

Article

Note on the differences between Long-Term International Migration flows derived from the International Passenger Survey and estimates of the population obtained from the Annual Population Survey: December 2016

The differences between the APS and IPS and why the net long-term international migration estimates from the IPS are the recommended measure of net international migration flow.



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Table of contents

1. [Executive summary](#)
2. [Data sources](#)
3. [Definitional differences](#)
4. [Illustrative analysis of the impact of the definitional differences on comparisons between the sources](#)
5. [Summary and next steps](#)
6. [Annex A – Main trends in data sources](#)
7. [Annex B – Further detail on definitional differences](#)
8. [Annex C - Reason for migration](#)
9. [Annex D – Conceptual framework of the complexity in comparing APS and IPS](#)
10. [References](#)

1 . Executive summary

1.0.1 This note is part of a series of reports that are being published setting out the differences between the different data sources that measure international migration to and from the UK. The Office for National Statistics (ONS) produces several series of statistics on international migration:

- those that provide information on the flow (or movement) of international migrants
- those that estimate the stock (or resident population) of non-UK born people or nationals living in the UK.

1.0.2 In May 2016, a note was published on the [difference between Long-Term International Migration \(LTIM\) estimates and the number of National Insurance numbers issued to overseas nationals](#).

1.0.3 This note explores the definitional differences between LTIM flows produced using the International Passenger Survey (IPS) and the change in the estimates of the non-UK born population stock measured by the Annual Population Survey (APS). In theory, the change in the number of non-UK born people living in the UK from year-to-year should be close to the net flow of non-UK born people into the UK. Therefore some users of the data have derived a proxy flow from the published APS stock estimates rather than using the intended LTIM flow estimates. Both sources (IPS and APS) have value but are not directly comparable in this way as they have fundamental coverage and sampling differences. They are designed to measure different things, in different ways, based on different types of data, and neither has complete coverage.

1.0.4 One important example of these differences is that the APS is a survey of residential addresses and does not include most communal establishments whereas the IPS does include people who may live in communal establishments and this may be of particular relevance for measuring international migration. Changes in stock between 2 points in time show the net effect of all population changes rather than a flow and are subject to relatively large levels of uncertainty.

1.0.5 The note concludes that:

- both sources are valuable in their own right and provide us with an understanding of the flows of international migrants as well as the numbers of international migrants in the household population
- it is not appropriate to estimate a flow from the change in the level of stocks from the APS; in the same way it is not appropriate to estimate stock figures by adding together flows
- the IPS should be used to measure flows of international migrants and some of their characteristics
- the APS should be used to measure the stock of international migrants in the residential household population and some of their characteristics
- both the IPS and APS are sample surveys and have levels of uncertainty attached to their estimates
- we are continuing to look at other sources of information, including administrative data, to improve our understanding of the impact of international migration at the national and local level

1.0.6 The APS uses data from 2 waves from the main Labour Force Survey (LFS) with additional data collected via a local sample boost and is not a stand-alone survey – therefore the conclusions around the APS equally apply to the LFS.

1.0.7 This note provides a brief explanation of the sources and includes estimates from them, noting how the numbers differ and considering whether the trends are consistent. A summary of the main definitional differences is provided, followed by discussion of the most prominent issues, and illustrative analyses.

1.0.8 Illustrative analyses of the LTIM net flows compared against the year-on-year change in the APS population estimates highlight the resultant fluctuating APS trends and note the differences between those born in the EU and outside of the EU and different EU country groupings. Analysis also shows that far larger confidence intervals surround the change in the APS from year to year compared with the comparatively smaller confidence intervals accompanying the LTIM flows.

2 . Data sources

2.0.1 There is no single, comprehensive statistical data source that identifies international migrant flows and provides information on migrants while they are living in the UK. Consequently, international migration is estimated using information from surveys designed for different purposes; both on their own and in combination with administrative data. Differences in the methodology and focus of the different published estimates complicate the understanding of international migration statistics.

2.0.2 International migration flows are derived from the Long-Term International Migration (LTIM) series, based on the International Passenger Survey (IPS) (a port survey), and are intended to measure long-term international migration flow to and from the UK. LTIM estimates are based on the IPS with adjustments made using administrative data for asylum seekers, non-asylum enforced removals, people resettled in the UK under resettlement schemes, visitor and migrant switchers and flows to and from Northern Ireland.

2.0.3 Our international migration statistics use the [UN recommended definition](#) of a long-term international migrant: “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.”

2.0.4 Further methodological details are available for the [IPS](#) and [LTIM](#) and the trend for LTIM estimates can be seen in Annex A.

2.0.5 The Annual Population Survey (APS) is used as a basis for annual stock estimates of the number of people resident in the UK who were born abroad or who had non-British nationality at the time of the survey. The APS is not a stand-alone survey but uses the quarterly Labour Force Survey (LFS) (a household survey) as a foundation and supplements this with annual local area sample boosts to produce rolling annual estimates. It is predominantly a household survey, including by proxy only a limited number of people living in communal establishments¹.

2.0.6 The trend of APS estimates of migrant stock can be found in Annex A. Further methodological details are available for the [LFS](#) and [APS](#).

2.0.7 There are other sources of data providing information on migration, including [census](#) data every 10 years and administrative data available to other government departments, but this note will focus on the 2 sources of most relevance to the difference between our estimates of flows and stocks, specifically the APS estimates of the non UK-born population and the LTIM flows data by country of birth derived from the IPS.

Notes:

1. A communal establishment is generally defined as providing managed residential accommodation, usually containing multiple people and distinct from a private residential household. They can include student halls of residence, hotels, hospitals or hostels, for example.

3 . Definitional differences

3.0.1 The Office for National Statistics (ONS) produces several series of statistics on international migration, split into 2 groups: those that provide information on the flow (or movement) of migrants into and out of the country and those that estimate the stock (or resident population) of non-UK born people or non-British nationals living in the UK. Estimates based on these 2 concepts are derived from different sources and there are a number of definitional differences between them.

3.0.2 This note does not set out to fully explain the impact of each definitional difference and importantly does not seek to reconcile the sources; but the conceptual issues can be examined and illustrated. The strengths and weaknesses of each source should be taken into consideration in choosing which estimates to use when investigating international migration.

3.0.3 Throughout this note, it is important to bear in mind:

- The International Passenger Survey (IPS) and Long-Term International Migration (LTIM) should be viewed as the principal and best available source of information on the flow of long-term international migrants into and out of the UK
- The Annual Population Survey (APS) is a good source for deriving an estimate of the resident non-UK born population stock.

3.0.4 None of the ONS surveys mentioned were originally designed to provide comprehensive estimates of international migration flows or stocks. The LFS (on which the APS is based) focuses on the labour market and is designed to provide estimates of employment and unemployment, as well as information on the characteristics of those working in the UK. The IPS was originally designed for use in compiling the international travel and tourism account of the balance of payments. However, the IPS has evolved over time and in 2009 [improvements](#) were made to the survey design to better measure international migration flows.

