Information paper

Quality and Methodology Information

General details

Title of output: International Passenger Survey
Abbreviated title: IPS
Designation: National Statistics
Geographic coverage: UK
Date of last SQR or QMI: 18 May 2012
Contact details: Socialsurveys@ons.gsi.gov.uk

Executive summary

The International Passenger Survey (IPS) is a continuous survey (conducted 362 days a year) at major ports of entry to, or exit from the UK. The collected data are weighted and the results feed into the Travel Account of the Balance of Payments (BoP). The estimates provide information on international travel and tourism (that is, visits between the UK and abroad of less than 12 months), and on long and short-term migrants, that can be used by the Office for National Statistics Centre for Demography (ONSCD) in the provision of migration and population estimates. This report aims to provide users with information on the usability and fitness for purpose of overseas travel and tourism estimates only. Migration estimates are therefore not addressed here.

Published estimates are based on face-to-face interviews with a random sample of passengers as they enter or leave the UK by the principal air, sea and tunnel routes. All interviews are conducted on a voluntary basis. The target number of interviews is 260,000 per year although over 300,000 interviews (representing about 0.2% of travellers) have been conducted annually since 2009 due to a change in design. Actions have been taken to come down to pre 2009 levels. The IPS methodology and coverage can be found at Appendix C of the annual publication, Travel Trends.

Estimates are published monthly, quarterly and annually although a single quarter is the minimum period over which detailed analysis of the data can be made. Quarterly and annual datasets are available for public access at the UK Data Service (formerly the Economic and Social Data Service). Monthly and quarterly estimates are subject to revision and the final estimates are published in Spring in the annual Travel Trends publication. Further information about the IPS revisions policy can be found in the "Other Information" section of this paper.

Improvements to the survey may have introduced discontinuity in the estimates. For example, in 2009 a revised design relating to sampling, weighting and imputation methodology was introduced, which required a change in the way data are processed. This resulted in some discontinuity with a downward impact of approximately 2% in visits to the UK and 3% in visits overseas. Further details are available from Appendix C of Travel Trends.

This document contains the following sections:

- Output quality
- About the output
- How the output is created
- Validation and quality assurance
- Concepts and definitions
- Other information, relating to quality trade-offs and user needs
- Sources for further information or advice

Output quality

This document provides a range of information that describes the quality of the output and details any points that should be noted when using the output.

ONS has developed [Guidelines for Measuring Statistical Quality](#); these are based upon the 5 European Statistical System (ESS) quality dimensions. This document addresses these quality dimensions and other important quality characteristics, which are:

- Relevance
- Timeliness and punctuality
- Coherence and comparability
- Accuracy
- Output quality trade-offs
- Assessment of user needs and perceptions
- Accessibility and clarity

More information is provided about these quality dimensions in the sections that follow.

About the output
Relevance
(The degree to which the statistical outputs meet users' needs.)

Primary Purposes

The primary purposes of the IPS are to collect data that will feed into the BoP Travel Account, to provide information on international travel and tourism, and to provide information on long and short-term migrants that can be used by ONSCD in the provision of migration and population estimates.

Strengths and Limitations

Strengths

A major strength of the IPS is that it is the main source of information in the UK on international travel and tourism and associated earnings and expenditure. It has been running since 1961 so provides a comprehensive time series of travel and tourism which can be useful for identifying long- term trends and patterns or undertaking time series analysis and forecasting. In addition, interviewing at the principal air, sea and tunnel routes and the use of a dedicated field force gives the survey some uniqueness.

Limitations

IPS survey data is subject to both sampling and non-sampling errors. About 95% of passengers entering and leaving the UK have a chance of being sampled in the survey. The remainder are either passengers travelling at night, when interviewing is suspended, or on those routes too small in volume or too expensive to be covered. Furthermore, the number of survey interviews on particular routes or for some main reason for visit such as playing sports and getting married, are sometimes small and consequently attract higher sampling errors. This also applies to visits to or from countries with low visit numbers.

