

Improved Methods for Estimating International Migration

Estimation of People Whose Intentions Change With Respect to Their Length of Stay

Summary

ONS has developed improved methods for estimating the proportion of people who do not realise their original intentions at the time of travel, in terms of their expected length of stay in the destination country. These are known as migrant and visitor switchers. The improved method affects the estimation at the national level for England and Wales. The national figures are distributed to each sub-national area down to LA level.

- People switching intentions who were originally intending to migrate reduce the estimated numbers of migrants;
- People switching intentions who originally were planning to be visitors, increase the estimated numbers of migrants;
- Switching can occur among both those entering and leaving the UK, affecting both in and out migration.

Introduction

ONS international migration estimates are based on the UN definition of a long-term migrant: someone who changes their country of residence for at least 12 months. The IPS records respondents' intended length of stay on entering or leaving the UK. Adjustments are made in estimates of Total International Migration (TIM) for people who do not realise their initial intended lengths of stay, and hence change their migrant status. These adjustments fall into two categories:

1. Migrant Switchers: people who intend to enter/leave the UK for more than a year, but subsequently return in less than a year.
2. Visitor Switchers: people who intend to enter/leave the UK for less than a year, but subsequently extend their stays for more than a year

The current adjustments for both types of switcher were introduced in 2003, as part of the revisions to TIM methodology implemented following the results of the 2001 Census. Prior to 2003, no adjustments were made for migrant switchers; visitor switcher adjustments were made only for inflows of non-EEA citizens, and were based upon Home Office data that are no longer available. For EEA citizens, it was assumed that there was no need for a visitor switcher adjustment for population estimates purposes because the net impact of switching by EEA citizens would be likely to be very small.

New questions were introduced to the IPS in 2004 to identify both migrant switchers and visitor switchers. This paper describes:

- how these questions enable both types of switchers to be identified
- the results of analysis of the questions for 2004 and 2005
- how adjustments in the future will be based on these results

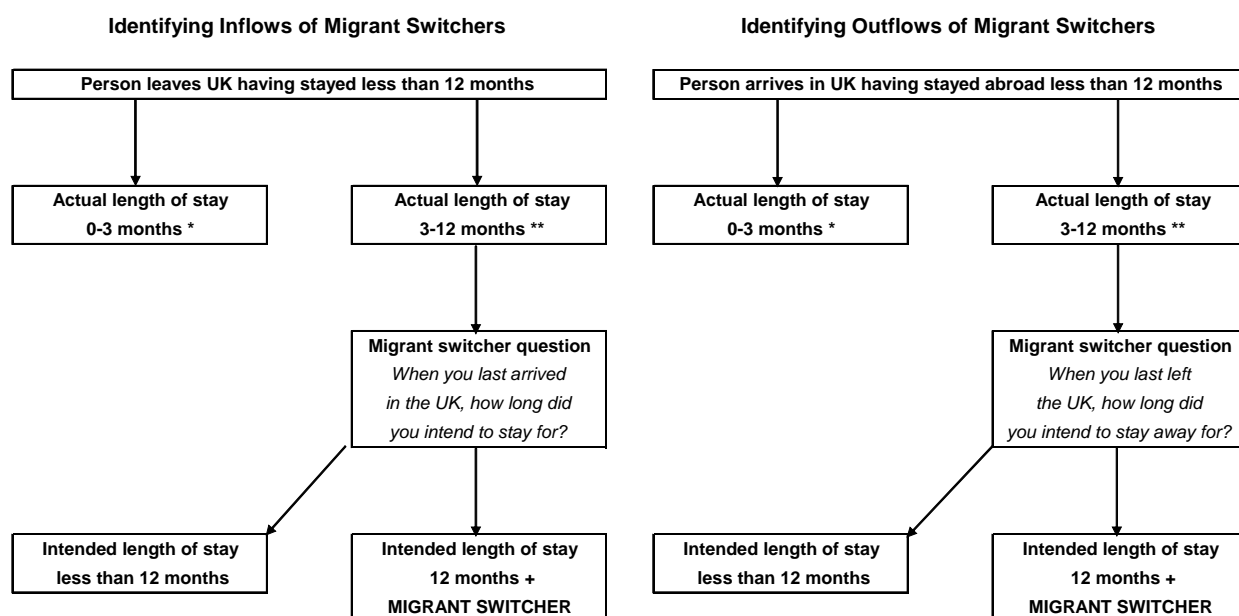
Migrant switchers and visitor switchers are considered separately in this paper, before the combined impacts of the proposed new adjustments are presented at the end. The method for distributing migrant switcher and visitor switcher adjustments at sub-national levels is explained in Annex B.

