National Survey for Wales

1. Introduction

The National Survey for Wales was a large-scale survey of people across Wales that ran between January 2012 and April 2015. It was carried out face-to-face in respondents' homes. In each reporting year, April to the following March, the survey was completed by 14,500 people aged 16 and over (around 660 in each local authority). Respondents were selected at random to ensure the results are representative. The survey covered a range of topics, with a focus on well-being and people's views of public services. The results are used to inform and monitor Welsh Government policies as well as being a valuable source of information for other public sector organisations, voluntary organisations, academics, the media, and members of the public.

This report sets out how the National Survey adheres to the European Statistical System definition of quality (Section 2), and provides a summary of methods used to compile the output (Section 3).

2. Summary of quality

This section covers how the National Survey meets the six dimensions of quality set out by the European Statistical System: relevance; accuracy; timeliness and punctuality; accessibility and clarity; comparability; and coherence.

2.1 Relevance

The degree to which the statistical product meets user needs for both coverage and content.

<table>
<thead>
<tr>
<th>What it measures</th>
<th>The National Survey covers a broad range of topics, with a particular focus on public services and well-being.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A range of demographic questions is also included, to allow for detailed cross-analysis of the results.</td>
</tr>
<tr>
<td></td>
<td>The survey content and materials for each year of the survey are available under “Background information” on the National Survey webpages. This includes questionnaires, showcards and the letter and leaflet sent to selected households.</td>
</tr>
<tr>
<td>Mode</td>
<td>25 minute face-to-face interview with a randomly-selected adult (aged 16+) in each randomly-selected household.</td>
</tr>
<tr>
<td>Frequency</td>
<td>Continuous. Fieldwork started in January 2012 and ended in April 2015.</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sample size</td>
<td>An achieved sample of 14,500 respondents per year (approximately 660 in each local authority). Exact sample sizes are provided in the technical report for each year.</td>
</tr>
<tr>
<td>Periods available</td>
<td>The main reporting year for the survey is based on interviews carried out between April each year and March the following year, with the exception of 2014-15 (where fieldwork was extended slightly to early April 2015). The results are published in the May following the end of the reporting year. Detailed local authority figures can be produced by combining the results from the two years’ fieldwork where the same questions are included for two consecutive years and the results don’t change substantially over time.</td>
</tr>
<tr>
<td>Sample frame</td>
<td>Addresses are sampled randomly from Royal Mail’s small user Postcode Address File (PAF), an up-to-date list of all UK addresses. The sample is drawn by ONS to ensure that respondents have not recently been selected for a range of other large-scale government surveys, including the National Survey itself.</td>
</tr>
<tr>
<td>Sample design</td>
<td>The sample is stratified disproportionately by local authority to obtain an approximately equal effective sample size of respondents in each local authority each year. The sample for each reporting year is drawn in one stage, and allocated evenly across each quarter before being allocated to each month within each quarter. This sampling approach ensures that any consecutive four quarters of data is unclustered. For addresses containing more than one household, one household is selected at random. In each sampled household, the respondent is randomly selected from all adults (aged 16 or over) in the household who regard the sample address as their main residence, regardless of how long they have lived there.</td>
</tr>
<tr>
<td>Weighting</td>
<td>The survey results are weighted to take account of unequal selection probabilities and for differential non-response, i.e. to ensure that the age and sex distribution of the responding sample matches that of the population of Wales.</td>
</tr>
<tr>
<td>Imputation</td>
<td>No imputation.</td>
</tr>
<tr>
<td>Outliers</td>
<td>No filtering of outliers.</td>
</tr>
</tbody>
</table>

More detail on the survey design and methodology is set out in the technical report for each fieldwork year.

**Primary purpose**
The main purpose of the National Survey is to collect the views of adults in Wales on a wide range of issues affecting them and their local area.
The results are used by the Welsh Government to help:
- make decisions that are based on sound evidence;
- monitor changes over time;
- identify areas of good practice that can be implemented more widely; and
- identify areas or groups that would benefit from intensive local support, so action can be targeted as effectively as possible.

**Users and uses**
The main users of the results are Welsh Government Ministers and policy teams. There is a wide range of other users, including: other UK government and local government organisations; other public sector organisations; academics; the media; members of the public; and the voluntary sector, particularly in Wales. Datasets are deposited at the UK Data Archive to ensure that the results are widely accessible for research purposes. Results are also linked with other datasets as part of the Secure Anonymised Information Linkage databank (SAIL) at Swansea University, for respondents who give their consent to this.