3.1 Fundamental differences

3.1.1 Two of the main differences affecting the comparability of the sources are as follows.

The APS estimates relate to residents in households and exclude people in communal establishments (such as people living on business premises such as hotels, in student halls where the parents are not UK residents, or in workers' accommodation). The LTIM statistics will include all people regardless of in which type of accommodation they choose to live (assuming they intend to stay for a year or more).

The IPS classifies long-term migrants with regard to their intentions at the time of entry to the UK and requires people to be intending to stay for a year or more to be captured in LTIM. The APS sample may include some short-term migrants¹, for example, those intending to stay long-term but who later change their minds. The impact of this on the estimates cannot be quantified but is assumed to be small. The design of the APS means that a significant proportion of short-term migrants are excluded, that is, anyone not staying at a private household address and anyone who regards their main residence as overseas.

3.1.2 The APS also identifies migrants with regard to their country of birth and nationality at the time they are surveyed and sometimes a migrant's nationality will have changed since immigrating. The IPS uses the citizenship of the passport held at the time of interview² (and also collects country of birth, which will be used in the analysis later in this note).

3.1.3 These examples highlight how the coverage of the sources will already differ at a fundamental level. Table 1 expands upon the definitional differences between the flows (LTIM) and stocks (APS) data.

Table 1: Differences between sources of stocks and flows data

	Stocks data derived from the Annual Population Survey (APS)	Flows data derived from Long-Term International Migration (LTIM) and the International Passenger Survey (IPS)
Sampling frame	Represents all private households.	Samples passengers as they arrive in or leave the UK through ports regardless of residence type.
	Excludes most communal establishments.	Adjustments made for those known to be missed, for example, asylum seekers.
	Has a lower response rate than IPS (more detail is available) and it is not clear whether recent declining rates affect the fitness for purpose of the APS for measuring migration, especially at disaggregated levels where it could be more important to know the demographics of the non-response.	Has a smaller sample size but also smaller confidence intervals than the change in the APS estimates.
	Estimates cover the UK. Lowest geography is local authority by single country.	Has high response rates with a sampling design intended to be robust in terms of quality versus response.
		Estimates cover the UK. Lowest geography is region by single country.
	APS primarily covers all those living in households (where the address is their main residence) within a given year, whereas LTIM covers all people entering and exiting the UK within that year who intend to stay for a year or more. This means the APS does not cover many people in communal establishments ¹ , and LTIM does not cover short-term migrants.	
Timing of the survey year.	APS estimates are averages over a whole year.	Single, point-in-time interview.
		Collected on an ongoing basis throughout the year, with estimates produced quarterly.
	The IPS (and LTIM) is made up of one-off interviews that occur on an ongoing basis throughout the year compiled to estimate the total flow in each year. Although LFS and APS data on migration are used as stock estimates, the methodology means that each estimate is measured over an extended period of time (3 months in the case of the LFS and a year in the case of the APS) and so is not a true point-in-time stock estimate.	
Definition of a migrant	A migrant is defined as someone whose main residence is in the UK at the time of interview and their country of birth is non-UK or whose nationality is non-British.	The UN definition is used to define a migrant: “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”. Therefore anyone staying or going for less than 12 months is excluded from LTIM.
	Length of time in the UK is currently not used to define a migrant in the APS and so long-term and some short-term migrants can be included in the sample (though would be weighted to population estimates which exclude short-term migrants).	
	The APS classifies a migrant by their self-reported country of birth or alternatively by their nationality. Meanwhile the IPS and LTIM follow the UN definition that a move to a new country for a period of at least 12 months is classed as long-term migration and uses the citizenship of the passport held. Consequently LTIM includes only long-term migrants and includes long-term migrants who are British citizens, or who were born in the UK.	
Nationality	As stated by respondent. If respondent has dual nationality, the first one given is recorded in the survey.	Citizenship is taken from the passport shown at the time of the interview, or (if this is not available) taken as stated by respondent.

The APS defines migrants based on their nationality or country of birth. While a person's country of birth is normally clearly defined and will not change, a person's nationality may change and is self-reported once on first contact. In the IPS a person's citizenship is taken from the passport shown at the time of the interview.

Actual versus intended migration	The APS asks for the date of arrival in the UK for non-UK born migrants. This can be used to calculate the actual length of time the respondent has lived in the UK.	The IPS collects information on intended length of stay in or outside the UK. However, LTIM includes some adjustments for migrants whose actual length of stay is different from their original intentions.
	However, no information is provided regarding how long they may remain in the UK making it difficult to identify short-term migrants.	It is generally possible to differentiate between long-term and short-term migrants.
Asylum seekers	Included if living in a private residence. Those living in communal establishments are excluded.	Included. Some asylum seekers could be surveyed by the IPS, but an adjustment is included in LTIM based on Home Office data on asylum seekers.
	Persons arriving as asylum seekers or as refugees on resettlement schemes are identified and removed from the IPS. However, one of the components of LTIM is an adjustment for asylum seekers and refugees based on Home Office administrative records.	

Source: Office for National Statistics

Notes:

1. This is touched on further in an ONS report highlighting that the LFS may not have been fit for purpose for redistributing migrants at local level.

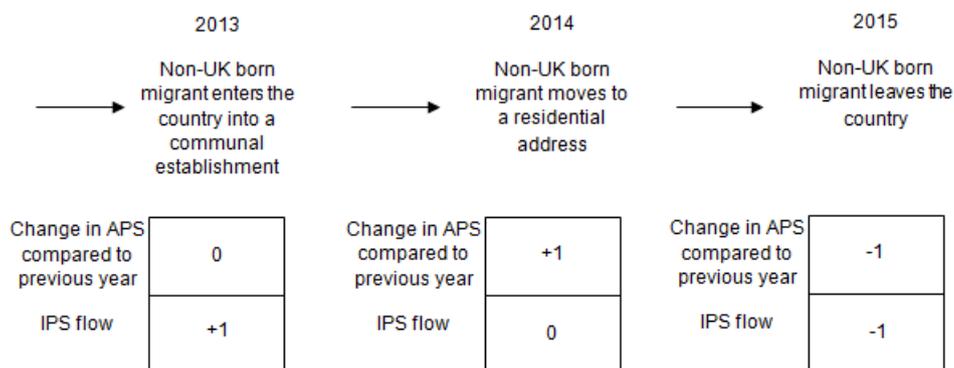
More detail on the differences between the sources can be found in Annex B.

3.1.4 The 2 sources measure different things, in different ways, based on different types of data and neither has complete coverage; and so, in practice, should not be directly compared. This becomes more apparent when the comparison being drawn is between the LTIM estimates of net migration and the "change" in the non-UK stock of the population from one year to the next.

3.1.5 Figure 1 provides a very basic example of the difficulty in using the APS to derive a proxy flow, though it must be noted that the full extent of the situation is far more complex than this one illustration. A more detailed overview of the relationship between APS stocks and LTIM flows can be found in Annex D.

3.1.6 The simple example in Figure 1 shows a situation in which an immigrant moves to the UK into a communal establishment which is not covered by the APS. The IPS correctly counts this inflow, but the APS does not. Only when the immigrant moves to a sampled residential address does the APS then count them as an increase compared with the APS the previous year. This would look like a migrant inflow, but would not actually be an international migration event in that year. When the migrant then left the UK, if sampled, both sources would register an emigration.