Users and Uses

The survey is sponsored by the following government departments:

- Office for National Statistics
- the Department of Culture, Media and Sport the Department for Transport (DfT)
- the Scottish Government
- HM Revenue and Customs and
- the Department for Business, Innovation and Skills

Additional sponsorship for the survey comes from VisitBritain, VisitScotland and VisitWales, the organisations responsible for marketing tourism in Great Britain, Scotland and Wales respectively.

These data are also required by the Home Office, Bank of England, including the Monetary Policy Committee, Her Majesty's Treasury (HMT), and the Office for Budget Responsibility (OBS).

The Civil Aviation Authority (CAA), British Airways, EuroStar and travel and tourism operators are amongst our regular users. Others include academics, students, researchers, consultants, the media, business organisations and the general public.

Estimates from the survey meet user needs by providing figures used for the travel account of the Balance of Payments, international migration statistics and for planning, monitoring, bench marking, analysis and informing decisions on travel and tourism policy.

At the international level, European Commission (EC) or European Union (EU) regulations dictate that we provide Tourism Statistics (EC Regulation 692/2011) and collect and report the value of UK travel services and provide international migration statistics (EU Regulation 862/2007). The IPS therefore fulfils a statutory requirement by providing this unique set of data.

User engagement is undertaken to identify gaps between key user needs (see the "Assessment of user needs and perceptions" section, which is located within the "Other information" heading).

Timeliness and punctuality
(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

For the IPS, the lapse of time between the end of the reference period and the Overseas Travel and Tourism publication date varies dependent upon the publication, described as follows:

- a monthly Statistical Bulletin containing provisional estimates of visits and expenditure on a monthly basis is published approximately 6 weeks after the end of the reporting month
- a quarterly Overseas Travel & Tourism publication containing more accurate and detailed estimates relating to the latest quarter, is published approximately 3 and a half months after the end of the reporting period
- an annual publication, Travel Trends is published approximately 4 months after the end of the year
- Travelpac, an aggregated data set for users to access, including a Travelpac manual, are released on the web simultaneously with the quarterly Overseas Travel & Tourism and Travel Trends publications.

IPS has consistently met the target publication deadlines. In the unlikely event of a change to the release schedule, an announcement will be made at least 2 weeks in advance, as set out in the Code of Practice for Official Statistics.

For more details on related releases, the GOV.UK Release Calendar is available online and provides 12 months advance notice of release dates. If there are any changes to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the Code of Practice for Official Statistics.

How the output is created

Questionnaire content and development

The IPS, by necessity, employs a short interview of just a few minutes because of the nature of the travelling public. This structure means that it is vital to have questions that are easily understood and can be asked and answered quickly. A sub-set of questions is retained each year while some questions are revised. Whenever revisions of more than minimal complexity are required, a questionnaire pilot is conducted at a sub-set of ports and routes chosen according to the nature of the revisions.

Overview of the survey design

The IPS is based on face-to-face interviews with a sample of passengers travelling via the principal airports, sea routes and the Channel Tunnel. Travellers passing through passport control as they enter or leave the UK are selected for interview. All interviews are voluntary and confidential. The overall response rate for the survey is approximately 80%, with annual percentages published in Appendix D of Travel Trends.

Some questions on the survey are asked of all of the passengers interviewed, while others are restricted to specific subgroups. Information on the spending and length of stay of UK residents abroad

and overseas residents in the UK is collected only at the end of the visit. This is because actual spending and length of stay are required, and these may differ from the respondents' intentions when they start their visit.

The IPS sample is stratified to ensure it is representative by mode of travel, port or route, and time of day. The frequency of sampling within each stratum is varied according to the variability of tourist expenditure, the volume of migrants and the cost of interviewing. More information about the IPS survey design can be found in the IPS Overseas Travel and Tourism User Guide (Volume 1): Background and Methodology.