The survey results are used by the Welsh Government and other organisations to provide evidence for developing policy and monitoring purposes: for example, to report on the Programme for Government.

**Strengths and limitations**
The strengths of the National Survey include:
- A large sample size. This allows analysis by population sub-groups and local authority areas.
- A randomly-selected sample with a high response rate of around 62% to 70% each year. This helps to ensure that the results are as representative as possible of people in Wales, including harder-to-reach groups such as younger working people. The survey is weighted to adjust for non-response, which also helps make the results as representative as possible.
- It is carried out face-to-face. This has a range of advantages in addition to contributing to the high response rate. For example, it helps ensure that all relevant questions are answered. It also allows interviewers to read out introductions to questions and help ensure respondents understand what is being asked, so that they can give accurate answers.
- Sampling errors are small compared to some social survey designs, because the National Survey has a single stage sample of addresses.
- The survey covers a wide range of topics, allowing cross-analyses between topics to be undertaken. A range of demographic questions are also included to allow cross-analysis by age, gender, employment status, etc.
- Where possible, questions were selected that have been used in other major face-to-face surveys. This means that they are tried and tested, and that some results can be compared over time and with other countries.
- Questions that were developed from scratch, or taken from other surveys and amended substantially, were cognitively tested, as were the introductions to the different sections of the survey. One benefit of cognitive testing is that it increases the likelihood that the questions measure what they are intended to measure. Cognitive testing reports.
The survey includes a re-contact question and data linkage question. It can therefore be used as a sampling frame for further research, and use can be made of linked records (that is, analysing survey responses in the context of other administrative and survey data held on the relevant respondents).

The limitations include:

- Although the response rate is reasonably high, there is still a substantial proportion of sampled individuals who do not take part. This is likely to affect the accuracy of the estimates produced.
- The survey does not cover people living in institutional establishments (e.g. care homes, residential youth offender homes, hostels, and student halls).
- Care has been taken to make the questions as accessible as possible, but there will still be instances where respondents do not respond accurately, for example because they have not understood the question correctly or for some reason they do not wish to provide an accurate answer. Again, this will affect the accuracy of the estimates produced.
- Robust analyses for small areas (i.e. sub-LA level) and groups are not possible without combining two or more years' worth of data, or making use of small area estimation techniques.
- Whilst the sample design is un-clustered over the survey year, the sample is clustered within each quarter. Therefore the design effects are larger when analysing one quarter’s data.
- As figures are produced annually two months after the end of each reporting year, there is a substantial time period (around 18 months) between finalising survey topics and producing the relevant data. This can affect the timeliness of results.

Several of the strengths and limitations mentioned above relate to the accuracy of the results. Accuracy is discussed in more detail in the following section.

2.2 Accuracy

The closeness between an estimated result and the (unknown) true value.

The main threats to accuracy are sources of error, including sampling error and non-sampling error.

Sampling error

Sampling error arises because the estimates are based on a random sample of the population rather than the whole population. The results obtained for any single random sample are likely to vary by chance from the results that would be obtained if the whole population was surveyed (i.e. a census), and this variation is referred to as the sampling error. In general, the smaller the sample size the larger the potential error.

For a random sample, sampling error can be estimated statistically based on the data collected, using the standard error for each variable. Standard errors are affected by the survey design; and can be used to calculate confidence intervals and coefficients of variation in order to give a more intuitive idea of the size of sampling error for a particular variable. These issues are discussed in the following subsections.
Effect of survey design on standard errors
The National Survey is stratified at local authority level, with different probabilities of selection for people living in different local authorities (e.g. a lower probability of selection for someone living in the Cardiff local authority area than for someone in Merthyr Tydfil, given the relatively larger size of Cardiff). One of the effects of using this complex design is that standard errors for the survey estimates are generally higher than the standard errors that would be derived from a simple random sample of the same size.

The ratio of the standard error of a complex sample to the standard error of a simple random sample (SRS) of the same size is known as the design factor, or “deft”. If the standard error of an estimate in a complex survey is calculated as though it has come from a SRS survey, multiplying that standard error by the deft gives the true standard error of the estimate, given the complex design.