Figure 1: Illustration of the disparity between Annual Population Survey and International Passenger Survey measures of flow



3.1.7 This short example also highlights the difficulty of using the average of multiple years of flows and changes – for instance, the average of the first 2 years is plus 0.5 in both sources, but of the second 2 years is 0 for the APS and minus 0.5 for the IPS. One can see how this disparity can increase as migrant journeys become more complex.

3.1.8 To exploit the APS dataset further, the APS “year of arrival” variable can be used to identify when the international migration event itself occurred and thus produce a proxy measure to identify recent immigrants. Due to the coverage of the APS dataset this should still be framed as a type of stock measure, not a flow, for example, a measure of the number of migrants present in the population in year x who arrived in the last 12 months.

3.1.9 Changes in stocks are between 2 points in time and show the net effect of all population changes, which can be different from the gross inflows and outflows. Creating proxy flow measures using the year-on-year change from the APS, results in fluctuating and inconsistent trends, as well as increased uncertainty around the estimates as can be seen in the illustrative analyses in Section 4.

Notes for Definitional differences:

1. Until 2008 there was a 6-month residency test, but this has since been removed. There may therefore be a slight discontinuity with pre-2008 data, which may have included fewer short-term migrants than since the rule has been disregarded.
2. People with dual passports will be recorded based on the passport carried for the journey for which they are interviewed by the IPS.

4 . Illustrative analysis of the impact of the definitional differences on comparisons between the sources

4.0.1 In theory, the change in the number of foreign-born people living in the UK from year-to-year should be close to the net flow of foreign-born people into the UK. However, the changes in stock estimates from the Annual Population Survey (APS) and the flow estimates from the International Passenger Survey (IPS) and Long-Term International Migration (LTIM) are not comparable in this way due to the definitional differences of the data sources mentioned in the earlier part of this note.

4.0.2 To illustrate the differences between the surveys and their resultant estimates, a number of analyses are presented in this section, highlighting how the main differences noted previously are reflected in the data themselves. The analyses begin by looking at the overall picture and then break the estimates down to examine the different trends seen for those born in the EU or outside of the EU, and then within each of the main EU country groupings, noting the different patterns seen and the difficulties that arise when conducting this type of disaggregated analysis.

4.0.3 The analyses show that the relationship between the sources is not consistent over time; the APS change fluctuates above and below the LTIM net migration estimates and fluctuates to a larger extent than LTIM. Looking at this pattern by EU and non-EU groupings it can be seen that the change in the APS estimate is higher than the LTIM net migration estimate for the EU grouping for every year except 2013, while from 2009 for those born outside of the EU, the opposite is true.

4.0.4 Confidence intervals for the change in the APS are large (though on the whole overlap with the net migration estimates and confidence intervals) indicating a greater level of uncertainty in the APS data when used in this way. The pattern of change in the APS fluctuates even more when looking at the data at smaller levels of disaggregation.

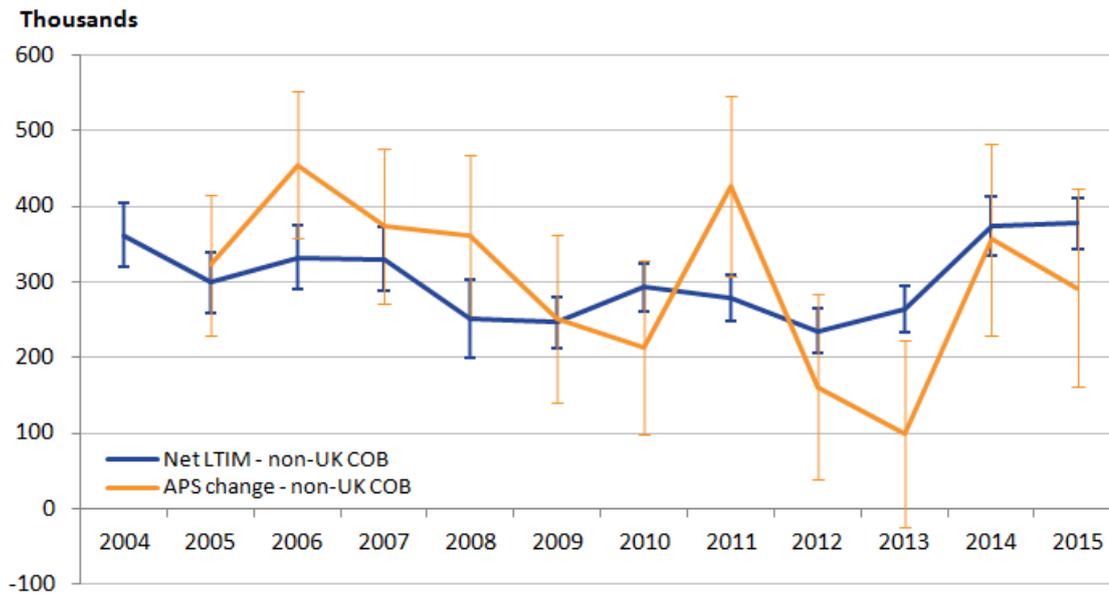
4.1. Non-UK born

4.1.1 The following sub-sections look at the trend over time of LTIM by country of birth¹ compared with the estimates of foreign-born people as measured by the APS. Migrants living in the UK can be defined on the basis of either non-British nationality or being born outside the UK. Throughout this analysis the country of birth definition is used because this allows for a more consistent comparison of change over time as a person's country of birth will not change, unlike nationality which could change if someone became a British citizen for example; and estimates will not be affected by births to non-UK born mothers, as those births would be UK-born babies.

4.1.2 Annex A shows that between 2004 and 2015 the APS estimate of the non-UK born population has continually increased. However, the rate of change fluctuates from year to year and carries a higher level of uncertainty around the estimate, indicating it is less reliable, as shown in Figure 2 .

4.1.3 Note that the APS data shown do not represent population estimates, but rather a measure of the "difference" in the population estimate from year to year; thus if there is a decreasing trend in Figure 2, this does not mean there is a reduction in the non-UK born population, but just that the rate of increase in the population has slowed (the APS population increases whenever the change is above zero).

Figure 2: Comparison of Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population, non-UK born population, 2004 to 2015



4.1.4 The change in the APS estimate will include the deaths of migrants, which will result in a reduction in an estimate of the population. A death is a migrant leaving the population, not leaving the country, but if the APS data are used to imply a flow then those deaths appear, incorrectly, as emigration events.

4.1.5 As noted, the relationship is not consistent over time; the APS change fluctuates above and below the LTIM net migration estimates during the period shown and fluctuates to a larger extent than LTIM. However, the LTIM estimate in 2014 was the largest over the period shown on Figure 2 and compares with a large change also shown in the change in the APS.

