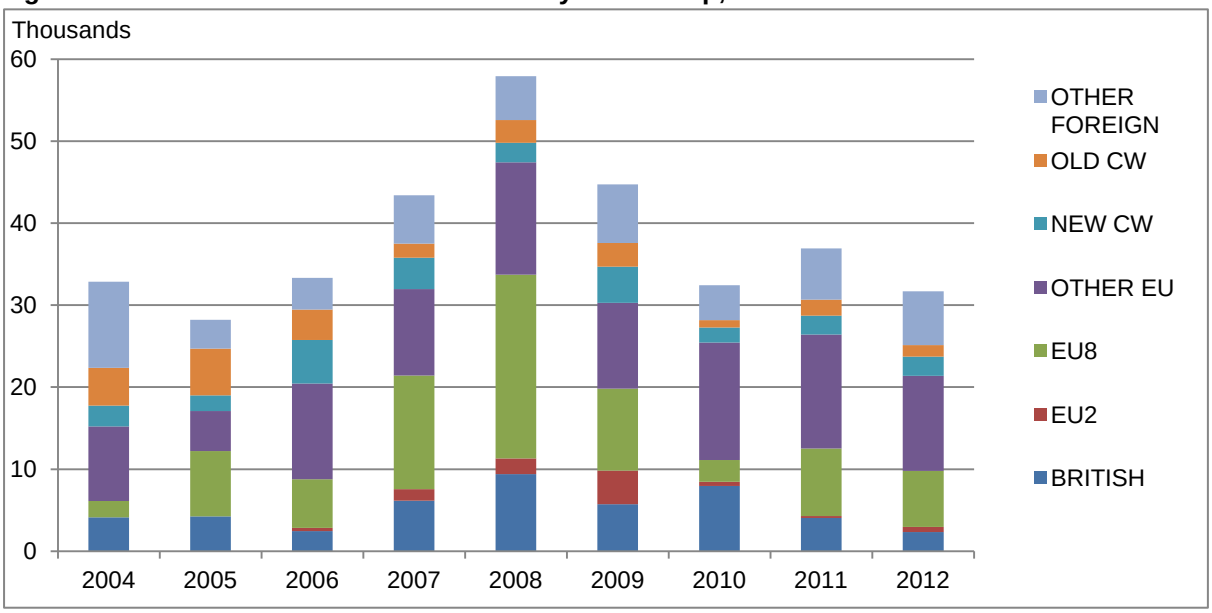
- There is a risk that any given occurrence of switching may be counted more than once on the IPS. It has been calculated (ONS, 2006) that the risk of this occurring is about 10% on visitor switcher inflows and 12% on outflows.

4.1.7 Since these two effects are estimated to be approximately equal in magnitude, and work in opposite directions, it was decided that the two effects could be assumed to offset each other, and that no further adjustments were required (ONS, 2006).

4.2 Visitor switchers by citizenship

4.2.1 Figure 4.1 shows weighted visitor switcher totals by citizenship for inbound visitor switchers. These are travellers who were interviewed by the IPS leaving the UK for three months or more, who originally arrived in the UK for less than a year, but subsequently stayed for more than a year and were therefore inbound visitor switchers.

Figure 4.1: Inbound Visitor Switcher totals by citizenship, 2004-2012

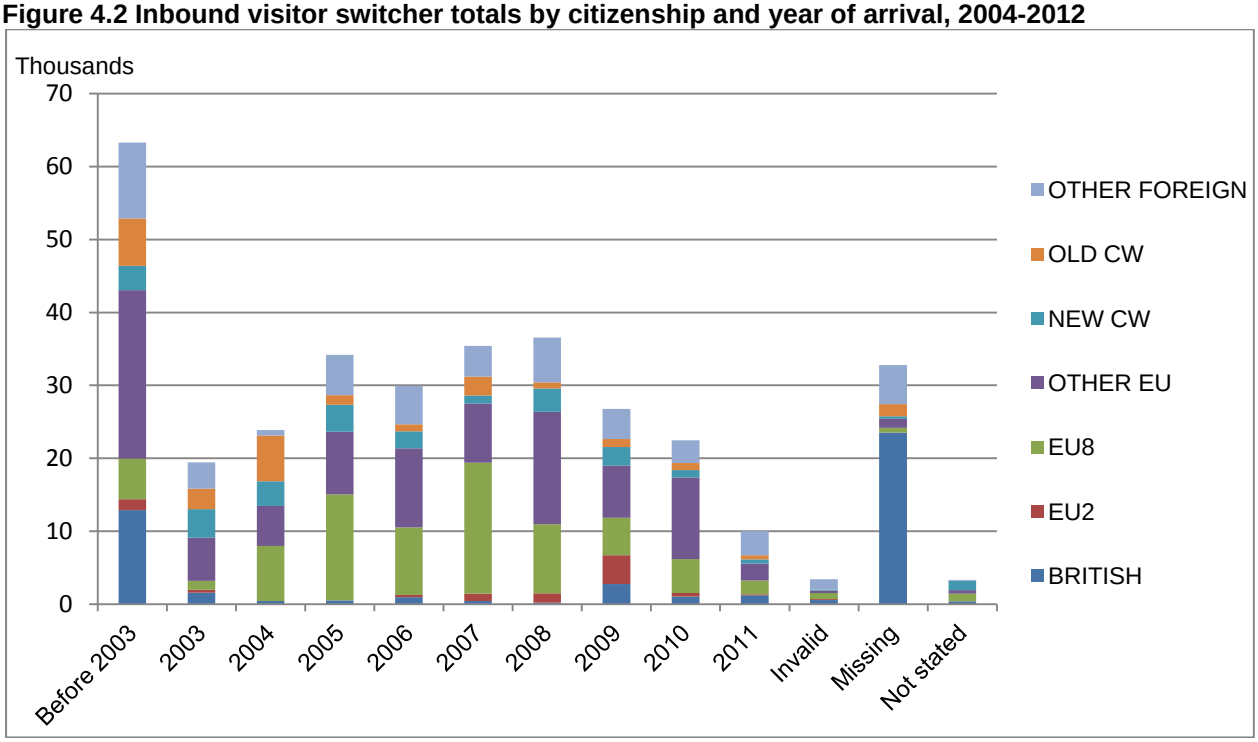


Source: Office for National Statistics – International Passenger Survey

4.2.2 Figure 4.1 shows that the peak for visitor switchers occurred in 2008, when emigration peaked at 427,000. The majority of visitor switchers were EU or British citizens, which would be expected since these people face the fewest barriers to switching. The number of EU8 visitor switchers peaked in 2008, and constituted the largest single group of switchers in this year. However, in general the number of EU8 switchers in a given year did not exceed the number of switchers from the Other EU citizenship group, which is principally comprised of EU15 countries which were members of the EU before 2004.