Sampling

The IPS uses a multi-stage sample design. The sampling for air, sea and tunnel travel is carried out separately, although the underlying principle for each mode of travel is broadly similar. In the absence of a sampling frame of travellers, time periods (or sea or shuttle crossings) at selected ports and routes are chosen at the first stage and travellers are then systematically selected at fixed intervals from a random start within these interviewing shifts or crossings at the second stage.

Each sampled passenger is asked questions to check whether he or she is planning to migrate, and if this is the intent, the respondent is asked follow-up questions. A sub-sample of contacts is then asked the full set of travel and tourism questions. The sampling scheme for each individual mode of travel is published in Appendix C of Travel Trends.

Exclusions

The following visit information, obtained from other sources, is not included in the survey design but is taken into account when processing:

1. Visits across the Irish land border
2. Cruises taken by UK residents, originating and ending in the UK
3. Visits to and from the Isle of Man and Channel Islands

The following groups are, in general, excluded from overseas travel and tourism analyses:

1. Trippers who cross the Channel, North or Irish Sea but do not alight from the vessel
2. Migrants and persons travelling to take up prearranged employment, together with military or diplomatic personnel, merchant seamen and airline personnel on duty
3. Overseas residents passing through the UK en route to other destinations, but who do not stay overnight (often known as transit passengers). However, any spending by transit passengers while in the UK is included in the spending figures

Data validation methods

Numerous checks are built into the Computer Assisted Data Input (CADI) program which acts as the first form of data validation and thus reducing the number of errors.

On return of survey data to the office, a comprehensive suite of edits and validation checks are carried out to clarify (and correct where necessary) any outstanding issues with the data. These include:

- checking zero spend, for example from the completed questionnaire
- checking high spend to ensure this has been correctly coded
- coding towns, countries, airlines, etc not included on the interviewers' coding frames
- missing information to determine whether anything was written on the paper questionnaire that would enable the information to be input
- internal inconsistencies that have been identified, or flagged by the interviewer.

Response outcome categories

There are 3 response outcomes (complete, partial and minimum) and non-response:

- complete interview - all the questions applicable to the contact are answered
- partial interview - core questions are answered but responses to other questions are imputed
- minimum interview - insufficient information is obtained but valid answers have been provided for nationality and residency to include in the data
- non response can take two forms:

a) non response where an interviewer attempts to make contact with the respondent, but an interview is not achieved: this includes non contacts (for example where the respondent was not able to be approached by the interviewer because they were speaking on a mobile phone, or for onboard ferry collection eating in a restaurant); refusals; and ineligibles (including on duty military or embassy personnel, merchant navy personnel, airline crew or unaccompanied school children). In ideal circumstances, only those who are eligible for interview would be counted, but at some ports conditions are such that, inevitably, some people who are not eligible for interview are included in the count
b) non-response due to no interviewer being available to contact the next identified respondent

Outliers

Expenditure outliers for main expenditure components are identified based on the data distribution and the number of people in the expenditure group. These outliers are removed and the amounts imputed using a mean-value class imputation. The outlier methodology is currently being reviewed.

Imputation

Where the responses for the key items of interest are missing, the values are imputed on a topic by topic basis where the method is broadly similar for each topic. The IPS implements a mean-value within class imputation procedure as detailed on the ONS web site IPS Weighting and Imputation Methodology.

Weighting

Once responses have been collected, the survey data are weighted to produce estimates. The method involves uplifting the data at each port to match the actual number of international passengers passing through that port within the reporting period. Passenger traffic statistics is provided by CAA, British Airport Authority (BAA) plc, DfT, EuroStar, Eurotunnel and a number of airports. IPS weighting incorporates a number of stages to address different data accuracy requirements. The weighting process is published at IPS Weighting and Imputation Methodology.