The ratio of the sampling variance of the complex sample to that of a simple random sample of the same size is the design effect, or “deff” (which is equal to the deft squared). Dividing the actual sample size of a complex survey by the deff gives the “effective sample size”. This is the size of a SRS that would have given the same level of precision as the complex survey.

Standard errors adjusted for the survey design and design factors for a selection of key National Survey variables are set out in the technical report for each year.

Confidence intervals
Standard errors can be used to calculate confidence intervals for each survey estimate. The confidence intervals for each estimate give a range within which the ‘true’ value for the population is likely to fall (that is, the figure we would get if the survey covered the entire population). The most commonly-used confidence interval is a 95 per cent interval. This means that, in 95 per cent of survey samples, the 95 per cent confidence interval for each sample will contain the ‘true’ figure for the whole population. The larger the confidence interval, the less precise the estimate is.

95 per cent confidence intervals have been calculated for a range of National Survey variables and are included in the technical report for each year. These intervals have been adjusted to take into account the design of the survey and are larger than they would be if the survey had been based on a simple random sample. They are calculated as the mean of the estimate plus or minus approximately 1.96 * the standard error of the estimate. Confidence intervals are also included in tables of National Survey results available via StatsWales, and in all published bulletins/releases except the First Release for January – March 2012: see the National Survey webpages.

Confidence intervals can also be used to help tell whether there is a real difference between two groups. As a rough guide to interpretation, when comparing two groups, if the confidence intervals around the estimates overlap, it can be assumed that the estimates are not statistically significantly different – this approach is not as rigorous as doing a formal statistical test, but is straightforward, widely used and reasonably robust.

Note that checking to see whether two confidence intervals overlap is less likely than a formal statistical test to lead to conclusions that there are real differences between groups. That is, it is more likely to lead to "false negatives": incorrect conclusions that there is no real difference when in fact there is a difference. It is also less likely to lead to "false positives": incorrect conclusions that there is a difference when there is in fact

1 The value of 1.96 varies slightly according to the sample size for each particular estimate.
Carrying out many comparisons increases the chance of finding false positives. Therefore, when many comparisons are made the conservative nature of the test is an advantage because it reduces (but does not eliminate) this chance.

**Coefficients of variation**
To ensure that the estimates reported are robust, coefficients of variation (CVs) are calculated for each estimate. These are reported in tables at the back of statistical releases and in tables of survey results published on StatsWales. The CV is calculated as the standard error multiplied by 100 and divided by the mean, and indicates the robustness of an estimate. The table below shows how we colour code our results according to the CV and how we interpret them.

<table>
<thead>
<tr>
<th>CV Range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ≤ CV &lt; 5</td>
<td>Estimate is precise</td>
</tr>
<tr>
<td>5 ≤ CV &lt; 10</td>
<td>Estimate is reasonably precise</td>
</tr>
<tr>
<td>10 ≤ CV &lt; 20</td>
<td>Estimate is considered acceptable</td>
</tr>
<tr>
<td>CV ≥ 20</td>
<td>Estimate is not reliable</td>
</tr>
<tr>
<td></td>
<td>Value is suppressed due to small cell size (fewer than 10 responses)</td>
</tr>
</tbody>
</table>

An estimate with a coefficient of variance greater than 20 is not considered reliable for practical purposes.

In tables of results, values with cell sizes of less than 10 (i.e. where fewer than 10 people selected the relevant answer option(s)) are suppressed and shown as “-“.

**Non-sampling error**
Non-sampling error covers all differences between the survey estimates and true population values except those arising because of sampling error. Unlike sampling error, non-sampling error is present in censuses as well as sample surveys. Types of non-sampling error include: coverage error, non-response error, measurement error and processing error.

It is not possible to eliminate non-sampling error altogether, and it is not possible to produce statistical estimates of the size of non-sampling error. Substantial efforts have been made to reduce non-sampling error in the National Survey. Some of the key steps taken are discussed in the following subsections.

**Measurement error: question development**
To reduce measurement error, harmonised or well-established questions are used in the survey where possible. Many of the survey questions have been subject to a desk review, and a number have also been cognitively tested, to ensure that the questions are consistently understood as intended and that respondents can recall the information needed to answer them. Reports explaining how the desk review and cognitive testing was carried out are available on the National Survey webpages.