4.2.3 Figure 4.2 shows the visitor switcher totals by the year in which they originally arrived in the UK.

Figure 4.2 Inbound visitor switcher totals by citizenship and year of arrival, 2004-2012

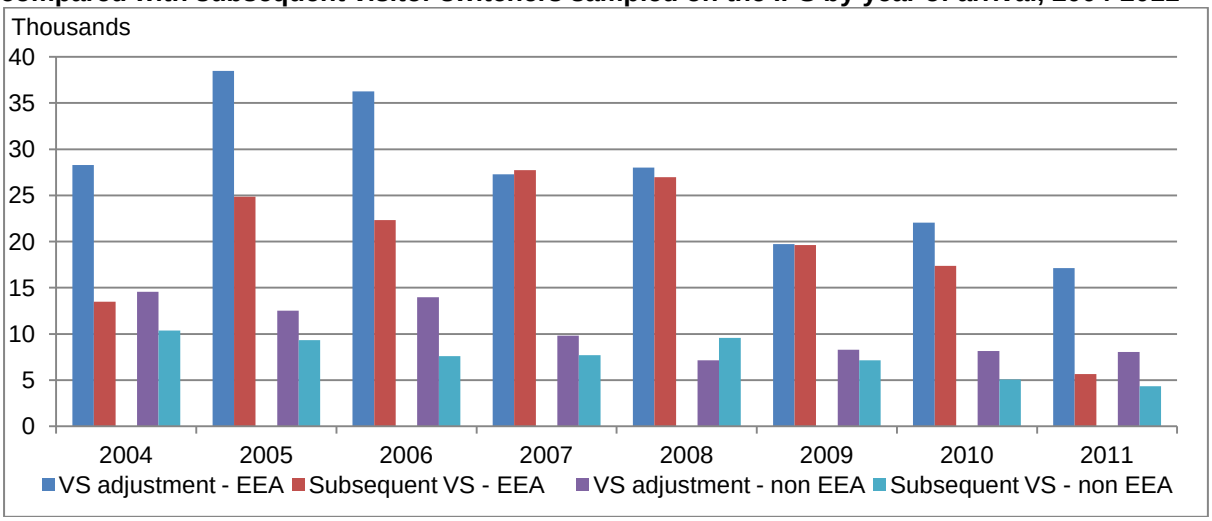


Source: Office for National Statistics - International Passenger Survey

4.2.4 A large majority of visitor switchers identified between 2004 and 2012 arrived in the UK before 2003. A large proportion of these belong to the Other EU citizenship group. The majority of the EU8 visitor switchers arrived in the UK between 2004 and 2008, particularly in 2005 and 2007.

4.2.5 Figure 4.3 compares published visitor switcher totals for inflows of EEA and non-EEA citizens moving to the UK with the number of visitor switchers subsequently sampled by the IPS by year of arrival.

Figure 4.3 Published visitor switcher adjustments for inflows of EEA and non-EEA citizens compared with subsequent visitor switchers sampled on the IPS by year of arrival, 2004-2011



Source: Office for National Statistics - International Passenger Survey

4.2.6 This analysis shows that there is no evidence that inflows of visitor switchers were underestimated by ONS. Indeed, for visitor switchers who arrived in 2004-2006, the estimated number of visitor switchers was higher than the number of actual visitor switchers subsequently sampled by the IPS for both EEA and non-EEA citizens. In later years the estimated number of visitor switchers was closer to the number later sampled by the IPS. However, there are a number of reasons why we would expect differences between these figures:

1) The number of visitor switchers who are sampled by the IPS is small compared with the total number of visitor switchers
2) Not all visitor switchers will have subsequently left the UK for a period of 3 months or more and therefore would never be in the IPS sample
3) There is a risk that switching events may be double counted by the IPS (the impact of points 2 and 3 work in opposite directions and were estimated in ONS (2006) to cancel each other out)
4) Some visitor switchers give an invalid year of arrival/departure or fail to give a year of arrival/departure

4.2.7 It is also possible that any differences between actual and estimated numbers of inbound visitor switchers would be cancelled out by differences between actual and estimated numbers of outbound visitor switchers. These are travellers interviewed by the IPS returning to the UK for a stay of 3 months or more, who previously left the UK for a period of less than 12 months but actually stayed away for longer than 12 months.

4.2.8 Table 4.1 compares published visitor switcher estimates for 2003-2006 with actual numbers of visitor switchers sampled by the IPS between 2004 and 2012 who gave a year of arrival as 2003 to 2006.

Table 4.1 Visitor switcher adjustments compared to sampled visitor switchers, 2003-2006

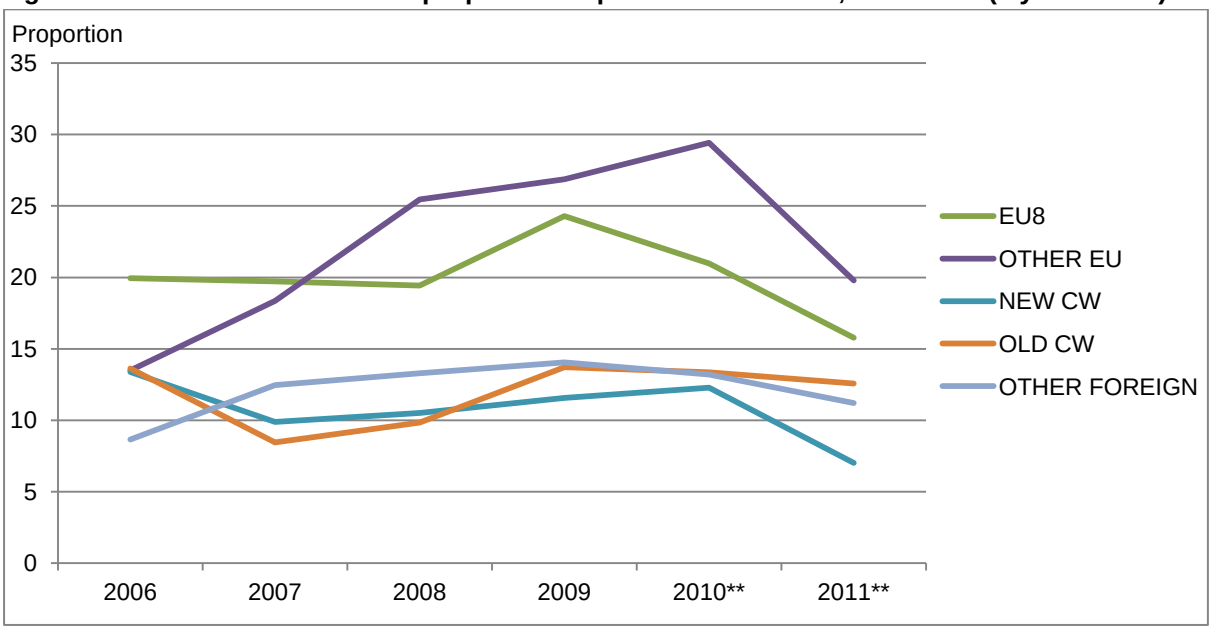
	Inflow	Outflow	Balance
Cumulative VS adjustment, 2003 to 2006	188,203	67,036	121,167
Estimates of VS based on actual contacts, 2004 to 2012	107,407	21,267	86,140
Difference	80,797	45,769	35,027