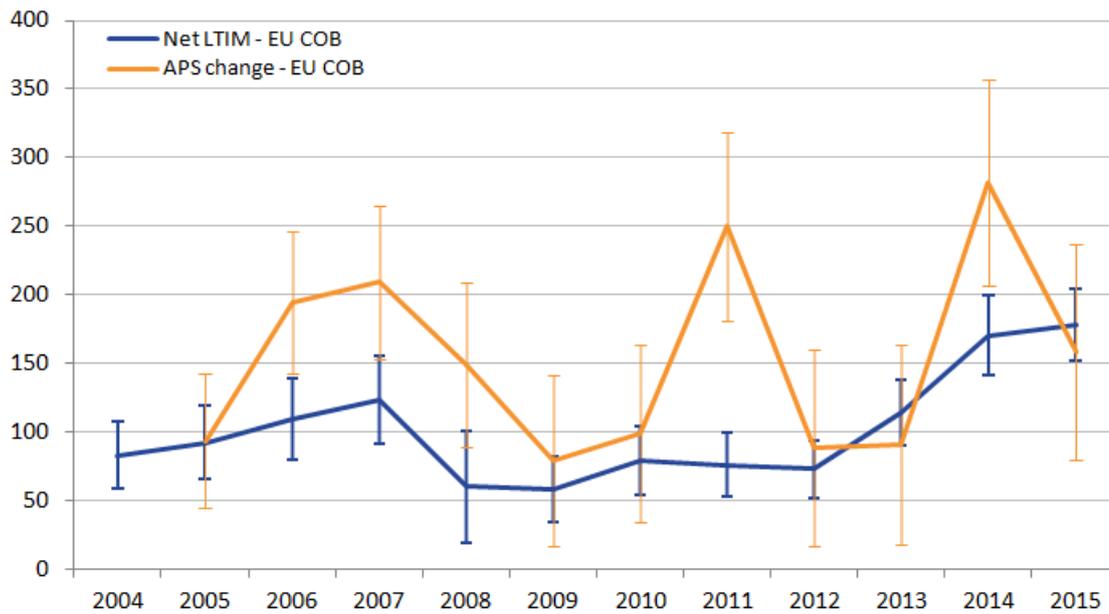
4.1.6 Figure 2 also displays each estimate's confidence interval. This is an indication of the uncertainty around the estimates arising from variability due to the sampling involved in any survey. The larger the confidence interval, the greater the level of uncertainty. The confidence interval shows the range in which one would expect to find the true estimate most of the time². It can be seen that the estimates of change using the APS have wider confidence intervals, though they do often overlap with the smaller confidence interval of the LTIM estimate.

4.1.7 The recent decline in response rates for the APS could result in increased volatility in estimates with small sample sizes. It should be borne in mind that as the country groupings in the following analyses get smaller, the sample sizes involved also get smaller, meaning that sampling variability may be more evident in the trends.

4.2 EU and non-EU born

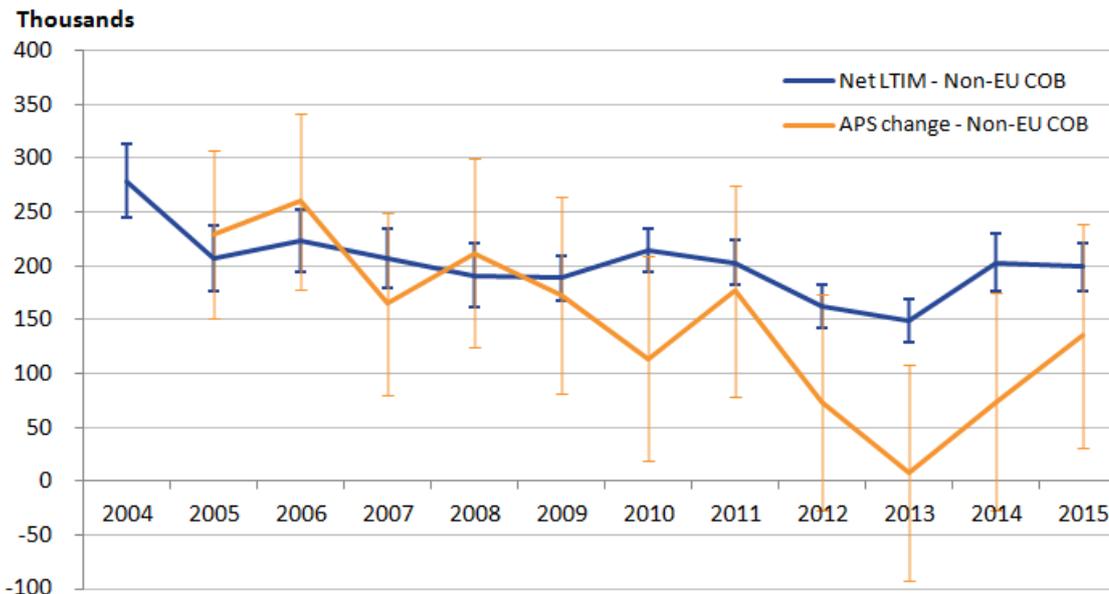
4.2.1 Figure 2 showed that in 2010 and from 2012 onwards, the change in the APS stocks figure was below the net migration of foreign-born people estimated by LTIM. Looking in more detail at this pattern by EU (Figure 3) and non-EU (Figure 4) groupings, it can be seen that the change in the APS estimate is higher than the LTIM net migration estimate for the EU grouping for every year except 2013, while from 2009 for those born outside of the EU, the opposite is true.

Figure 3: Comparison of Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population – EU-born population, 2004 to 2015
Thousands



4.2.2 It is worth noting that freedom of movement for EU citizens during this period could have resulted in short-term or circular migration episodes, which could lead to migrants being included in the APS but not in LTIM estimates; although, as some of these short-term and circular migrants will live in communal establishments, not all will be captured in the APS.

Figure 4: Comparison of Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population – non-EU-born population, 2004 to 2015
Thousands