Migrant Switchers

The current adjustment for migrant switchers reduces IPS inflows by 5 per cent, and IPS outflows by 1 per cent. The reason the adjustment was assumed to be lower for outflows than for inflows is that outward potential migrant switchers can move on to a third country rather than returning to the UK, while inward migrant switchers must, by definition, leave the UK. New questions were introduced to the International Passenger Survey (IPS) in January 2004 to help provide evidence about what proportion of migrants are likely to change their intentions, thereby providing a firmer basis for the adjustments that are made to estimated international migration flows.

The new IPS questions ask overseas nationals leaving the UK (and UK nationals returning to the UK) how long they had intended to stay when they originally arrived (or departed for those returning). These new IPS questions are asked of (1) people returning to the UK after spending 3-12 months overseas, and (2) people leaving the UK after spending 3-12 months in the country¹. Travellers in these categories are asked how long they initially intended to stay on arrival/departure, allowing intended and actual lengths of stay to be compared. Migrant switchers whose actual length of stay is only 0-3 months are not covered by the question as it would be prohibitively costly to ask everyone sampled by the IPS at the end of a short visit of less than 3 months. The coverage of the new IPS questions to identify migrant switchers is illustrated in Figure 1 below.

Figure 1: New IPS Migrant Switcher Questions



* Not practical to ask migrant switcher question of persons leaving/arriving after a stay of less than 3 months

** In 2004, migrant switcher question only asked of those whose length of stay was 6-12 months

¹ In 2004, the migrant switchers question was asked of passengers arriving/leaving the UK and whose actual length of stay was 6-12 months. In 2005 the scope of the question was extended, and it was asked of passengers arriving/leaving the UK and whose actual length of stay was 3-12 months.

The estimated numbers of migrant switchers (i.e. those stating an initial length of stay of a year or more) were combined for 2004, 2005 and the first half of 2006 in order to achieve a robust sample size. Adjustments were made to account for the migrant switchers not covered by the new questions, as follows:

- to account for migrant switchers in 2004 whose actual length of stay was 3-6 months, the values obtained for this group in 2005 (when the scope of the new questions was expanded – see footnote 1) were used as proxy values for 2004; and
- to account for migrant switchers in all years whose actual length of stay was 0-3 months, the numbers of migrant switchers estimated in the 3-6 month group were used as proxy values.

Following adjustment, the estimated numbers of migrant switchers for 2004, 2005 and the first half of 2006 were calculated as a percentage of previous years' IPS estimates of total in- and out-migration; the migrant switchers identified by the new questions had stayed in/away from the UK for 3-12 months - it was estimated that 40 per cent would have initially arrived/departed in the previous calendar year and 60 per cent would have initially arrived/departed in the same calendar year.

The results of the calculations were as follows:

Inflows: 3.1 per cent of arriving intended 'migrants' are estimated to be migrant switchers, almost 2 percentage points lower than the current adjustment of 5 per cent for inflows.

Outflows: 4.4 per cent of departing intended 'migrants' are estimated to be migrant switchers, over 3 percentage points higher than the current adjustment of 1 per cent for outflows.

It is therefore proposed to use these percentages in estimating migrant switchers for mid-2006. Estimates will also be revised back using these same percentages to the start of 2004, the period to which the data used in the analyses relate. The resulting changes to the estimated numbers of migrant switchers for 2004 and 2005 are shown in Table 1.