**Non-response**
Non-response is a key source of non-sampling error. Response rates are therefore an important dimension of survey quality and are monitored closely. The quarterly and annual target response rate for the National Survey at national level is 70%, with a contractual minimum of 62% in each quarter and 65% in each reporting year. The only exception to this is for the January – March 2012 dataset, where the longer questionnaire (35 minutes as opposed to 25 minutes for the first full reporting year) meant that a target response rate of 67% was agreed. The contractual minimum response rate at LA level for each quarter is 65%.
The response rates achieved each year are around 65% to 70%. More details on response rates are given in the technical reports.

Categories of response are defined as follows.

- **Successful interview** – where the respondent has answered all applicable questions.
- **Outright refusal** – where the household or respondent refuses to respond to the survey, and the interviewer feels that there is no chance of an interview at the current time or in the future.
- **Office refusal** – where the household or respondent contacts the fieldwork company or the Welsh Government to refuse to participate in the survey in response to the advance letter.
- **Non-contact** - address is occupied but it has not been possible to contact any member of the household in the field period.

The response rate expresses the proportion of eligible addresses that yielded an interview, and is defined as:

\[
\text{Response Rate} = \frac{\text{Completed interviews}}{(\text{Total sample} - \text{ineligible addresses})}
\]

Ineligible addresses are those that would not be eligible to take part in the survey. This only includes addresses that were vacant, non-residential or not occupied as a main residence (e.g. holiday homes) and those coded by interviewers as inaccessible or that they were unable to locate. It does not include addresses that have been attempted a number of times by interviewers but where no contact has been made, unless there is clear evidence that the address is vacant or not occupied as a main residence (e.g. by confirming this with neighbours).

The survey results are weighted to take account of differential non-response across population subgroups, i.e. to ensure that the age and sex distribution of the responding sample matches that of the population of Wales. This step is designed to reduce the non-sampling error due to differential non-response.

**Missing answers**
Missing answers occur for several reasons, including refusal or inability to answer a particular question, and cases where the question is not applicable to the respondent. Missing answers are usually omitted from tables and analyses.

**Measurement error: interview quality checks**
Another cause of bias may be that interviewers systemically influence responses in some way. Extensive interviewer training is provided to minimise this effect, although it remains likely in a face-to-face survey that responses will still be subject to effects such as social desirability bias (where the answer is affected by what the respondent perceives to be socially acceptable). Interviewers are also closely supervised, with 12% of interviews being verified through 'back-checking'.

The questionnaire is administered face-to-face using a Computer Assisted Personal Interviewing (CAPI) script. This approach allows the interviewer to tailor how questions are introduced to each respondent, for example providing some additional explanation where it is clear that the meaning is not understood. To help them do this, interviewers are provided with background information on some of the questions at the interviewer
briefings that take place before fieldwork begins. The CAPI script also contains additional information where prompts or further explanations are likely to be needed.

Some answers given are included in the wording of subsequent questions or checks (e.g. the names of children are added to questions on children’s schools). This helps prevent the respondent (and interviewer) becoming confused or losing their place in the questionnaire.

A range of logic checks and interviewer prompts are included in the CAPI script to make sure the answers provided are consistent and realistic. Some of these checks are ‘hard checks’: that is, checks used in cases where the answer could not be correct based on other information given. In these cases the question has to be asked again, and the response changed, in order to proceed with the interview. Others are ‘soft checks’, i.e. for responses that seem unlikely but could be correct. In these cases the interviewer is prompted to confirm that the information is indeed correct.

**Processing error: data validation**

The main survey outputs are SPSS data files that are delivered on a regular basis. For each fieldwork period, three data files are provided:

- An anonymised sample file, with fieldwork outcome, first impressions data and geo-demographic data for each address in the fieldwork period.
- An All people file, containing responses to the enumeration grid and basic demographic information on the whole household; and
- A Respondent file, containing each respondent’s answers to the main questionnaire.

Each dataset is checked by a member of the survey contractor’s data processing team and then by members of the survey contractor’s project team. A formalised set of checks on the content and format of the datasets is then carried out by the Welsh Government before the datasets are signed off.

### 2.3 Timeliness and punctuality

*Timeliness refers to the lapse of time between publication and the period to which the data refers. Punctuality refers to the time lag between the actual and planned dates of publication.*

The main reporting year for the survey is from April to March of the following year (with the exception of 2014-15, where the reporting year was extended slightly to the first half of April). A First Release containing headline statistics for Wales and basic local authority statistics is published each May / June, two months after the end of the relevant fieldwork period. The standard time lapse between end of fieldwork and publication for each full set of results is therefore **two months**.