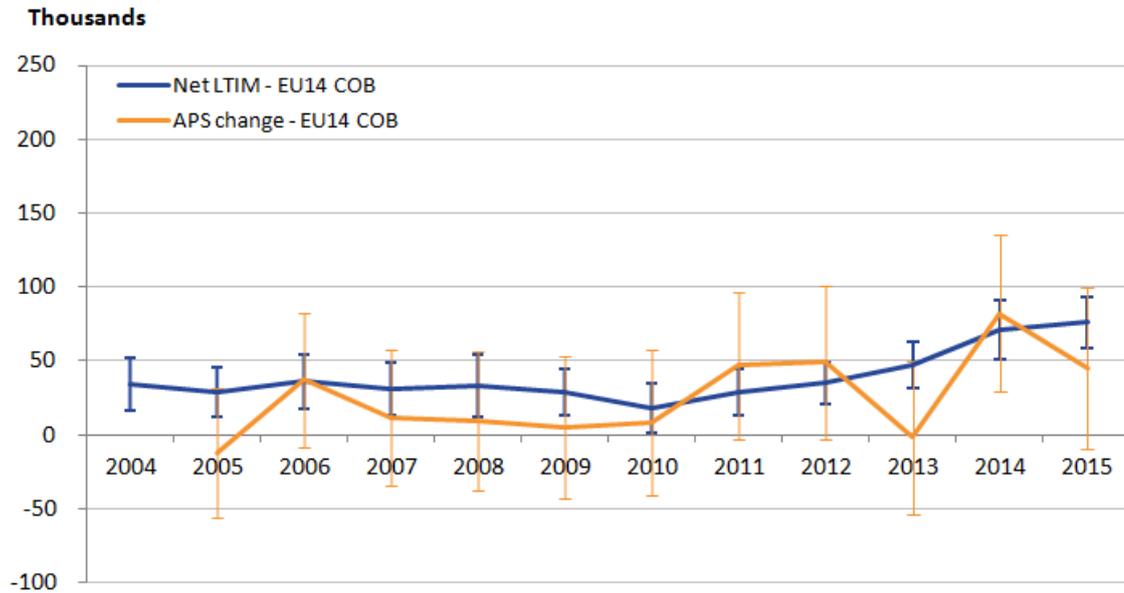


4.2.3 The coverage differences mentioned earlier are likely to explain why there are differing patterns for those born in the EU and those born outside the EU; in particular, a notable difference is likely to arise from the fact that international students living in student halls could be captured by the IPS but not by the APS as it excludes most communal establishments. Given that IPS data show that a large proportion of non-EU citizens come to the UK for study, it is not unexpected that the IPS would in places be higher than the APS for the non-EU country of birth data given in Figure 4.

4.2.4 Again the confidence intervals for the change in the APS are large and on the whole overlap with the net migration estimates and confidence intervals. The pattern of change shown in Figure 3 is inconsistent and this can be seen when looking at the data in yet smaller groups³.

4.3 EU-14 born

Figure 5: Comparison of Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population – EU14-born population, 2004 to 2015

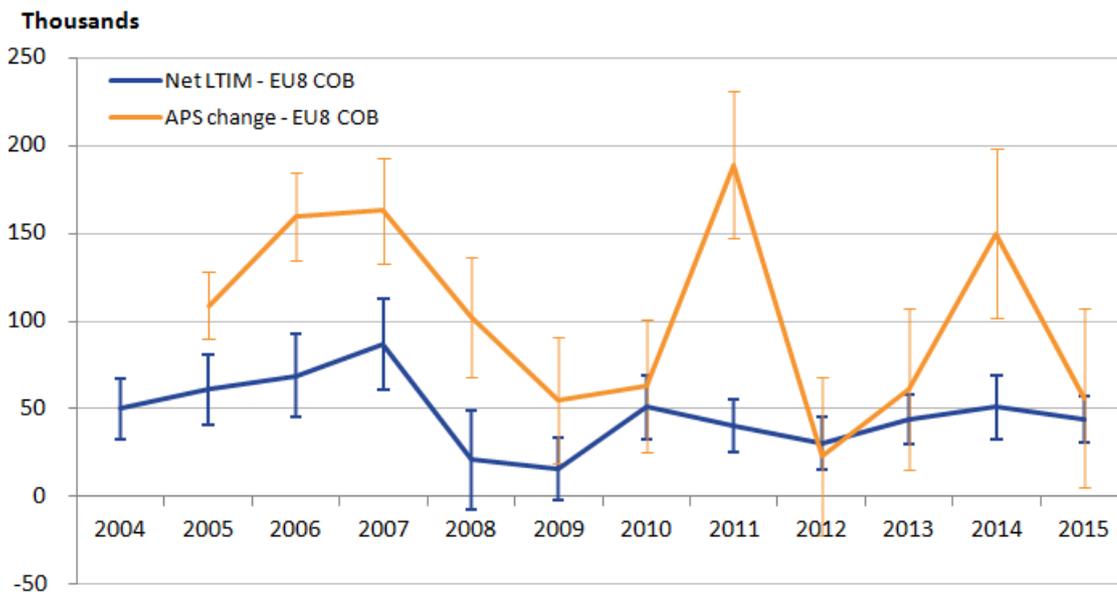


4.3.1 Figure 5 shows that for people born in the 14 states of the EU (not including the UK) that were members of the EU prior to the 2004 accessions, overall the change in the APS population estimate fluctuates around the LTIM net migration estimate. The patterns are similar, but on the whole the LTIM net migration estimate is usually slightly higher than the APS year-on-year change.

4.4 EU8-born

4.4.1 Figure 6 highlights how the trend seen for the overall EU pattern of change in the APS population is driven by those born in the central and eastern European countries of the EU8 (who joined the EU in 2004), where the APS change is consistently higher than the LTIM net migration estimates.

Figure 6: Comparison of Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population – EU8-born population, 2004 to 2015



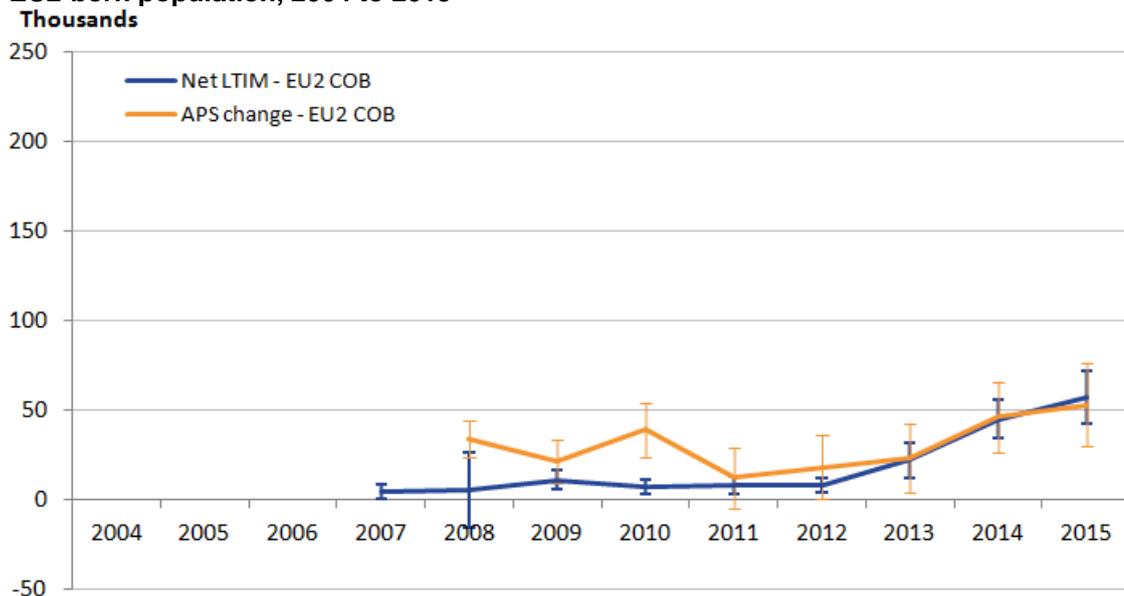
4.4.2 The sudden peaks in the change in 2011 and 2014 were not reflected in the LTIM net migration estimates, nor in another comparator, the registrations for National Insurance numbers (not shown in the chart). The change in the APS population estimate for the EU8-born fluctuates more than any of the other groupings and at times even the confidence intervals do not coincide. The LTIM estimates of net migration do not show these unusual variations.

4.4.3 As already noted, the change in APS estimates at this level of disaggregation becomes an even more unreliable flow measure and should not be used (notwithstanding the additional analyses in this section, which illustrate these variations).