Given the small sample sizes for individual years, and the fact that the data for 2004 only cover migrant switchers whose actual length of stay was 6-12 months, it is not proposed to revise estimates of migrant switchers for 2003 and earlier years, and thus the existing 5 per cent and 1 per cent assumptions will continue to be used for 2002 and 2003. It should be noted that for the year ending mid-2004 (as shown in Table 1 below), the existing migrant switcher assumptions are used for the second half of 2003, and the new migrant switcher adjustments are used for the first half of 2004.

Table 1: Changes to estimated numbers of migrant switchers, mid-2004 and mid-2005, England & Wales

	Existing TIM adjustment			New adjustment			Impacts of new adjustment (new adj - TIM adj)		
	Year ending:		Two Year	Year ending:		Two Year	Year ending:		Two Year
	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total
Inflow	-21,100	-24,700	-45,800	-17,700	-15,100	-32,800	3,400	9,600	13,000
Outflow	-2,800	-2,800	-5,600	-6,800	-12,000	-18,800	-4,000	-9,200	-13,200
Net inflow	-18,300	-21,900	-40,200	-10,900	-3,100	-14,000	7,400	18,800	26,200

Table 1 shows that over the two year period ending mid-2005:

- the estimate of migrant switcher inflows to England and Wales has been reduced from 45,800 to 32,800; as estimates of migrant switchers are subtracted from estimates of total migration (and are hence shown in the Table as negatives), the impact of this reduction is to increase the estimate of total in-migration by 13,000;
- the estimate of migrant switcher outflows from England and Wales has been increased from 5,600 to 18,800; the impact of this increase is to reduce the estimate of total out-migration by 13,200.

Thus the impact of the increase in estimated total in-migration and the decrease in estimated out-migration is therefore to increase estimated net in-migration by 26,200 over the two-year period ending mid-2005.

For future years, the percentages of in- and out-migrants who leave/return after less than a year will be estimated on a six monthly basis using data for the previous three-years, as follows:

- For the second half of 2006, estimates based upon calendar years 2004, 2005 and 2006;
- For the first half of 2007, estimates based upon data for the second half of 2004, all of 2005 and 2006, and the first half of 2007;
- For the second half of 2007, estimates based upon calendar years 2005, 2006 and 2007;
- And so on....

Visitor Switchers

The current adjustments for visitor switchers are based on IPS visitor data on:

1. people whose intended length of stay is 6-12 months; and
2. people who when asked about their intended length of stay state "don't know, possibly 12 months".

In the remainder of this paper, 1. and 2. are referred to as 'intended long stay visitors'.

