

PORT SURVEY REVIEW STAGE TWO FINAL TECHNICAL REPORT

May 2009

Introduction

In December 2006 the Inter-Departmental Task Force on Migration Statistics reported on its work and recommended a number of improvements to statistical sources and reporting on migration statistics. One part of the Task Force report (Section A) was dedicated to the improvement of information about migrants as they enter or leave the country:

Recommendation A(1):

A port survey designed to capture a substantially increased sample of migrants (especially emigrants), is essential to provide reliable estimates of population and migration at regional and local levels. To do this, key elements of the e-Borders project need to be brought forward, including passport scanning (starting with arrivals). Improvements to statistics could be delivered in three to five years.

Recommendation A(2):

The early provision of more data on controlled migrants, from landing cards, is essential (in particular, duration of stay and destination in the UK). Access to individual level data is needed for linkage to subsequent information about the migrant. To achieve more comprehensive coverage of migrants, a sample of all travellers would need to complete a card on arrival in the UK. Improvements to statistics could be delivered in two to four years.

Following the publication of the recommendations ONS initiated the Port Survey Review (PSR), which implemented a comprehensive review to take forward the Task Force recommendations. This built on the improvement introduced in 2007, which established migration filter shifts for emigration for the first time.

The Port Survey Review was set up in three stages. Stage 1 of the Review recommended some immediate changes to the design of the International Passenger Survey from 2008 onwards. The specific recommendations and progress on their implementation were reported in October 2007¹.

This first report on the Review also concluded that whilst it would be feasible to introduce the IPS enhancements in 2008, further work was needed to decide upon and progress more fundamental changes and to investigate further the practicalities of using data from administrative sources. Consequently two further stages in the review were planned.

During 2008, Stage 2 carried out a comprehensive review of the IPS and its sampling methodology and a progress report was published in June 2008². A new sample design was introduced in January 2009 which radically re-focused the sample on the measurement of migration. In order to support the new sample design extensive work took place on the re-design of a new IM platform to enable future flexibility in the survey design.

Stage 3 of the Review has recently been initiated and will take forward the residual work on the remaining recommendations of the Task Force.

This report is the final report on Stage two of the Review. It gives some background to the Review and describes the new sample design, its implementation, the new IT processing system, the new weighting methodology and the effects of the sample design changes on the migrant sample.

¹<http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/PSREVIEW.pdf>

²<http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/PSRStage2ProgressreportJune08.pdf>

2. Background

2.1. The International Passenger Survey

ONS collects data on international migration through the International Passenger Survey, a sample survey of people coming through port entry and exit points in the United Kingdom. The survey has been running since 1961 and currently interviews 280,000 respondents per year, at all the main points of entry to and exit from the UK.

The main purpose of the IPS has been to collect expenditure information (to feed into the Travel Account of the Balance of Payments) and information on tourism. Collecting information on migrants began in 1963/64 and was expanded in the 1980s, through the introduction of migration filter shifts which ran until the end of 2008.

The survey questionnaire covers these three main areas: gathering information on expenditure, tourism and migration, although not all questions are asked of all respondents. For example, on migration filter shifts only detailed questions on migration were asked of respondents who have firstly indicated a positive migration status.

Migration filter shifts boosted the small number of migrant contacts that would otherwise have been made. In 2006 this enabled over 3000 immigrants staying for at least 12 months to be interviewed. If only 'ordinary' IPS shifts had been run, fewer than 800 immigrants would have been interviewed.

2.2. The Port Survey Review

As discussed in the introduction, ONS initiated the Port Survey Review to take forward the recommendations from the Inter-Departmental Task Force on Migration Statistics.

Three options for the further development of a port survey were identified in the first PSR Interim Report. These were to:

- a) retain the existing IPS structure and further extend the number of migration filter shifts
- b) develop a new survey design, with a main sample focused on collecting migration data and a sub-sample for expenditure/tourism data (essentially reversing the current IPS design which focuses on expenditure/tourism and sub-samples for migration)
- c) develop two separate surveys for migration and expenditure/tourism

After an assessment of these options against a number of criteria, it was decided the best solution would be option (b)³. Following this decision detailed work started on the new sample design and the optimisation of a number of key parameters.