4.4.4 For the period between 2004 and 2008, the number of EU8 citizens that came and left the UK for less than 12 months (short-term international migration) increased; these people would not be included in the LTIM net migration estimate but might be included in the APS, which may be one explanatory reason for the higher APS change compared against the LTIM estimates, as well as sampling variability; although short-term migrants could live in communal establishments not included in the APS sample. It is also worth bearing in mind that those who intended to stay short-term and then stayed longer, or those who intended to stay long-term but left sooner, might not be fully accounted for in the APS estimates, whereas some of these switchers are adjusted for by LTIM.

4.5 EU2-born

Figure 7: Comparison of International Passenger Survey and Long-Term International Migration net migration estimates and annual differences in Annual Population Survey estimates of the population – EU2-born population, 2004 to 2015



4.5.1 IPS data for the EU2 grouping (those born in Romania and Bulgaria) are only available from 2007 onwards, when they joined the European Union. More recently, and especially since the employment restrictions on this group were lifted in 2014, the change in the APS population estimate has been very similar to the net migration estimate for this group.

Notes for Illustrative analysis of the impact of the definitional differences on comparisons between the sources:

1. It should be noted that headline LTIM figures published in the Migration Statistics Quarterly Report (MSQR) are based on nationality, not country of birth, although country of birth data are output with the finalised LTIM data every November or December. MSQR data also include UK-born people who are returning to the UK after living abroad for over one year or leaving the UK for a period of a year or longer. This note does not include people born in the UK nor with British nationality – only those who are foreign-born.
2. For more background to the use of confidence intervals, see the Note on Sampling and Uncertainty section of the [Migration Statistics Quarterly Report](#).
3. For details on which countries are in which groupings, see the [Migration statistics first time user guide, glossary and list of products](#).

5. Summary and next steps

5.0.1 These brief analyses show the inconsistencies in the trend for the change in the Annual Population Survey (APS) population estimate. While the APS population estimates themselves show consistent trends (Figure A2), it can be seen that the change year-on-year is more volatile and indeed complex as highlighted by Figure D1 in Annex D.

5.0.2 The charts show that confidence intervals for the year-on-year change in the APS are larger than those for the Long-Term International Migration (LTIM) net migration estimates, reflecting a greater uncertainty in those data when represented as flows; and also show a more fluctuating trend than the LTIM estimates. These fluctuations can become more evident at smaller levels of geographical disaggregation.

5.0.3 The fact that there are differences between the trends in the charts in section 4 illustrates the effects of the definitional differences between the sources. Those definitional differences and the examples of trends highlight further why it is not advisable to use the year-on-year change in the APS population estimate as a proxy for a flow and why the more consistent LTIM estimate is the better source to use for estimates of net international migration flow. Similarly, it would not be appropriate to estimate stock figures by adding together flows data.

5.0.4 Given the limitations of how each data source can be used to measure international migration and the need for data to allow for detailed analysis of characteristics of migrants, particularly at subnational geographies, we are looking to alternative data sources. Making better use of administrative data could help overcome some of the limitations currently faced and improve our understanding of the impact of international migration in the UK. We have started work to identify how sharing, linking and exploiting new and existing survey and administrative data will help fulfil this need and enable more detailed analysis of international migration.

6 . Annex A – Main trends in data sources

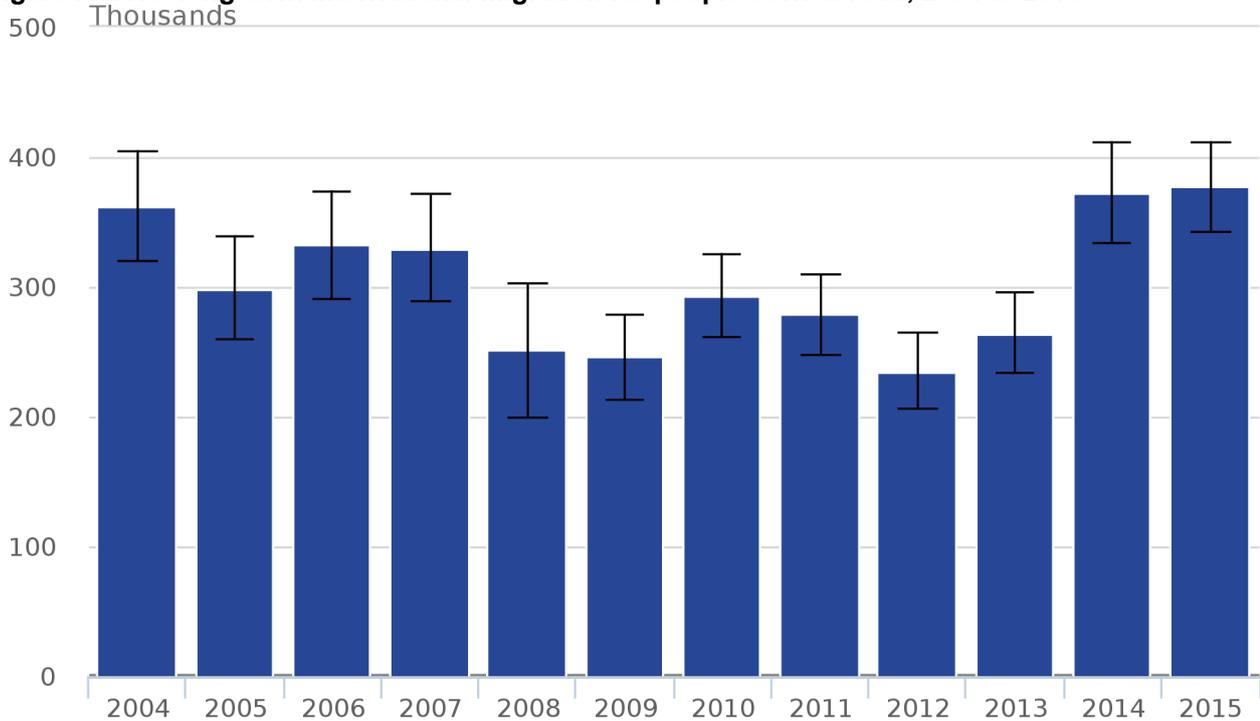
6.1 Net long-term international migration trend

6.1.1 Long-Term International Migration (LTIM) flows data are derived from the International Passenger Survey (IPS) plus adjustments made using administrative data for asylum seekers, non-asylum enforced removals, people resettled in the UK under resettlement schemes, visitor and migrant switchers and flows to and from Northern Ireland.

6.1.2 Net Long-Term International Migration is the difference between immigration and emigration. Please note that the headline LTIM figures published in the [Migration Statistics Quarterly Report](#) (MSQR) are based on nationality, not country of birth, although country of birth data are output with the finalised LTIM data every November or December. MSQR data also include UK-born people who are returning to the UK after living abroad for over a year or leaving the UK for a period of a year or longer. This note does not include people born in the UK nor with British nationality – only those who are foreign-born.

6.1.3 Figure A1 shows that net migration for migrants born abroad was at its peak of 377,000 in 2015 and 373,000 in 2014. Previously this high was in 2004 when the EU expanded to include the central and eastern European countries of the EU8 and the recent increase coincides with the lifting of employment restrictions for Romanian and Bulgarian (EU2) citizens as well as the changing labour market conditions in the UK and other countries across the world.