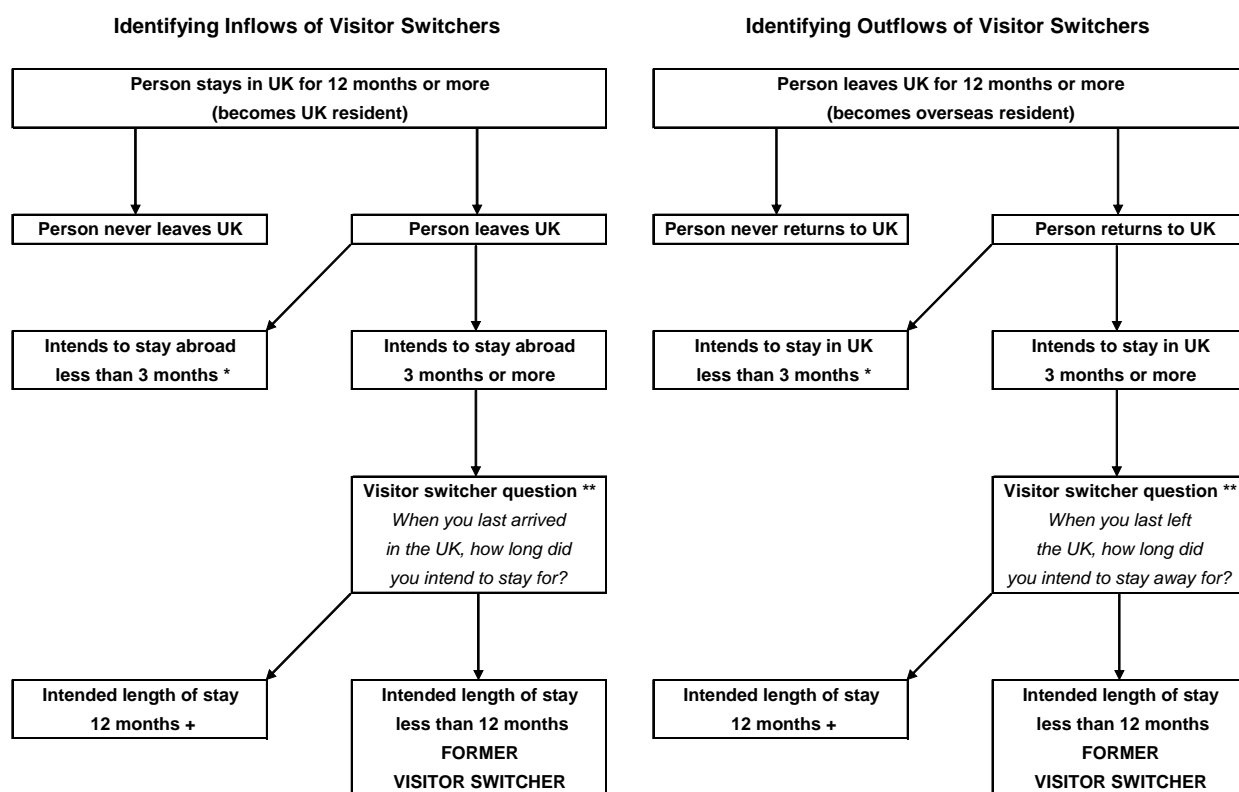
The current adjustments vary according to whether or not a migrant is a citizen of an EEA(15)² country, further detail is given in Annex A.

² The notation EEA(15) is used to refer to the European Economic Area as constituted prior to May 2004, namely the 15 EU countries (Austria, Belgium Denmark, Finland, France, Germany, Greece, Irish Republic, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom) plus Iceland, Liechtenstein and Norway.

The new IPS questions to identify visitor switchers

New questions were introduced in the IPS in January 2004 to identify visitor switchers. Unlike migrant switchers who travel through ports within a year of their initial journey, visitor switchers stay longer than a year and can only be identified in a port survey when (or if) they subsequently travel. Thus, the new IPS questions are asked of those travellers who have previously been migrants. They are asked of (1) people who had previously migrated to the UK for a year or more who are leaving the UK for 3 months or more, and (2) people who had previously migrated abroad for a year or more who are arriving in the UK for 3 months or more. Travellers in these categories are asked how long they initially intended to stay on arrival/departure, allowing intended and actual lengths of stay to be compared. The new questions identify *former* visitor switchers, i.e. those on their subsequent departure or return who state their initial intended length of stay was less than 12 months. The coverage of the new IPS questions to identify former visitor switchers is illustrated in Figure 2 below.

Figure 2: New IPS Visitor Switcher Questions



* Not practical to ask visitor switcher question of persons intending to leave/stay for less than 3 months

** In 2004, visitor switcher question only asked of overseas-born persons departing UK and UK-born persons arriving in UK

In 2004, only overseas-born former inward visitor switchers and UK-born former outward visitor switchers were identified. In 2005, the scope of the questions was extended, and the data were collected regardless of country of birth³. In order to account for UK-born former inward visitor switchers and overseas-born former outward visitor switchers in 2004, the 2005 values for these groups were used as proxies.