4.2.9 Table 4.1 shows that VS adjustments were higher for both inflows and outflows compared to the actual number of VS subsequently sampled by the IPS who stated that their year of arrival or departure from the UK was 2003-2006. Overall this would have resulted in an overestimation of net international migration of visitor switchers of approximately 35,000 in total over these four years.

4.2.10 As noted above, the actual number of visitor switchers sampled will be less than the true number of visitor switchers primarily because the sample of visitor switchers is small, and not all visitor switchers would subsequently leave the UK for a period of 3 months or more. However, this analysis provides no evidence that visitor switcher numbers were underestimated over this period.

4.2.11 Figure 4.4 shows the number of actual visitor switchers recorded over the previous 3 years by citizenship, as a proportion of the number of potential visitor switchers of that citizenship over the previous 3 years (that is, the number of overseas resident arrivals of that citizenship stating an intention to stay of 6-12 months, or possibly 12 months). This is a measure of the propensity for a visitor to switch to become a long-term migrant. Incorporating several years' data when calculating visitor switcher fractions ensures that the fractions remain stable, as relatively few visitor switchers are sampled each year.

Figure 4.4: Visitor switchers as a proportion of potential switchers, 2004-2012 (3 years' data)



Source: Office for National Statistics – International Passenger Survey

Note: EU2 figures have been excluded as they are very small and British figures have been excluded due to unavailable Year of Arrival data
** denotes that it is too early to have full data on visitor switchers arriving after 2009

4.2.12 Figure 4.4 shows that the Other EU and EU8 citizenship groups have the highest propensity to switch, although EU8 citizens are not more likely to switch than Other EU citizens. The current visitor switcher methodology allows for EEA citizens to be more likely to switch than non-EEA citizens.

4.3 Visitor switchers by initial intended length of stay

4.3.1 The current visitor switcher fractions use the number of respondents who stated an intention to stay of 6-12 months, or possibly 12 months, as it was considered that these 'long-stay' visitors were the most likely to switch. There is a possibility that some visitor switchers may be being missed if individuals with a shorter initial intended length of stay are not included fully in the visitor switcher calculations.

4.3.2 Table 4.2 shows the number of visitor switchers by citizenship who stated (on departure) that their initial intended length of stay had been either less than 3 months, or 3 – 6 months, as a proportion of all visitor switchers. Due to the small number of switchers recorded by citizenship in each year, a three yearly average is shown (e.g. the figure shown for 2006 includes the data for 2004, 2005 and 2006).

Table 4.2: Number of inbound visitor switchers who had an initial intended length of stay of 0-6 months as a proportion of all visitor switchers (3 years' data)

	2006	2007	2008	2009	2010	2011	2012
British	44	53	64	65	57	50	50
EU2	0	50	14	46	50	69	60
EU8	47	43	47	56	54	47	42
Other EU	59	52	48	42	37	41	53
New CW	36	35	49	46	51	47	55
Old CW	37	38	40	42	40	38	35
Other Foreign	61	47	47	40	44	43	45

Source: Office for National Statistics

4.3.3 The results in Table 4.2 suggest that 40-50% of visitor switchers of any given citizenship may originally have stated an intention to stay of less than 6 months. These visitor switchers would have been included in the numerator of the existing switcher fraction as this counts all visitor switchers regardless of their initial intended length of stay. They would not, however, have been included in the denominator nor in the number of potential switchers in the current year by which the fraction is multiplied.

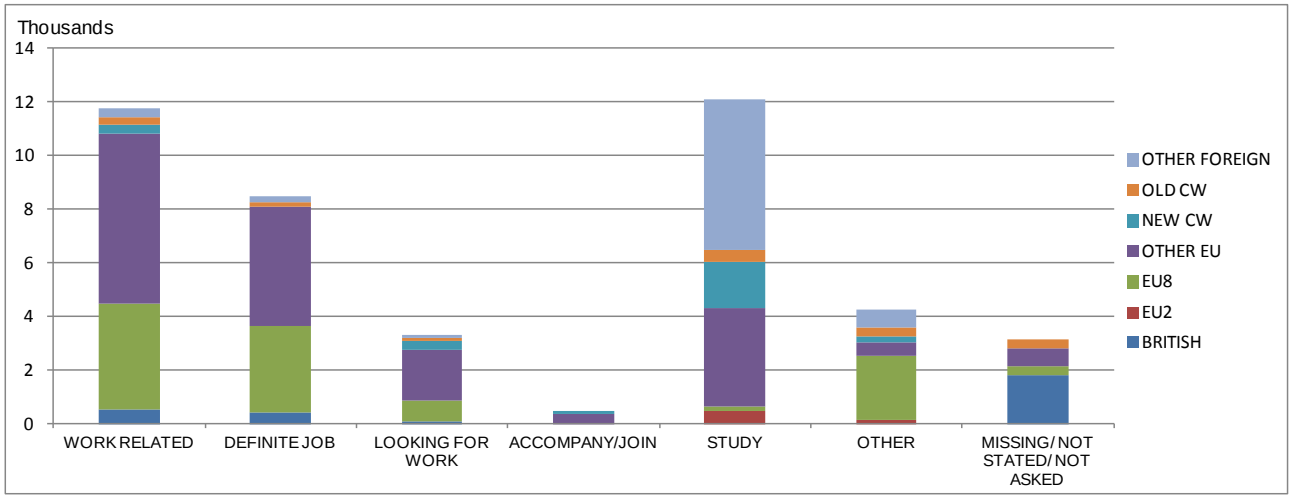
4.3.4 Changing the fraction to include people who intended to stay for 0-3 months or 3-6 months, would increase both the number of potential switchers in the current year, as well as the number of potential switchers over the last few years. The first would increase the size of the multiplier of the fraction, and the second would decrease the size of the fraction. Overall, it would be unlikely to have a large effect on estimated visitor switcher numbers, unless the proportion stating an intention to stay for less than 6 months in the current year is noticeably different to the average over the last few years.