Further detail on the new sample design can be found in Section 3 of this report.

To support the new sample design the Review recommended a substantial re-design of the IM processing systems. This work has been completed and a new processing system has been developed and delivered; this is described in Section 5 of this report.

While the new sample design for 2009 has been successfully introduced, the Review concluded further work is needed to investigate the feasibility of using a number of administrative data sources in further reviews of the sample design, to ensure the sample picks up new migrant streams. This is the work being taken forward as Stage 3 of the Review.

³ Please refer to the second interim report for further details:

<http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/PSRStage2ProgressReportJune08.pdf>

3 Sample Design

3.1 Description of Sample Design 2008

In 2008 the sample design on the International Passenger Survey comprised of two parts:

- Ordinary shifts were carried out at numerous sites where the number of shifts and the sampling interval employed resulted in around about 0.2 per cent of the passengers arriving in or departing from the UK being identified and interviewed. On shifts run at these sites every n^{th} passenger was identified and interviewed, the interview length depending upon whether is the contact was a UK or overseas resident and whether they were arriving in or leaving the UK. The longer interview was conducted when the contact was leaving the country they were visiting. This interview collected information on what the respondent had been doing while away from their country of residence. The main information collected from respondents as they left their country of residence related to those contacts intending to migrate.
- Ordinary shifts did not identify sufficient people intending to migrate to enable reliable estimates of migrants to be produced. Migration filter shifts were therefore conducted at London Heathrow, London Gatwick, Stansted, Manchester and Luton airports (Stansted, Manchester and Luton having been introduced in 2008). On these shifts, the sampling interval was shorter than that used on ordinary shifts and most contacts were only asked questions which enabled identification of whether they intended to migrate or not. A full interview was conducted only with those who were intending to migrate. Prior to 2007 filter shifts were only carried out on arriving passengers; in 2007 they were extended to departing passengers to increase the number of emigrants interviewed.

3.2 Description of Sample Design 2009

In 2009 the emphasis of the design was changed on all shifts to identify migrants, with a sub-sample of these contacts being interviewed for travel and tourism purposes. The sample design is the same for all sites:

- A sampling interval is set at all sites. This sampling interval is one that a team of interviewers can cope with at that site. Every n^{th} contact at these sites is asked questions that identify whether they intend to migrate or not; if they are intending to migrate then a full interview is conducted with them. Of these people contacted, a sub-sample, 1:k, have a full travel and tourism interview conducted with them. The 1:k combined with the 1:n will deliver the expected number of travel and tourism contacts for that site and overall will again result in about 0.2 per cent of passengers being interviewed for travel and tourism purposes. So, for example, at Stansted on departures during quarter 2, a sampling interval of 1:25 is used with a sub-sample of 1:3, during quarter 1 traffic is lighter and a sampling interval of 1:20 with, again, a sub-sample of 1:3 is employed.
- Additional sites have been added to the sample design during 2009. These include Belfast International and Aberdeen airports, and the Portsmouth to Bilbao sea route.

To enable the correct samples to be drawn additional paperwork was produced to help the interviewers. This mainly involved using a sampling sheet where the interviewer records the answers to the migration filter questions (and a questionnaire would only be completed if the contact intended to migrate) with every k^{th} line indicating that a travel and tourism interview is required (in which case the sampling sheet was left blank for that contact and all information recorded on the questionnaire).

4. Implementation of the Sample Design

In order to implement the new design, it became necessary to increase the size of the IPS field force. This involved a significant amount of recruitment and training of new interviewers at a number of sites and introducing the IPS operation at new Ports.

As part of the project work, a revised specification of shift patterns at sites was required before recruitment activity could start. By January 2009, sufficient additional interviewers had been recruited and trained to enable the new sample design to be launched. However, not all new interviewers were in place before the new design went live. Where shifts have had to be cancelled weighting will account for the missing shifts. At the time of this update, there are very few shifts being cancelled as the recruitment process has provided the staff resources required.