In addition, there are two more major coverage issues with the new visitor switcher questions:

- Firstly, the questions do not identify visitor switchers who never subsequently leave/return to the UK, or do so only for visits of less than 3 months (former visitor switchers who never subsequently cross the UK border cannot be sampled by the IPS, while costs prohibit asking the question of those who subsequently enter or leave the UK for visits of only 0-3 months). Research based upon IPS data on the length of stay of migrants suggests that 15 per cent of out-migrants never return to the UK or do so for visits of less than 3 months, whilst for in-migrants this proportion is around 10 per cent.
- Secondly, the retrospective nature of the new IPS questions on visitor switching means that there is a risk that any given switching event may be counted more than once. Research was conducted to quantify this risk, and it was concluded that the risk of counting a given switching event more than once was approximately 10 per cent on visitor switcher inflows and 12 per cent on outflows (it may be possible to reduce or eliminate this problem by amending the IPS questionnaire in the future and this will be investigated).

As the biases resulting from these two issues are similar but in opposite directions (i.e. one potentially leads to an undercount of visitor switchers whilst the other potentially leads to an overcount), it has been assumed that these two effects offset each other. Therefore no adjustments have been made to account for them.

Comparing the improved visitor switcher adjustment methodology to the current approach

Following adjustment, the estimated numbers of visitor switchers for 2004, 2005 and the first half of 2006 were used to calculate the proportion of intended long stay visitors that become visitor switchers. Differences to the current approach used were as follows:

- The current visitor switcher adjustments are calculated using constant proportions of intended long stay visitors; the data obtained from the new questions allows for variable proportions to be derived each time the adjustments are produced;
- The current visitor switchers adjustments use different assumptions for EEA(15) citizens and citizens of other countries. This approach was re-evaluated to see if different groupings would be more appropriate, and particular attention was paid to citizens of A10⁴ countries. Further research supported retaining two separate groups of EEA and non-EEA citizens, but with A10 citizens being included in an enlarged EEA(25)⁵ category.

³ Note: The routing of the question since 2005 means the following groups are still not asked the new visitor switcher questions: (1) overseas-born overseas residents arriving in the UK, and (2) UK-born UK residents leaving the UK for a period of 3-12 months. If possible, the 2008 IPS questionnaire will be amended so that these subsets of switchers will be counted in the future. However, as the estimated size of these groups is small, no adjustment has been used to account for this missing subset.

⁴ A10 countries are the 10 accession countries that joined the EU on 1 May 2004, namely the Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

⁵ EEA(25) refers to the 18 countries within the EEA(15) grouping (see footnote 2) plus the A10 countries (see footnote 4).

- The current visitor switcher adjustments assume that people who when asked about their intended length of stay state "don't know, possibly 12 months" are more likely to be visitor switchers than those whose intended length of stay is 6-12 months. Research has shown that the benefits of assuming different propensities to switch between the two groups is limited, and that combining them into a single category of intended long stay visitors produces more robust estimates with lower sampling errors.

Results of applying the improved methodology in 2004 and 2005

The proportion of intended long stay visitors that become visitor switchers was calculated based on the principle that visitor switching recorded in the current year relate to intended long stay visitors recorded in the previous three years. The proportion was calculated separately for:

- (i) inflows of EEA(25) citizens moving to the UK,
- (ii) inflows of non-EEA(25) citizens moving to the UK,
- (iii) outflows of EEA(25) citizens travelling to EU(25) countries, and
- (iv) outflows of non-EEA(25) citizens and EEA(25) citizens moving to non-EU(25) countries.

The results of the calculations using visitor switcher data for 2004, 2005 and the first half of 2006 were as follows:

Inflows: 27.5 per cent of EEA(25) citizen intended long stay visitors become visitor switchers; 15.5 per cent of non-EEA(25) citizen intended long stay visitors become visitor switchers.

Outflows: 30.0 per cent of EEA(25) citizen intended long stay visitors become visitor switchers; 10.4 per cent of non-EEA(25) citizen intended long stay visitors become visitor switchers.

It is therefore proposed to use these proportions in estimating visitor switchers for mid-2006. Estimates will also be revised back using these same percentages to the start of 2004, the period to which the data used in the calculations relate. The resulting changes to the estimated numbers of visitor switchers for 2004 and 2005 are shown in Table 2.