Additional sources of data

The weighting referred to above is conducted based on the routes sampled on the IPS. Unfortunately, as the IPS does not cover all passenger routes, additional figures have to be obtained from other sources and added to the totals derived from the IPS when producing estimates of overseas travel and tourism. These additions are:

- UK residents on cruises departing from or arriving at UK shores
- Channel Islands expenditure and receipts from tourism
- rail fares purchased by overseas visitors to the UK and UK visitors abroad before the start of their visit and
- estimates of travel across the land border in Ireland, provided by the Central Statistics Office.

Seasonal adjustment

The number of travellers and their spending both have a clear seasonal pattern, with more visits and spending in the summer than in the winter. In addition there are always additional peaks around other holiday periods such as Easter and half-term, which do not occur at exactly the same time each year, and therefore the peaks occur at different times of the year. Statistical techniques are used by ONS with X-12-ARIMA software to produce seasonally adjusted figures. These figures show visits and spending with an estimate for the seasonal component removed. They allow more meaningful comparisons to be made between months and quarters of the year and help to illustrate underlying trends. More details on seasonal adjustment procedures can be obtained from the IPS branch of ONS via socialsurveys@ons.gsi.gov.uk.

Disclosure

Statistical disclosure control methodology is also applied to IPS data. This ensures that information attributable to an individual is not disclosed in any publication. The Code of Practice for Official Statistics sets out the principles for protecting data from being disclosed. Principle 5: confidentiality states that practices must "ensure that official statistics do not reveal the identity of an individual or organisation, or any private information relating to them". Details on ONS statistical disclosure control methodology can be read from the ONS website: Disclosure Control Policy for Social Survey Microdata.

Further information describing the IPS methodology can be found at Appendix C of [Travel Trends](#).

Validation and quality assurance

Accuracy

(The degree of closeness between an estimate and the true value.)

The total error in a survey estimate is the difference between the estimate derived from the sample and the true population value. It is made up of 2 types: non-sampling error and sampling error.

Non sampling error

Within non-sampling error there is systematic and random error. Systematic error occurs when data are biased in a certain direction. Random error is the variation in sample data from the true values of the population which occurs by chance. Substantial efforts have been made to avoid errors, for example, through annual piloting of the survey, extensive and consistent interviewer training and by weighting the data collected for non-response.

Sampling error

Sampling error (the difference between the estimates derived from the sample and the true population) arises because the variable estimates are based on a sample rather than a census of the population.

The IPS sample design is complex. The design incorporates both clustering (which typically increases sampling error) and stratification (which reduces it). Examples of clustering employed on IPS are the selection of only a subset of airports (although ports covering approximately 99% of international traffic to and from the UK are sampled) and all possible shifts (a shift being a time slot on a given day) due to economic factors making a complete coverage unrealistic. Shifts are stratified so that all days of the week are equally represented.

Standard errors are calculated for the main IPS variables as well as absolute and relative confidence intervals and design effects. These are published in Appendix E of [Travel Trends](#).

Within the overseas travel and tourism sample, a higher percentage of people starting their visit than ending it has been noted. This is important because the overseas travel and tourism estimates are based on the number of completed visits (that is, are drawn from interviews with UK residents as they arrive in the UK and with overseas residents as they depart the UK). A weighting stage, known as the "imbalance weight", has been included in the weighting of travel and tourism data to reduce the difference in profile between the arrivals and departures samples. This imbalance weight is under review. A paper outlining the imbalance present in the IPS travel and tourism sample can be found on the [ONS website](#).

In the event of a large error being detected with the data, the overview report and data sets will be revised in line with the [Code of Practice for Official Statistics](#). More information on revisions can be found in [National Statisticians Guidance: Presentation and Publication of Official Statistics](#).

Coherence and comparability

(Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain for example, geographic level.)