Interviewing has already been introduced successfully at Aberdeen Airport and is expected to be introduced at Belfast International Airport in July 2009. ONS does not have a field force of IPS interviewers in Northern Ireland and we are currently negotiating with Northern Ireland Statistical Research Agency (NISRA) to sub-contract their interviewers to undertake the work on our behalf. Agreement to commence this operation has already been given by the appropriate airport authorities.

5 Information System Development

It was reported in the last external update in August 2008 that a detailed system design for a new IT system was underway. The system has now been developed, delivered and is in operational use. In order to support the new sample design it was found that the existing system could not be enhanced; instead, a new system has been developed from scratch. It has been built in-house at ONS⁴.

The new system provides facilities that include the ability to re-run data, ensuring that both the data and parameters have been stored. There is also the ability to perform test runs with different parameter settings to explore the effects on outputs. The system has in-built flexibility to allow business users to make controlled changes to parameters to reflect changes in attributes of the sample without requiring programming changes.

The new IPS Processing System is the first at ONS to be based on a strategic architecture that will be used to implement systems for other social surveys and statistical systems.

6 Weighting Methodology

Prior to 2009 the weighting methodology applied to survey records differed according to whether the contact was interviewed at a 'main' airport, a 'residual' airport, a Eurostart port, or on a sea or Eurotunnel route. This approach has been changed, to introduce a common approach to weighting across all ports and routes. The new approach follows the same principles previously applied to 'main' airports and is more sophisticated than that applied previously to the other ports and routes.

For all ports and routes the new weighting methodology involves the following stages:

1. A design weight, to take account of probability of selection
2. A nonresponse weight to take account of selected passengers who were not interviewed due either to the interviewer not being able to contact them or the contact refusing to take part in the survey

⁴ The system has been developed in the following way: the weighting and imputation steps are implemented as SAS modules, integrated with Java code; the data and parameters are stored in an Oracle database and the system has a web-based front-end. The sequence of processing steps is controlled by an orchestration engine.

3. A reallocation of 'minimum' records, i.e. those people for whom only country of residence/country of visit and nationality were collected
4. A weighting to uplift survey records to the passenger traffic going through the sampled ports/routes in the given period of interview.
5. An unsampled traffic weight, to take account of passenger traffic going through ports/routes not sampled in the survey
6. An imbalance weight to take account of an imbalance in the estimated number of people starting and ending their visit
7. A final weight to bring together all of the other weights, as listed above.

One of these stages utilises slightly different strata from those used in previous years. This is the non response weight, which previously made use of the outdated practice of utilising interviewers' estimates of non-responding contacts' nationality.

The weighting system has also been re-worked to take account of the new sample design, as listed in section 3.2.

A document providing fuller details of the new weighting methodology will be published in due course, either prior to or at the time of the 'MQ6 Transport Travel and Tourism – Overseas Travel and Tourism' release relating to quarter 1 2009, due for publication on 16th July 2009.

7 Impact of Sample Design Changes on the Migrant Sample

The dynamic nature of migration means that it is impossible to predict exactly how much these changes will improve IPS migration estimates. However, if it is assumed that the total migration flows for 2009 are the same as the total anticipated flows for 2008 then it is possible to get some sense of the impact of the 2009 IPS sample design changes. On this basis it is expected that the total number of migrant contacts will increase for both inflows and outflows relative to the number of migrants. Moreover, the sample should be much more balanced, that is, less skewed towards migrants arriving and leaving through Heathrow and more balanced on migration through other routes. This is expected to deliver improvements in the quality of regional and local authority estimates, especially outside of London and the South East. It is also expected to improve the reliability the migrant groups frequenting these routes, notably migrants from EU Accession countries.

8 Further Work in 2009 and 2010

The Port Survey Review identified three areas of work to take forward: firstly, make improvements to the existing 2008 survey; secondly, carry out a fundamental re-design of the survey with changes in the supporting IT systems and thirdly, carry out an investigation into the practicalities of using data from administrative sources. The first two of these proposals have now been implemented and a further phase of project work has started to address the third proposal in the 2009/10 financial year. A further update on this work will be issued early in 2010.