Given the small sample sizes for individual years, and the fact that the data for 2004 do not cover UK-born former inward visitor switchers and overseas-born former outward visitor switchers, it is not proposed to revise estimates of visitor switchers for 2003 and earlier years. The existing visitor switcher assumptions will continue to be used for 2002 and 2003. Again, it should be noted that for the year ending mid-2004 (as shown in Table 2 below), the existing visitor switcher assumptions are used for the second half of 2003, and the new visitor switcher adjustments are used for the first half of 2004.

Table 2: Changes to estimated numbers of visitor switchers, mid-2004 and mid-2005, England & Wales

	Existing TIM adjustment			New adjustment			Impacts of new adjustment (new adj - TIM adj)		
	Year ending:		Two Year	Year ending:		Two Year	Year ending:		Two Year
	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total
Inflow	46,400	49,400	95,800	41,100	45,500	86,600	-5,300	-3,900	-9,200
Outflow	21,500	19,000	40,500	17,700	12,500	30,200	-3,800	-6,500	-10,300
Net inflow	24,900	30,400	55,300	23,400	33,000	56,400	-1,500	2,600	1,100

Table 2 shows that over the two year period ending mid-2005:

- the estimate of visitor switcher inflows to England and Wales has been reduced from 95,800 to 86,600; the impact of this reduction is to reduce the estimate of total in-migration by 9,200;
- the estimate of visitor switcher outflows from England and Wales has been reduced from 40,500 to 30,200; the impact of this reduction is to reduce the estimate of total out-migration by 10,300.

Thus the impact of the decreases in both estimated total in-migration and out-migration is therefore to marginally increase estimated net in-migration by 1,100 over the two-year period ending mid-2005.

For future years, the proportions of intended long stay visitors who become visitor switchers will be estimated on a six monthly basis using visitor switcher data for the previous three-years, as follows:

- For the second half of 2006, estimates based upon calendar years 2004, 2005 and 2006;
- For the first half of 2007, estimates based upon data for the second half of 2004, all of 2005 and 2006, and the first half of 2007;
- For the second half of 2007, estimates based upon calendar years 2005, 2006 and 2007;
- And so on....

Combined Impacts of New Switcher Adjustments on UK Estimates

The combined effect of revising migrant switcher and visitor switcher adjustments for 2004 and 2005 are shown in Table 3.

Table 3: Combined impacts of new visitor and migrant switcher estimates, mid-2004 and mid-2005, England & Wales

	Existing TIM adjustment			New adjustment			Impacts of new adjustment (new adj - TIM adj)		
	Year ending:		Two Year	Year ending:		Two Year	Year ending:		Two Year
	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total	Mid-2004	Mid-2005	Total
Visitor switchers									
Inflow	46,400	49,400	95,800	41,100	45,500	86,600	-5,300	-3,900	-9,200
Outflow	21,500	19,000	40,500	17,700	12,500	30,200	-3,800	-6,500	-10,300
Net inflow	24,900	30,400	55,300	23,400	33,000	56,400	-1,500	2,600	1,100
Migrant switchers									
Inflow	-21,100	-24,700	-45,800	-17,700	-15,100	-32,800	3,400	9,600	13,000
Outflow	-2,800	-2,800	-5,600	-6,800	-12,000	-18,800	-4,000	-9,200	-13,200
Net inflow	-18,300	-21,900	-40,200	-10,900	-3,100	-14,000	7,400	18,800	26,200
Overall (Visitor switchers + Migrant switchers)									
Inflow	25,300	24,700	50,000	23,400	30,400	53,800	-1,900	5,700	3,800
Outflow	18,700	16,200	34,900	10,900	500	11,400	-7,800	-15,700	-23,500
Net inflow	6,600	8,500	15,100	12,500	29,900	42,400	5,900	21,400	27,300

Table 3 shows that at England & Wales level:

- Estimates of both inflows and outflows of visitor switchers are reduced for both mid-2004 and mid-2005, resulting in a small reduction in net inflow of 1,500 for the year to mid-2004 and a small increase in net inflow of 2,600 for the year to mid-2005.
- The adjustment on migration inflows due to migrant switchers (i.e. intended migrants who do not stay for 12 months or more) is not as great as it was using the existing migrant switcher method. Thereby inflows are increased as a result of the improved method, by 3,400 for the year to mid-2004 and 9,600 for the year to mid-2005.
- The adjustment on migration outflows due to migrant switchers (i.e. intended migrants who do not stay away for 12 months or more) is greater than it was using the existing migrant switcher method, thereby outflows are reduced as a result of the improved method, by 4,000 for the year to mid-2004 and 9,200 for the year to mid-2005.
- This results in increases of net inward migration due to migrant switching of 7,400 and 18,800 for the years to mid-2004 and mid-2005 respectively.

Thus, the combined impact of the new visitor switcher and migrant switcher adjustments for England & Wales is to increase net inflows by 5,900 for the year to mid-2004 and 21,400 for the year to mid-2005. The methods that will be used to distribute estimates of migrant switchers and visitor switchers are described in Annex B.

Annex A: Current Method for Making Adjustments to International Migration Estimates to Allow for Visitor Switchers

The current adjustments for visitor switchers are based on IPS visitor data on:

1. 'long stay visitors' (LSVs), i.e. people whose intended length of stay is 6-12 months; and
2. people who when asked about their intended length of stay state "don't know, possibly 12 months", referred to here as LoS 7s (length of stay category 7).

The current adjustments, which vary according to whether or not a migrant is a citizen of an EEA(15) country, are as follows:

Inflows:

- Visitor switchers of non-EEA(15) citizenship travelling from all countries estimated to be equal to 75 per cent of LOS 7s plus 25 per cent of LSVs;
- Visitor switchers of EEA(15) citizenship travelling from all countries estimated to be equal to 50 per cent of LOS 7s.

Outflows:

- Visitor switchers of (i) non-EEA(15) citizenship travelling to all countries and (ii) EEA(15) citizenship travelling to non-EU(15) countries estimated to be equal to 75 per cent of LOS 7s plus 25 per cent of LSVs;
- Visitor switchers of EEA(15) citizenship travelling to EU(15) countries estimated to be equal to 50 per cent of LOS 7s.

These current adjustments for non-EEA(15) citizens were formulated through comparison of Home Office data for years to 2000 (now no longer available) with IPS data on LOS 7s and LSVs; more conservative assumptions were then formulated for EEA(15) citizens.

Annex B: Method for Distributing Migrant Switcher and Visitor Switcher Adjustments at Sub-national Levels

Migrant Switchers

To estimate inflows of migrant switchers for Wales and each English region, and also at local authority level, the same percentage will be applied as for the national estimate; however, the IPS estimates at sub-national levels to which this percentage will be applied will be revised due to improvements to the geographical distribution of IPS estimates of in-migrants at both regional and sub-regional level as described in the paper 'Geographical Distribution of Estimates of In-migration'.

To estimate outflows of migrant switchers for Wales and each English region, and also at local authority level, the same percentage will be applied as for the national estimate; however, the IPS estimates at sub-national levels to which this percentage will be applied will be revised due to improvements to the geographical distribution of IPS estimates of out-migrants at sub-regional level as described in the paper 'Geographical Distribution of Estimates of Out-migration'.

Visitor Switchers

To estimate inflows of visitor switchers for Wales and each English region, and also at local authority level, the new sub-regional distribution for IPS in-migrants (as described in the paper 'Geographical Distribution of Estimates of In-migration') will be used as issues relating to the geographical distribution of IPS in-migrants will also apply to visitor switcher inflows.

To estimate outflows of visitor switchers for Wales and each English region, the distribution of intended long stay visitors to Wales and the English regions, averaged over the previous three years, will be used; the new local authority distribution for IPS out-migrants (as described in the paper 'Geographical Distribution of Estimates of Out-migration') will then be used to distribute visitor switcher outflows from Wales and English region level to local authority level.