The IPS has been conducted annually since its inception in 1961 (then the Passenger Survey). Improvements have been conducted regularly throughout the lifetime of the survey, for example expanding the number of ports and routes covered. There have been some instances when the changes to the survey have been more substantial than others and discontinuities may have been introduced, for example, in 1999 interviewing was extended to cover the major routes between Great Britain and the Irish Republic.

In 2009, the design on the IPS was changed following a Port Survey Review (PSR) undertaken in response to recommendations put forward by the [Inter-departmental Task Force on Migration statistics](#), published in December 2006. The revised design related to both the sample and the weighting methodology. Potential discontinuities are the subject of consideration and reporting on the ONS web site: [2009 discontinuity analysis](#). A fuller description of methodological changes can be found at Appendix C: [Travel Trends](#).

There are no other similar surveys that compare international tourism affecting the UK. The [CAA](#)

conducts a survey which collects some similar details at airports on departing passengers only. Estimates from other National Statistical Institutes, tourism agencies, DfT and travel and tourism operators such as Eurostar may differ as a result of the methodology used. For example, IPS data relate to the number of visits not the number of visitors.

Concepts and definitions
(Concepts and definitions describe the legislation governing the output, and a description of the classifications used in the output.)

As mentioned earlier, IPS estimates are based on the number of visits. This means those entering or leaving the UK more than once in the same period are counted on each visit. The count of visits relates to UK residents returning to this country and to overseas residents leaving it. Other key definitions and concepts are available in Appendices A and B respectively of Travel Trends.

Other information
Output quality trade-offs
(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

IPS interviews are conducted at various ports or sites. As a result of budgetary constraints a focus has been on assessing how data quality requirements can be met most efficiently. A sample optimisation review is therefore run every few years, and the purpose of this is to consider how to make the sample design more efficient in terms of quality of information collected relative to cost. The latest IPS sample review and optimisation was started in 2014.

The IPS publishes monthly, quarterly and annual estimates. However, figures for the most recent month are provisional and subject to revision in the light of more accurate data on passenger figures becoming available at the end of each quarter and additional passenger data obtained at the end of the year. This however does not impact on the timeliness of the outputs.

Revisions policy

ONS ensures that published estimates are as accurate as possible. However, if significant changes are made to source data after publication, then estimates will be revised. ONS has a clear revisions and corrections policy on how revisions are handled across the organisation. The specific procedure for the International Passenger Survey is outlined below.

a. Planned revisions

Planned revisions arise from the receipt of updated passenger traffic data provided by the Civil Aviation Authority, Heathrow Airport Holdings Ltd (formerly British Airports Authority), Department for Transport, EuroStar, EuroTunnel and a number of airports. This information is used within the IPS weighting process and is updated at each stage of the IPS publication schedule.

These revisions to published IPS data can be expected at the following times in the Overseas Travel and Tourism publication schedule:

- monthly estimates for the current reference year will usually be revised and statistically benchmarked following the publication of the quarterly estimates within which that month falls
- monthly and quarterly estimates for the current reference year will be revised in the survey year's annual data release (Travel Trends)
- monthly estimates for the full calendar year, will be statistically benchmarked as part of the annual data processing and the monthly estimates for the year will then be replaced in the monthly release with the benchmarked estimate following publication of the annual report (Travel Trends)

An example:

a. provisional estimates for January 2012 were first published in March 2012, in the Overseas Travel and Tourism monthly bulletin
b. these estimates were then revised in the Overseas Travel and Tourism Quarter 1, 2012 bulletin published in July 2012
c. the monthly estimates for Quarter 1 (January–March, 2012) were then revised and statistically benchmarked in all future monthly bulletins. The revisions for January-March 2012 were first published in the monthly Overseas Travel and Tourism, May 2012 statistical bulletin.
d. final estimates were published in Travel Trends, 2012 in April 2013
e. as part of the annual publication process the 2012 monthly estimates were statistically

benchmarked and published in subsequent monthly Overseas Travel and Tourism bulletins (the first being Overseas Travel and Tourism March 2013)