4.4 Visitor switchers by reason for migration

4.4.1 The current switcher fractions are based on citizenship and country of last/next residence. In 2012 a new question was introduced onto the IPS, asking emigrants who were former immigrants, about their previous main reason for immigration to the UK. This question provides scope to extend the visitor switcher fractions to account for reason for migration, if there is evidence to show that individuals migrating for particular reasons are more likely to switch.

4.4.2 As the new question on previous main reason for immigration was only introduced in 2012, there is currently only data available for that year. This limits the number of visitor switchers on which any analysis may be based. Figure 4.5 shows previous main reason for immigration for visitor switchers emigrating from the UK in 2012 by citizenship.

Figure 4.5 Outflow of visitor switchers by previous main reason for immigration and citizenship, year ending December 2012



Source: Office for National Statistics – International Passenger Survey

4.4.3 In 2012, approximately 28% of visitor switchers previously migrated to the UK for formal study, and 27% of visitor switchers previously migrated to the UK for work. This would be expected given that these are the most common reasons for migrating to the UK. Visitor switchers who previously migrated for work were more likely to be EU citizens, while those previously migrating for study were more likely to belong to the Other Foreign citizenship group.

4.4.4 Based on 2012 data, there is no firm evidence that people migrating to the UK for any given reason (e.g. study) are any more likely to become a visitor switcher than those migrating for work-related reasons. These reasons are the most common previous main reasons for immigration for visitor switchers, but this would be expected since they are the most common reasons for immigration to the UK in general. A longer time series of data would be required before it is possible to determine whether visitor switchers are more likely to have had a specific previous main reason for migration to the UK.

4.5 Qualitative evidence on migration intentions

4.5.1 Data from the 2011 Census, International Passenger Survey (IPS), Annual Population Survey (APS) and Worker Registration Scheme (WRS) show that Polish nationals made up the largest proportion of EU8 nationals migrating to the UK following EU8 accession. Since much of the relevant academic literature also concentrates on the migration of Polish nationals, a literature review has been carried out on how the wave of migration from Poland to the UK following accession may have differed from previous waves and how these differences may have affected the quality of LTIM estimates over the decade. A particular focus of the review was to investigate any differences between stated migration intentions, and actual behaviour of Polish migrants coming to the UK following accession.

4.5.2 Whilst many Polish citizens took up their right to work in the UK following EU accession, this does not necessarily translate to high levels of long-term immigration. This would depend on how many people remained in the UK for a year or more, and the accuracy of the statistics would depend upon the success of the IPS in capturing these immigrants, as well as the validity of the assumptions underlying the adjustments made for those changing their intentions.

4.5.3 As no research was found which discussed Polish migration intentions in relation to the IPS specifically, this review examines the available evidence on Polish migration intentions more generally.

4.5.4 Blanchflower et al. (2007, pg.13) demonstrate that there were consistent patterns between the results of an April 2001 Candidate Eurobarometer Survey question on migration intentions and actual flows to the UK. This suggests that EU8 migrants' actions were consistent with their intentions. However, the specific survey question asked about migration 'for a few months or several years', which does little to assist with investigating long-term migration intentions in the context of LTIM.

4.5.5 A survey of Polish migrants carried out by the IPPR (Pollard et al., 2008) presented a mixed picture of whether Polish migrants' actions were consistent with their original intentions. On the one hand, the report suggested that personal and emotional factors were likely to override people's original intended length of stay in the UK. On the other hand, the survey also found that,

> 'A significant proportion of migrants that have returned home say that the time they chose to go home was pre-planned, with 16 per cent saying they always intended to return once they had earned a certain amount of money, 15 per cent stating they intended to return after a certain amount of time and 18 per cent after their temporary or seasonal work had come to an end.'
>
> Pollard et al. (2008, p.45)

4.5.6 Although recording the reasons behind Polish migrants' intended length of stay, the survey findings were not clear on how many migrants had remained in the UK for the length of time they expected.

4.5.7 Further qualitative research suggested that Polish migrants were indeed likely to have changed their migration intentions. Trevena et al. (2013) stated that,

'Significantly, the majority of our participants had assumed that their stay in the UK would be temporary. Many would come over with plans of saving some money and returning to Poland within a few years. Nevertheless, the realisation of opportunities in the UK and barriers to return would often entail a change of migration intentions from temporary to long-term or even permanent stay.'

4.5.8 Again, this research suggests that changes of migration intention took place, but cannot explain quantitatively either when such changes occurred or how many Polish migrants were involved. Further research from Trevena (2012) concerning family migration of Poles to the UK indicates that changing migration intentions may also lead to further long-term migration,

'...it is typically still the father who arrives in the UK initially (though an increasing number of mothers also take on this role), often with a view to temporary economic migration of no more than 12 months. However, it is often the case that the father's stay is prolonged and a growing number of couples with children decide to re-locate the household to the UK...'

4.5.9 However, the research also indicated that 'a growing number of Polish families... make the decision to stay in the UK long-term prior to the actual move' (Trevena, 2012). In all, the paper indicates that previously many Polish adults arrived in the UK, initially intending to stay temporarily, but subsequently settling permanently, triggering the long-term migration of family members. More recently, it would appear that families are migrating on a long-term basis altogether in one move. It should also be noted that only changes of intention from less than a year to a year or more would have impacted the LTIM switcher adjustments.