More detailed topic-specific reporting follows publication of the First Release each year.

All National Survey outputs are pre-announced on the Welsh Government’s [Upcoming calendar](#) web pages, in line with the Code of Practice for Official Statistics.

Should the need arise to change the pre-announced release schedule, the Welsh Government’s [Revisions, Errors and Postponements process](#) is followed, and a full explanation made available of the reasons for the change.
2.4 Accessibility and clarity
Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.

Publications
All reports are available to download from the National Survey webpages. In June 2015, the National Survey web pages were revised substantially to make them more engaging and easier to navigate.

Statistics from the National Survey are pre-announced, and are published on the Welsh Government website at 9.30am on the day of publication. All releases are available to download without charge. An RSS feed alerts registered users to each publication. Simultaneously the releases are also published on the National Statistics Publication Hub, and on StatsUserNet. Outputs are announced and shared on the Welsh Government and StatisticsWales Twitter feeds.

Key results are available to download as spreadsheets from the StatsWales website.

Further information regarding the survey results, for example if you would like to see a different breakdown of results, can be obtained by contacting the National Survey team at surveys@wales.gsi.gov.uk or on 029 2080 6685.

Disclosure control
Outputs are designed to ensure that individuals are not identifiable from the published results. We adhere to the requirements for confidentiality and data access as set out in Principle 5: Confidentiality, in the Code of Practice for Official Statistics.

Quality assurance
Some weeks before publication, a draft version of each release is shared under restricted conditions with relevant analytical colleagues, to ensure that the publication is clear, accurate and comprehensive.

Language requirements
We aim to use plain English in our outputs.

First releases and bulletins on Welsh language topics are published in Welsh as well as English.

UK Data Archive
An anonymised version of the annual dataset (from which some information is removed to ensure confidentiality is preserved), together with supporting documentation, is deposited with the UK Data Archive after the publication of each year’s results. These datasets may be accessed by registered users for specific research projects. The UK Data Archive is accessed via the Economic and Social Data Service (ESDS) website. Datasets can be downloaded in a number of formats, including SPSS and CSV format.

From time to time, researchers may wish to analyse more detailed data than is available through the Data Archive. Requests for such data can be made to the National Survey
team (see contact details below). Requests are considered on a case by case basis, and procedures are in place to ensure that confidentiality is maintained.

Methods and definitions
The National Survey technical reports contain detailed information on how the survey was undertaken. They provide information on topics such as sampling, fieldwork procedures and weighting. Each survey publication also contains a glossary with descriptions of more general terms used in the output. Copies of the questionnaires are available.

In 2014-15, much greater use was made of subsampling: that is, asking some questions of random subsamples of respondents. The subsamples were chosen carefully so that groups of related subsampled questions were asked of the same respondents, to allow cross-analysis between those related questions. More information on subsampling is available in the First Release for 2014-15, and in the technical report for 2014-15.

2.5 Comparability and coherence
The degree to which data can be compared over both time and domain.

The degree to which data that are derived from different sources or methods, but which refer to the same phenomenon, are similar.

From May 2014 onwards, comparisons over time are possible for all questions that have been included in multiple years of the survey. In addition, wherever possible survey questions are taken from existing surveys to allow for comparisons to be made.

A full report on comparability of questions used in the National Survey with a wide range of other sources is available. Throughout National Survey statistical bulletins and releases, we highlight relevant comparators as well as information sources that are not directly comparable but provide useful context.

The National Survey differs in methodological approach to its predecessor, the Living in Wales survey (which covered householders rather than the adult population), so care should be taken when comparing data from these two surveys.

The National Survey is one of a range of sources of data about well-being collected in Wales. For example, the Office for National Statistics Annual Population Survey (APS) also collects data on the four well-being questions around life satisfaction, worthwhile, happiness and anxiety. The comparability report highlights the strengths and limitations of each source in relation to the topic of well-being.
Feedback or further information
If you have would like further information, please visit our website or contact us on 029 2082 6685 or at surveys@wales.gsi.gov.uk. We welcome comments from users of our publications, for example on content and presentation.

Chris McGowan
National Survey team
Knowledge and Analytical Services
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

Document last reviewed: June 2015