Figure A1: Net long-term international migration for people born abroad, 2004 to 2015



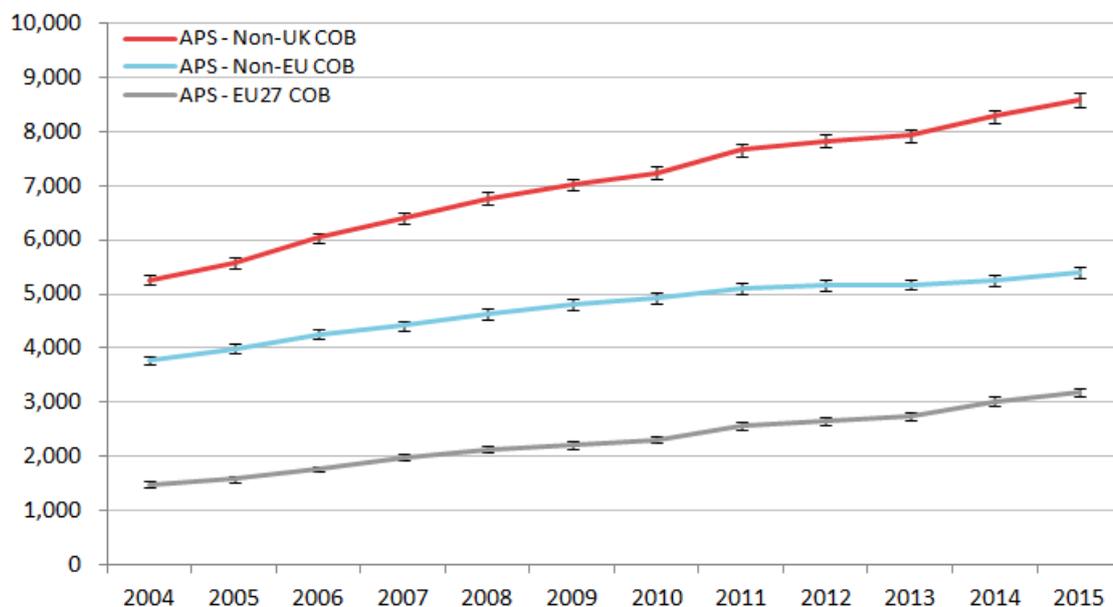
Source: Office for National Statistics - Long-Term International Migration

6.2 UK resident population by non-UK country of birth trend

6.2.1 The Annual Population Survey (APS) provides an estimate of the resident population of the UK by country of birth and nationality, that is, an estimate of migrant stock in the UK. The APS is not a stand-alone survey but uses the quarterly Labour Force Survey (LFS) as a foundation and supplements this with annual local area sample boosts to produce rolling annual estimates.

6.2.2 Figure A2 shows that the non-UK born population has continually increased since 2004 and when further split by EU and non-EU both groups also show continual increases over time. The confidence intervals shown on the chart are relatively small for each stock estimate showing less variability when the data are interpreted in this way.

Figure A2: UK resident population for people born abroad, 2004 to 2015
Thousands



7 . Annex B – Further detail on definitional differences

7.1 Sampling frame

7.1.1 The Annual Population Survey (APS) sampling frames cover those living in private households. This means that the majority of people living in communal establishments are excluded, which could affect recent migrants more so than others. This includes people who are living in halls of residence (notable for non-EU citizens who often come to the UK for study), hotels or hostels, holiday camps, hospitals, or on travellers' sites or agricultural accommodation. Some people who live in communal establishments may be included by proxy in private households (for example, students in halls of residence or children in boarding school, who have at least one parent resident in the UK).

7.1.2 The International Passenger Survey (IPS), in contrast, samples from all people crossing the counting line regardless of accommodation type.

7.1.3 Thus it can be seen that the change in the APS from year to year can reflect changes within the population, for example, between communal establishments and households, as well as international migration.

7.1.4 Further to the information presented in Table 1, it should be noted that the sources carry different types and margins of error for the statistics derived from them and these can have a significant impact on comparisons. Confidence intervals are larger when the change in the population is derived from the APS and when compared with the IPS this indicates a higher level of uncertainty around the APS data. The confidence intervals around the actual APS population estimates are much better, showing that the APS should be used for overall population estimation and not for measuring year-on-year changes.

7.2 Timing

7.2.1 The IPS is made up of one-off interviews that occur on an ongoing basis throughout the year; these are compiled to estimate the total flow in each year.

7.2.2 A true stock measure is one made at a specific instant in time – the 2011 Census for example. Although APS data on migration are used as stock estimates, the methodology means that each estimate is measured over an extended period of time (3 months in the case of the LFS and a year in the case of the APS).

7.2.3 The APS collects information on the time since arrival in the UK for those people who are foreign-born. These give a broad indication of how the change in the number of migrant workers may have been affected by recent migration but they are not consistent with migrant inflows since they do not account for people who have left within the period.

7.3 Definition of a migrant

7.3.1 The APS classifies a migrant by their self-reported country of birth or alternatively by their nationality. Meanwhile the IPS and Long-Term International Migration (LTIM) follow the UN definition that a move to a new country for a period of at least 12 months is classed as long-term migration. Consequently LTIM includes only long-term migrants and includes those who are British citizens, or who were born in the UK.

7.3.2 APS estimates of migrant workers relate to long-term migrants, similar to the IPS. The APS sample may include some short-term migrants, for example, those intending to stay long-term but who later change their minds. The impact of this on the estimates cannot be quantified but is assumed to be small. The design of the APS means that a significant proportion of short-term migrants are excluded, that is, anyone not staying at a private household address and anyone who regards their main residence as overseas.

7.3.3 The number of migrants who change their length of stay intentions (switchers) is unavailable from the APS; whereas in the LTIM estimates switchers are accounted for. It should also be borne in mind that in contrast to the APS and IPS, short-term migrants are a significant element of National Insurance number statistics; and so it can be seen that only IPS estimates specifically restrict calculations to long-term, or separately short-term, migrants independently.

7.3.4 It is not immediately apparent the extent to which short-term migration may affect the differences between the sources – it is likely that the APS sample contains a higher number of short-term migrants than LTIM, but this is probably still lower than other administrative data sources estimates such as those from HM Revenue and Customs or the Department for Work and Pensions, which are likely to (by design) include a greater proportion of resident short-term international migrants.

7.3.5 It is worth noting that until January 2008, APS interviewers were instructed to only include people who had been in the UK for over 6 months. After this date the residency requirement was removed. Our analysis showed that the removal of this residency requirement had no significant effect on the estimates produced.

7.4 Nationality

7.4.1 The APS defines migrants based on their nationality or country of birth. While a person's country of birth is normally clearly defined and will not change, a person's nationality may change. A person may come to the UK as a foreign national, but later become a UK national, or may give birth to a child in the UK but the child could retain a foreign nationality. Therefore the numbers of foreign nationals living in the UK may change regardless of inflows or outflows and thus distort the theoretical relationship between stock and flow measures.