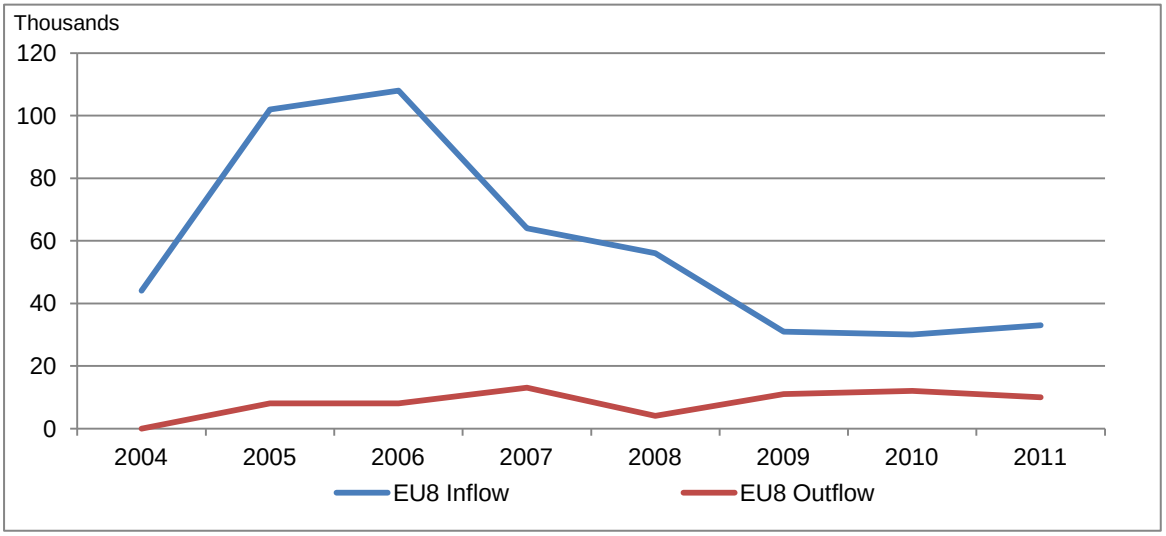
4.6 Circular migration

4.6.1 The relative ease with which migrants are able to travel between the UK and other countries raises the issue of circular migration. Although not consistently defined, circular migration essentially involves frequent travel back and forth between two places, often whilst engaging economically in both countries (Newland, 2009).

4.6.2 In terms of the IPS, such movement could be considered as either a visit, short- or long-term migratory move, depending on the person's intended length of stay when interviewed. If someone has moved frequently, it could also become difficult for the IPS to establish their country of usual residence on the basis of being resident in a country for a year or more. However, such 'circular migrants' would have appeared in National Insurance Number allocations to adult overseas nationals (NINo) statistics and the WRS (unless self-employed) if they were working in the UK. They may also have appeared in other sources, such as the 2011 Census (had they been living in the UK for three months or more on 27 March 2011), the APS and the GP Patient Register (Flag 4s).

4.6.3 If circular migration were occurring amongst EU8 migrants, we would also expect to see this reflected in estimates of short-term international migration (STIM).

Figure 4.6 Short-term international migration inflows and outflows of EU8 citizens for between 3 and 12 months, mid-2004 to mid-2011



Source: Office for National Statistics – International Passenger Survey

4.6.4 Figure 4.6 shows that in 2006, 108,000 EU8 citizens came to the UK for between 3 and 12 months. Outflows of EU8 migrants for the same length of time are much lower. This is likely to be because in order to be considered a short-term migrant from the UK, a person has to have been resident in the UK for a year or more. A person who migrated to the UK for 3-12 months and then left would be included in short-term migration inflows but would not be counted in short-term migration outflows, as they had never established usual residency here. Therefore, in theory, someone could migrate back and forth between the UK and another country for periods of between 3 and 12 months at a time and not be considered a long-term international migrant in the UK, but still be recorded in other data sources.

4.7 Conclusions of impact of methodology on migration estimates

4.7.1 The analysis of visitor switcher estimates does not suggest that visitor switcher numbers between 2001 and 2011 were underestimated. Citizens of EU countries who face fewer barriers to switching (e.g. immigration restrictions) are more likely to switch, but EU8 citizens were no more likely to switch than Other EU citizens. The relative ease with which EU citizens are able to switch from a visitor to a migrant is already taken into account in the existing visitor switcher methodology.

4.7.2 The number of visitor switchers captured by the IPS each year is small. Using several years of data to calculate the fraction is necessary to ensure that the fractions are stable from year to year. This means that the methodology works wells when migration behaviours are stable over time, but may be less responsive to changing trends in migration flows.

4.7.3 Given the small numbers involved, further sub-dividing the visitor switchers to calculate different fractions for a broader range of citizenship groups (e.g. EU8 migrants) or for different reasons for migration, is likely to make the switcher fractions unstable from year to year. This would be alleviated to an extent by combining several years of data to calculate the fractions, with the same consequences for responsiveness as noted above.

4.7.4 There was evidence that approximately 40-50% of visitor switchers stated an initial intended length of stay of less than 6 months when they originally arrived in the UK. Again there was no evidence that EU8 migrants were more likely than Other EU migrants to state an intended length of stay of less than 6 months on arrival, and then go on to become a visitor switcher.

4.7.5 It might be argued that it would be worth including visitors who state an intended length of stay of 3-12 months, rather than the current 6-12 months, in the visitor switcher fractions. However, the impact of such a change would need to be tested, as it would increase the size both of the denominator of the fraction, as well as the number of potential switchers in a given year by which the fraction is multiplied. Thus, unless the number of potential switchers in the current year is noticeably different to the average over the last few years, the impact of such a change may be negligible.

4.7.6 The review of the research literature into Polish migrant intentions was inconclusive, with some research suggesting that Polish citizen's migration intentions and actions were broadly consistent, whilst other literature suggests that a combination of work-related and family reasons caused Polish migrants to remain in the UK longer than they had originally anticipated (Trevena, 2012).

4.7.7 Finally, the phenomenon of circular migration is likely to become increasingly common as technological advances and improved transport links make it easier for individuals to live and work in more than one country. This makes estimating the number of long-term migrants more challenging, as a person may spend long periods of time living in the UK, interacting with administrative systems and even appearing on the census, but may never meet the definition of a long-term migrant. It also may make respondents to the IPS less certain about their migration intentions. Individual's lives are more complex and more flexible than the definitions which are necessary to underpin migration statistics will allow for. Circular migrants may be captured by short-term migration flows to an extent, and a more complete picture of migration may be gained by considering these alongside estimates of long-term international migration.