The size of the revisions provides one indication of the reliability of the indicators in the Overseas Travel and Tourism statistical bulletins. In addition spreadsheets giving revision triangles (real time databases) for quarterly estimates are published alongside the statistical bulletins.

b. Unplanned revisions

In addition to planned revisions to the current and previous survey years, additional unplanned revisions may be published if they are considered to be large enough and of sufficient interest to users such that a delay until the next standard release is not justifiable or if they effect data in more than just the current and previous survey periods. The timing with which these revisions are released will take into account:

- the need to make the information available to users as soon as is practicable
- the need to avoid 2 or more revisions (to the same data items) in quick succession, where this might cause confusion to users

All unplanned revisions will be released in compliance with the same principles as other new information. Please also refer to the ONS guide to statistical revisions.

c. Statistical benchmarking

Benchmarking is a procedure that is used to align a short periodicity indicator series, so that it matches related longer periodicity series measuring the same variable. By benchmarking, the change from one period to the next is maintained in the short periodicity series while at the same time the series then matches the change and level in the more accurate longer term series.

The overseas travel and tourism monthly statistics are benchmarked every quarter to the quarterly statistics, and the monthly and quarterly are benchmarked every year to the annual statistics. Updated information is available each quarter, then more annually, which is used to improve the weighting scheme for the quarterly and annual statistics. This makes them better estimates of levels than the monthly statistics. The difference between the quarterly total and the sum of the months totals over the quarter is divided between the months in proportion to each month's total in relation to the overall quarterly total. The specific share is then added to each month in the quarter. Thus the monthly path is maintained but it totals to the quarterly path. The same approach is taken for the quarter to annual benchmarking.

Assessment of user needs and perceptions
(The processes for finding out about uses and users, and their views on the statistical products.)

The views of the main external and internal ONS sponsors and stakeholders are regularly sought through 6-monthly Steering Group consultation meetings. Liaison meetings are also routinely held with internal stakeholders. The IPS questionnaire is reviewed annually. Question sponsors are consulted and changes are suggested, discussed, piloted and where acceptable, implemented as a result of changing user demands or policy requirements.

ONS strives to understand the wider user community. A user satisfaction survey with users of overseas travel and tourism was carried out in December 2011 and a follow-up exercise undertaken in February 2012. A workshop, co-hosted with the Economic and Social Data Service (ESDS) took place in June 2012 at the University of Manchester. The IPS user engagement report, published in 2012, describes the outcomes of these user engagement activities and an update of progress against the recommendations was published in November 2013.

Sources for further information or advice
Accessibility and clarity
(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

Overseas Travel and Tourism publications such as the Statistical Bulletin, Travel Trends and Travelpac along with key estimates are available to download on the ONS website.

The UK Data Service (formerly the Economic and Social Data Service) offers free access to IPS datasets for bona fide researchers.

Tables not already available within Overseas Travel and Tourism publications can be produced by ONS, dependent upon the work involved for a nominal fee. Requests for additional work should be forwarded to the Data Advice and Relations Team (DART) at socialsurveys@ons.gsi.gov.uk.

ONS's recommended format for accessible content is a combination of HTML webpages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. The ONS website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on the ONS website but not produced by the ONS, or referenced on the ONS website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this document.

For information regarding conditions of access to data, please refer to the links below:

- Terms and conditions (for data on the website)
- Copyright and reuse of published data
- Pre-release access (including conditions of access)
- Access to unpublished data
- Access to microdata via the Virtual Microdata Laboratory
- Accessibility

In addition to this Quality and Methodology Information, Basic Quality Information relevant to each release is available in the background notes of the relevant Statistical Bulletin, quarterly Overseas Travel & Tourism publication and Travel Trends.

More methodology information about the International Passenger Survey can be found on the International Passenger Survey Guidance and Methodology page.