7.4.2 Respondents to the APS are asked their nationality once on first contact. In the IPS a person's citizenship is taken from the passport shown at the time of the interview, or if this is not available it is taken as stated by the respondent. A further methodological issue exists because neither survey clearly accounts for the case of dual nationality or dual passports.

7.4.3 Note, the analysis in this note uses country of birth measures, not nationality.

7.5 Asylum seekers

7.5.1 Persons arriving as asylum seekers or as refugees on resettlement schemes are identified and removed from the IPS. However, one of the components of LTIM is an adjustment for asylum seekers and refugees based on Home Office administrative records.

7.5.2 The LFS and APS do not routinely ask questions to identify asylum seekers and it is not known how many asylum seekers are included in population estimates from these sources. Those living in communal establishments such as deportation centres would be excluded and it is unknown to what extent communication barriers, or reluctance to take part in government surveys may reduce the response rate of those living in private households. In 2008, the "[Eurostat ad-hoc module](#)" asked migrants why they had come to the UK and found that 208,000 non-UK born individuals living in the UK in the 3 months to June 2008 had come to the UK to seek asylum – 3% of all non-UK born people living in the UK at the time. However, this included all people living in the UK who came to the country seeking asylum, irrespective of when they came and whether they were still seeking it.

8 . Annex C - Reason for migration

8.0.1 It is difficult to compare estimates of employed non-UK born migrants from the Annual Population Survey (APS) with estimates of those giving their reason for migration as work-related in the International Passenger Survey (IPS). Additionally, the APS shows that estimates of those coming to accompany or join others is higher than it is in the IPS, and the other way round for work.

8.0.2 There are a number of reasons why this may be the case, but these all indicate that at this level of disaggregation the differences between the 2 sources' methodology and coverage start to complicate any conclusions that can be drawn. Possible explanations could include:

- the structure of the surveys
- those who settle are perhaps more likely to have been accompanying others rather than those who came to the UK only transiently who may have been more likely to be working or studying; thus those that remain in the APS will be more likely to be the accompany or joiners who are in the population longer
- migrants' actual lives differing from their intentions – for example, someone coming to accompany or join another may also work, or may later take up employment, or a student may have a part-time job and their responses to the different surveys may reflect different patterns of life
- the black economy – those involved may be reluctant to give accurate answers to government surveys
- recall bias, whereby migrants' answers to the APS after they have been resident for some time may well differ from answers they might have given when they initially entered the country
- for those coming to accompany or join others, at the point of arrival (IPS) reasons such as work may be more present in their mind than when they are surveyed in the home (APS) when accompanying others may seem more pertinent
- the reasons for migration of those living in communal establishments may differ from the reasons that would be given by household residents, especially where they are given by proxy

8.0.3 For the purposes of this note it suffices to note that the differences being seen in reason for migration and the unknown element of the reasons that would be given by those living in communal establishments, indicates that a direct comparison of the reason for migration may be unreliable. Future research could help to investigate this looking, for example, at:

- questionnaire wording and routing in the surveys
- the migrant-journeys of migrants
- how migrants are likely to respond in different circumstances especially those in the black market economy or being paid cash-in-hand, for example
- the differences between EU and non-EU workers (this difference between the sources seems not to affect EU migrants)
- whether those who stated they were accompanying others are also employed

8.0.4 That research is beyond the scope of this note.

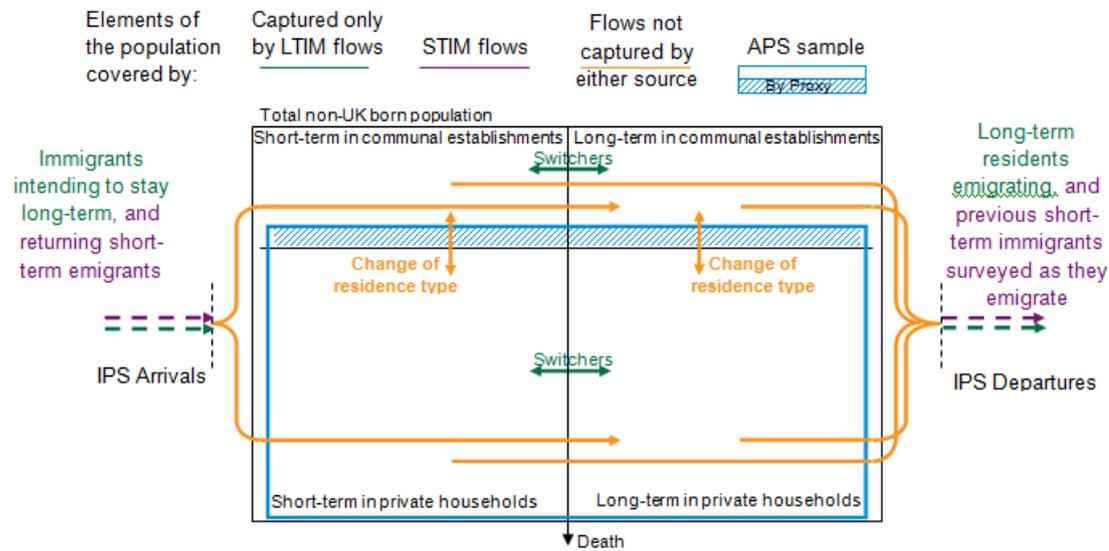
9 . Annex D – Conceptual framework of the complexity in comparing APS and IPS

9.0.1 Figure D1 highlights the complexity around the issues discussed in this note and shows that while the International Passenger Survey (IPS) measures immigrants and emigrants as they flow into or out of the country, it does not monitor people once they are in the population. While the Annual Population Survey (APS) does capture a “part” of that population, it does not measure the “movement” of people and so is not a better measure of international migration flows than Long-Term International Migration (LTIM).

9.0.2 It can be seen, for example, that many non-UK born residents in communal establishments would be excluded from the APS sample. The second most common reason for migration recorded by LTIM is study and many of those students will live in communal establishments not covered by the APS. Hence this section of the population is not captured unless they move into the household population, or emigrate. Migrant flows are captured by the IPS as they immigrate or emigrate, but not as they move “within” the population.

9.0.3 The APS could pick up a move from a communal establishment into a private household, which would appear as an increase in the APS compared with the previous year; however, that movement would be reflected as an immigration event if the change in the APS population were given as a proxy for a flow, but of course that immigration event happened prior to the migrant moving into the APS sample and so would result in an inaccurate APS flow measure for that time period. Visitor and migrant switchers (that is, those whose intended length of stay changes) are adjusted for in LTIM. This adjustment would not be reflected in APS measures. The APS will capture the population in private households and so it can be used as a good measure of the non-UK born population, but because it misses so much of the flow movement as those flows happen and also covers only part of the population anyway, it can be seen that the IPS LTIM measure of flow is better than looking at the change in the APS population.

Figure D1: Conceptual framework illustrating the complexity of capturing flows and stocks data for non UK-born international migrants (not to scale)



10 . References

Long-Term International Migration statistics:

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Previous comparisons paper:

- [Estimating International Migration: An exploration of the definitional differences between the Labour Force Survey, Annual Population Survey, International Passenger Survey and Long-Term International Migration \(ONS, 2009\)](#)

Other references:

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