5 Guidance to users on international migration statistics

5.1 ONS has estimated that the mid-2011 Census population estimate for England and Wales was 464,000 higher than the rolled-forward mid year estimates based on the 2001 Census (ONS, 2012).

5.2 Across the UK the difference between the 2011 Census population estimates and the rolled-forward mid-year estimates was attributed to a number of factors including missed immigration of both EU8 migrants and migrants of other nationalities, the need to roll-back to the start of the decade methodological changes and historical adjustments which were applied part-way through the decade, as well as other factors including uncertainty surrounding both the 2001 Census base and the 2011 Census estimates. Detailed explanation of the methodology used to reconcile the census estimates with the rolled forward mid-year population estimates has been published for England and Wales, Scotland and Northern Ireland.

5.3 This research suggests that the IPS did not sufficiently identify migration of EU8 nationals between 2004 and 2008. Whilst improvements made to the IPS in 2009 have been shown to have improved the coverage of the survey, and the accuracy of the resulting migration estimates, it is clear that net migration was underestimated between 2001 and 2011.

5.4 It is difficult to determine how much of the underestimate of net migration is due to immigration estimates, and how much is due to the emigration estimates. The evidence suggests that immigration was certainly underestimated, particularly for citizens of EU8 countries. The impact (if any) of estimates of emigration on the overall underestimate of net migration is unknown.

5.5 A revised series of immigration, emigration and net migration estimates for each year from mid-2002 to mid-2011 was published in December 2013 as part of the components of change for revised UK population estimates. In order to produce revised calendar year migration estimates, the international migration component of the mid-year estimates has been converted to calendar years using the assumption that in any given year 40% of immigration and emigration occurred in January-June and 60% occurred in July-December. This assumption is based on research into seasonal patterns of migration, which found that the peak of migration occurs in Quarter 3 (July-September) of each year (ONS, 2013).

5.6 These adjustments result in a revised calendar year net migration series for the United Kingdom shown in Table 5.2:

Table 5.2 Revised net long-term international migration series for United Kingdom, calendar year, 2001-2011

Thousands

	Revised net migration estimates	Original LTIM net migration estimates	Difference between revised and original net migration estimates
2001	+ 179	+ 171	+ 8
2002	+ 172	+ 153	+ 19
2003	+ 185	+ 148	+ 37
2004	+ 268	+ 245	+ 23
2005	+ 267	+ 206	+ 61
2006	+ 265	+ 198	+ 67
2007	+ 273	+ 233	+ 40
2008	+ 229	+ 163	+ 66
2009	+ 229	+ 198	+ 31
2010	+ 256	+ 252	+ 4
2011	+ 205	+ 215	- 10

5.7 The adjustments applied increase the estimate of net migration across the decade from 2001 to 2011, but most particularly in 2005 to 2008, when the evidence suggests that the majority of migrants who were missed by the IPS immigrated to the United Kingdom.

5.8 Users who wish to see a more detailed breakdown of inflows and outflows of long-term international migrants between 2001 and 2011 by variables such as reason for migration, age and sex, citizenship and country of birth should continue to use the existing LTIM and IPS 1, 2 and 3 series tables, but should bear in mind the caveat that the headline net migration estimates have now been revised as outlined above.

6 International Comparisons

6.1 Comparison to international data on migration potentially offers a further independent check of the LTIM estimates. However, the inconsistencies in international migration data are well documented and arise principally due to differences in migration concepts and definitions, as well as differences in data quality and availability.

6.2 De Beer et al. (2009) note that there are three main reasons why international estimates of migration differ: the data collection method, the definition and the timing criterion. Some countries, such as the UK, rely principally on survey data to estimate migration, whereas other countries make use of population registers. Each of these different sources presents their own challenges. The quality of survey-based estimates is affected by the sample design and by the sample size. Furthermore, the use of a port-based survey (such as the IPS) for measuring long-term migration implies that the statistics must be based on migrants' stated intentions to stay, rather than actual duration of stay, which may differ. By contrast, the use of a population register or household survey would allow international migration estimates to be based on actual duration of stay. Measuring emigration using a population register is difficult if individuals have little incentive to de-register when they leave a country.

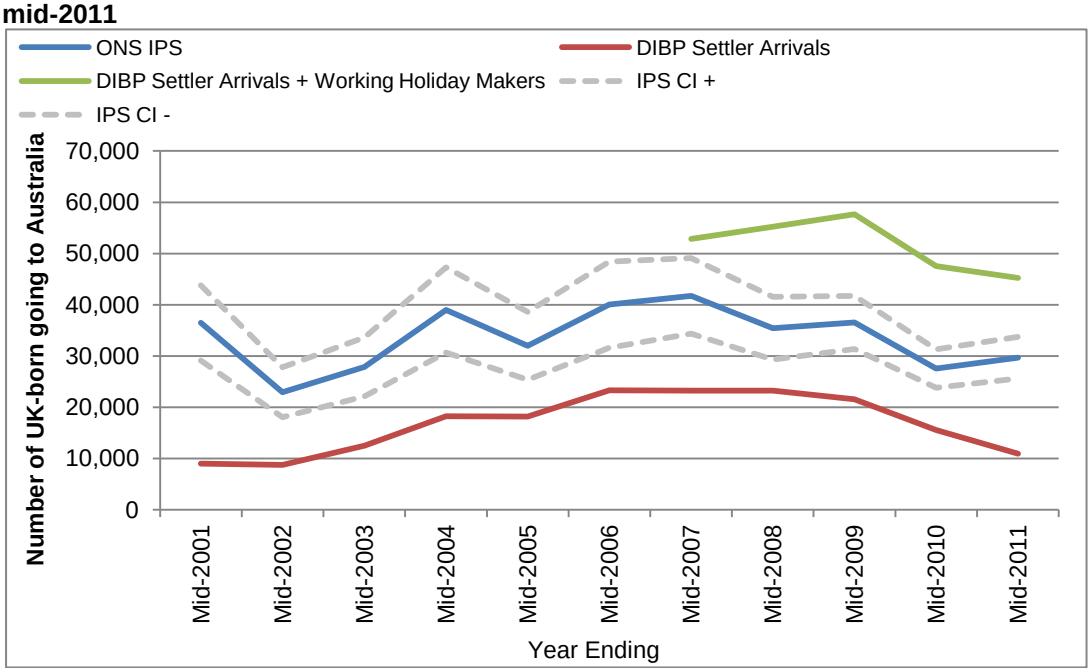
6.3 The differences in the way a long-term migrant is defined vary by country, but generally centre on length of residence, country of birth, nationality, visa or immigration status. Countries using population registers to estimate migration apply a variety of timing criteria to define an international migrant ranging from 3 months to one year, to a permanent migration definition, where a migrant gives up their previous residence rights (de Beer et al., 2009).

6.4 A full comparison of LTIM flows to international migration data for multiple countries is beyond the scope of this report. However, the report of the MIMOSA project highlights the inconsistencies and gaps in migration flows data between European countries. The outcome of the project was to devise a new methodology to produce a harmonised set of migration flows estimates by broad citizenship group, sex and age for 2002-2007 between 27 EU and 4 EFTA (European Free Trade Association) countries (de Beer et al., 2009).

6.5 In particular, international migration data may be useful for assessing the quality of estimates of emigration from the UK, especially for those countries who share large flows of migrants with the UK (Dini, Horsfield and Vickers, 2007). To illustrate the potential comparisons which could be made, a case study of Australian migration data from the Department of Immigration and Border Protection (DIBP) has been selected, as international migration statistics for Australia are well regarded, and there are sizeable flows between the UK and Australia for each year between 2001 and 2011.

6.6 Due to data availability the analyses have only been carried out for UK-born citizens. Since LTIM estimates are not available for UK born citizens migrating to Australia, IPS estimates are used.

Figure 6.1 UK-born outflows from the UK to Australia, year ending mid-2001 to year ending mid-2011



Sources: Office for National Statistics – International Passenger Survey, Department of Immigration and Border Protection (Australia) – Settler Arrivals 2010-11, Department of Immigration and Border Protection (Australia) – Working Holiday Report, June 2011

6.7 Figure 6.1 shows that IPS estimates of UK-born long-term emigration to Australia are consistently higher than DIBP figures for UK-born settler arrivals. IPS estimates are on average 17,000 larger than DIBP estimates each year. The trends shown in the two series are broadly similar, with a gradual increase from year ending mid-2002 to year ending mid-2007, before a decline to year ending mid-2010. There is a slightly diverging trend between year ending mid-2010 and year ending mid-2011, with the IPS estimate slightly increasing and the DIBP figure continuing to decrease.

6.8 The differences between the two series are likely to be a result of the definitional differences between the data sources. The most notable differences relate to length of stay. These IPS data consider all UK-born people intending to leave the UK and live in Australia for a year or more (having lived in the UK for a year or more) as a long-term migrant, regardless of why the person is moving to Australia or what visa they have obtained in order to travel to Australia. The DIBP data are based on passenger cards 'where arriving persons have indicated an intention or legal entitlement to permanently settle in Australia'. This is unlikely to include UK-born people moving to Australia for working holidays, formal courses of study, or for a fixed term of employment, all of which may last for a year or more, but not be considered permanent settlement.

6.9 This comparison illustrates that whilst there are some encouraging similarities in data between UK and Australian migration flows, the many caveats which exist make it difficult to draw firm conclusions about the quality of LTIM estimates. Further research would be needed to fully exploit the information in such international data sources, potentially through the development of model-based approaches such as that devised by the MIMOSA project.

7 Key Conclusions

7.1 **There is evidence from a number of independent sources that the IPS did not adequately identify the full extent of the immigration of EU8 citizens which occurred between 2004 and 2008.** This was principally due to IPS interviewing being concentrated at the time at principal airports, such as London Heathrow, London Gatwick and Manchester. Meanwhile, many migrants from the EU8 countries were travelling on the increasing number of routes connecting their countries with the UK regional airports. These routes were not covered, or not fully covered, by the IPS for migration purposes prior to 2008. Improvements to the IPS, which were fully implemented from 2009, expanded the range of airports at which the IPS is conducted to include more regional airports, and increased the number of migration filter shifts at key regional airports such as Luton and Stansted.

7.2 **The changes made to the IPS led to improvements in the quality of migration estimates from 2009 onwards.** The IPS improvements reduced the relative error around the immigration estimates, as well as improving the balance of the sample, reducing the skew towards migrant groups (typically non-EU) who predominately travel through the main airports. Comparisons between LTIM/IPS data and the other data sources related to immigration discussed in Section 2 showed that in the years since the IPS improvements, the trends in the LTIM/IPS series more closely track those seen in other data series.

7.3 **Data from the CAA have shown that by the time the improvements to the IPS were fully implemented, the expansion of EU8 passenger numbers and routes had begun to level off.** This suggests that the IPS improvements came too late to capture much of the increased migration following EU accession in 2004, and explains why more long-term migrants from the EU8 were identified on the 2011 Census than would have been expected based on LTIM flows estimates.

7.4 **Comparisons between LTIM estimates and implied migration flows from the 2011 Census demonstrate the improved quality of LTIM estimates following improvements to the IPS.** Whilst there are still differences between the series, these are partly due to known definitional differences. LTIM estimates are lower than implied Census estimates for EU-born migrants, but notably they are closest for EU8-born migrants. LTIM estimates were also shown to be higher than implied Census estimates for New Commonwealth migrants.

7.5 **There is evidence from comparisons with both 2011 Census, APS and Flag 4 GP registrations data that the IPS may be underestimating immigration of children under 15 years old.** Investigations have shown that this is not due to the weighting of the IPS, and clear instructions are given to interviewers that when children are sampled responses should be provided on behalf of the child, and not on behalf of any accompanying adult. This outcome requires further investigation as outlined in Next Steps.

7.6 **There is evidence from comparisons with 2011 Census and NINo allocations data that the IPS may be underestimating immigration of females in certain age groups.** The IPS estimates were much lower than Census implied migration flows for under 15s and 25-44 year olds, and higher than Census implied migration flows for 15-24 year olds. This outcome requires further investigation as outlined in Next Steps.

7.7 **Analysis of visitor switcher data suggested that although migrants from the EU were more likely to become visitor switchers, EU8 migrants were no more likely than other EU migrants to switch.** It would be expected that migrants who are not subject to immigration restrictions may be more likely to change their intentions than those that are, and this is taken into account in the existing visitor switcher methodology.

8 Next Steps

8.1 The revised net migration series presented in this review replaces the headline LTIM net migration estimates between 2001 and 2011. This revised series will be presented in the May 2014 Migration Statistics Quarterly Report (MSQR) and in the associated tables. Users who wish to see a more detailed breakdown of inflows and outflows of long-term international migrants between 2001 and 2011 by variables such as reason for migration, age and sex, citizenship and country of birth should continue to use the existing LTIM and IPS 1, 2 and 3 series tables, but should bear in mind the caveat that the headline net migration estimates have now been revised.

8.2 ONS are already exploring whether e-Borders data could be used to improve international migration and population estimates. The results of exploratory analysis on an early set of e-Borders data was published at the end of the Migration Statistics Improvement Programme (MSIP) in March 2012. Current research is investigating whether the data could be used to identify the travel history of migrants, and how the data could be used to improve the quality of IPS estimates, for example by providing an age-sex breakdown of passenger flows which could feed into the weighting of the IPS. This analysis should provide further information on the apparent underestimation of migrants under the age of 15 and of females in certain age groups.

8.3 The design of the IPS needs to continue to be responsive to changing migration trends. Although it is difficult to anticipate routes that migrants will favour in advance, it is possible to monitor new routes and passenger numbers and respond accordingly. For example, the number of sea crossings sampled on the Dover-Dunkirk route has been increased from 2014 in order to improve the robustness of the sample on this route, and to potentially boost the sample of EU2 migrants, following the lifting of transitional controls in January 2014.

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10 Glossary

Annual Population Survey (APS)	The Annual Population Survey (APS) is a continuous household survey, covering the UK, with the aim of providing estimates between censuses of key social and labour market variables at a local area level. The APS is not a stand-alone survey, but uses data combined from two waves from the main Labour Force Survey (LFS) with data collected on a local sample boost. Apart from employment and unemployment, the topics covered in the survey include housing, ethnicity, religion, health and education.
Confidence interval	The confidence interval is a range within which the true value of a population lies with known probability. For example, the 95 % confidence interval represents the range in which there are 19 chances out of 20 that the true figure would fall (had all migrants been surveyed). This is obtained as +/- 1.96 times the standard error.
Country of usual residence	The country in which a person has a place to live, where he or she normally spends the daily period of rest. Temporary travel abroad for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimages does not change a person's country of usual residence (UN based definition).
EEA	European Economic Area (EEA) consists of the EU Member States as constituted at the time as well as Iceland, Liechtenstein and Norway.
European Union	The European Union (EU) consists of 28 countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Republic of Ireland, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Croatia joined the EU in July 2013 - data with a reference period after that date will include Croatia within the EU grouping.
EU2	The EU2 (formerly known as the A2) are the two countries that joined the EU on 1 January 2007: Bulgaria and Romania. Between 2007 and 2013, EU2 nationals had certain restrictions placed on them; in the first 12 months of stay, working Bulgarian and Romanian nationals were generally required to hold an accession worker card or apply for one of two lower-skilled quota schemes. Other Bulgarian and Romanian nationals could apply for a registration certificate, giving proof of a right to live in the UK. These restrictions were lifted on 1 January 2014.
EU8	The EU8 (formerly known as the A8) are the eight central and eastern European countries that joined the EU on 1 May 2004: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.
EU15	The EU15 consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Republic of Ireland, Spain, Sweden and the United Kingdom.
Emigrant (Outflow)	A person who leaves their country of usual residence to take up residence in another country for a period of at least 12 months.
Estimate	An indication of the value of an unknown quantity based on observed data. The

	estimated number of migrants is calculated by weighting up the number of contacts collected by the IPS. Further information about the weightings used by the IPS can be obtained in this overview of International Passenger Survey (IPS) methodology.
Immigrant (Inflow)	A person arriving or returning from abroad to take up residence in a country for a period of at least 12 months.
IPS	International Passenger Survey – a sample survey of passengers arriving at, and departing from, United Kingdom air and sea ports and the Channel Tunnel.
Long-term international migrant	Someone who moves to a country other than that of his or her usual residence for a period of at least a year so that the country of destination effectively becomes his or her new country of usual residence. From the perspective of the country of departure the person will be a long-term emigrant and from that of the country of arrival, the person will be a long-term immigrant (based on UN definition).
LTIM	Long-Term International Migration (LTIM) estimates are produced by combining migration data from the IPS, Home Office data on asylum seekers, migration to and from Northern Ireland (from the Northern Ireland Statistics and Research Agency) and adjustments for visitor switchers and migrant switchers.
Migrant switchers	Travellers who stated the intention in the IPS to stay in the destination country for at least a year, therefore, counted as migrants but who actually left sooner.
Net emigration (outflow)	More people are migrating out of a country (for at least 12 months) than are entering that country in a given time period.
Net immigration (inflow)	More people are migrating into a country (for at least 12 months) than are leaving that country in a given time period.
Net migration (flow or balance)	The difference between immigration and emigration.
New Commonwealth	The New Commonwealth statistical grouping consists of African Commonwealth countries (Botswana, Cameroon, The Gambia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Seychelles, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe), Indian subcontinent countries (Bangladesh, India, Pakistan and Sri Lanka), and other Commonwealth countries in the Asian, Caribbean, and Oceania regions. It also includes British Dependent Territories and British Overseas citizens. Up to and including 2003 Malta and Cyprus are included in the New Commonwealth grouping. For 2004, the year of accession, they are included in the EU. Malta and Cyprus are members of both the Commonwealth and the European Union from May 2004 onwards. However, for estimation purposes they have only been included in the EU grouping for 2004 onwards. Rwanda was admitted to the Commonwealth in November 2009, but the definition for this statistical grouping has remained unchanged. Zimbabwe withdrew from the Commonwealth in December 2003 and the Gambia withdrew from the

	Commonwealth in October 2013, but again the definition for this grouping also remained unchanged.
Old Commonwealth	The Old Commonwealth statistical grouping consists of four countries: Australia, Canada, New Zealand and South Africa.
Other Foreign	Other foreign is defined as the non-EU countries within Europe, the United States of America, the Middle East, and the remaining countries in North, Central and South America, Africa, Asia and Oceania which are not included in either the New or Old Commonwealth country groupings.
Standard error (SE)	An indication of the accuracy of an estimate and how much a sample estimate is likely to differ from the true value because of random effects.
Visitor switchers	Visitors who enter or leave the UK intending to stay in the destination country for less than a year but who actually stay for a year or longer.
Worker Registration Scheme (WRS)	The WRS closed on 30 April 2011. It was a scheme with which EU8 nationals were required to register if they wished to take up employment in the UK. Self-employed workers did not need to register with the WRS.