

National Survey for Wales, 2016-17 onwards

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1. Introduction

The [National Survey for Wales](#) is a large-scale survey of people across Wales that is carried out face-to-face in respondents' homes. In each reporting year, April to the following March, the survey is completed by around 12,000 people aged 16 and over. Respondents are selected at random to ensure the results are representative.

The survey covers a wide range of topics. It began in March 2016 and replaced the previous National Survey (2012-15), Welsh Health Survey, Active Adults Survey, Arts in Wales Survey, and Welsh Outdoor Recreation Survey, all of which came to an end in 2014 or 2015. 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.

What it measures	<p>The National Survey covers a broad range of topics including active travel, education, sport and recreation, health, social care, use of the internet, views about the local area, environment, wellbeing, finances, and the Welsh language.</p> <p>A range of demographic questions is also included, to allow for detailed cross-analysis of the results.</p> <p>The survey content and materials for each year of the survey are available from the Statistics and Research website. This includes questionnaires, showcards and the letter and leaflet sent each selected household.</p>
Mode	45 minute face-to-face interview with one adult in each household.
Frequency	Continuous. Fieldwork started in March 2016.
Sample size	An achieved sample of around 12,000 respondents per year. Exact sample sizes are provided in the technical report for each year.

Periods available	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 2016-17 (where fieldwork began in late March 2016). The first results are published in the June following the end of each reporting year, i.e. annually from June 2017 onwards.
Sample frame	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.
Sample design	<p>The sample is broadly proportionate to local authority population size, but with a minimum effective sample size of 250 in the smallest authorities and 750 in Powys.</p> <p>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 are unclustered. The sample within any quarter is clustered, but sufficiently representative to support national estimates.</p> <p>At 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.</p>
Weighting	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.
Imputation	No imputation.
Outliers	No filtering of outliers.

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 help public sector organisations to:

- 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 survey is commissioned and used for policy making purposes by the Welsh Government, Sport Wales, Natural Resources Wales, and the Arts Council of Wales. As well as these organisations, there is a wide range of other users of the survey, including: local authorities across Wales, NHS Wales, and Public Health Wales; other UK government departments and local government organisations; other public sector organisations; academics; the media; members of the public; and the voluntary sector, particularly organisations based 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 via secure research environments, for example the Secure Anonymised Information Linkage databank ([SAIL](#)) at Swansea University. Respondents are able to opt out of having their results linked if they wish.

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 target response rate of 59% 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 to 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 are 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 are developed from scratch, or taken from other surveys and amended substantially, are usually cognitively tested, as are 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 are available [here](#).
- Sensitive topics are covered using computer-assisted self-completion, to help respondents feel more comfortable in giving accurate answers on these topics.
- The results are available quickly after the end of fieldwork: within three months. Detailed bulletins are published on particular topics, and large numbers of results tables are available in an interactive viewer. See www.gov.wales/nationalsurvey for publications.
- Comparisons over time are possible, for topics that were included in previous years of the National Survey (i.e. as far back as 2012-13). Care should be taken when comparing results for topics previously included in other surveys such as the Welsh Health Survey, as the change in context and survey mode may have affected the results.
- The survey includes a re-contact question. It can therefore be used as a sampling frame for further research. Also, use can be made of linked records (that is, analysing survey responses in the context of other administrative and survey data that is held about the relevant respondents).

The limitations include:

- Although the response rate is reasonably good, 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 communal 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, with the use of computer-assisted self-completion for sensitive topics. However 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 other small subgroups are not possible without combining two or more years' worth of data, or making use of small area estimation techniques.
- Although the sample design is unclustered 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 around three 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 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. Weighting is used to correct for these different selection probabilities, as well as (as noted above) to ensure the results reflect the population characteristics of each local authority. One of the effects of this complex design and applying survey weights 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, which takes into account 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 deff 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.

Use is made of subsampling: that is, asking some questions of random subsamples of respondents. These subsamples are designed to be as small as possible while still providing results of the required precision. This allows us to fit more topics into the available survey time. Subsamples are chosen carefully so that groups of related subsampled questions are asked of the same respondents, to allow cross-analysis between those related questions.

Standard errors, adjusted for the survey design and design effects 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% interval. In 95% of survey samples, the 95% 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% 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 of the same size. They equal the point estimate plus or minus approximately $1.96 \times$ the standard error of the estimate.¹ Confidence intervals are also included in tables of National Survey results available via our [Results viewer](#).

Confidence intervals can also be used to help tell whether there is a real difference between two groups (one that is not just due to sampling error, i.e. the particular characteristics of the people that took part in the survey). As a rough guide to interpretation: when comparing two groups, if the confidence intervals around the estimates overlap then 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 than a formal test 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 than a formal test to lead to “false positives”: incorrect conclusions that there **is** a difference when there is in fact none. However, carrying out many comparisons increases the chance of finding false positives.

¹ The value of 1.96 varies slightly according to the sample size for each particular estimate.

Therefore, when many comparisons are made the conservative nature of the test is an advantage because it reduces (but does not eliminate) this chance.

Non-sampling error

“Non-sampling error” means 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 by independent question design experts. A number of questions have also been cognitively tested, to increase the likelihood that the questions are consistently understood as intended and that respondents can recall the information needed to answer them. Reports on this work are available on the National Survey [webpages](#).

Non-response

Non-response (i.e. individuals who are selected but do not take part in the survey) is a key component 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 and local level is 64%, with a contractual minimum of 56% in each quarter and 59% over each reporting year. The only exception to this was for the initial quarter of 2016-17: to allow field processes to bed in, the minimum response rate was 53%.

More details on response rates are given in the [technical report for each year](#).

Categories of response include the following.

- **Successful interview** – the respondent has answered all applicable questions.
- **Outright refusal** – the household or respondent refuses to respond to the survey, and the interviewer feels that there is no chance of an interview.
- **Office refusal** – the respondent or someone else from the household contacts the fieldwork contractor or the Welsh Government to refuse to participate in the survey (usually in response to the advance letter).
- **Non-contact** – the address is known to be occupied but it has not been possible to contact any member of the household in the field period.

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

$$\frac{\text{Completed interviews}}{(\text{Total sample} - \text{ineligible addresses})}$$

Ineligible addresses are those that are found to be ineligible to take part in the survey. These are addresses that were identified as being vacant, non-residential or not occupied as a main residence (e.g. holiday homes) as well as 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 is 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, except where they are of particular interest (e.g. a high level of "Don't know" responses may be of substantive interest).

Measurement error: interview quality checks

Another potential cause of bias is interviewers systemically influencing responses in some way. It is likely, particularly in a face-to-face survey, that responses will still be subject to effects such as social desirability bias (where the answer given is affected by what the respondent perceives to be socially acceptable). Extensive interviewer training is provided to minimise this effect and interviewers are also closely supervised, with up to 10% of interviews verified through 'back-checking'.

The questionnaire is administered face-to-face using a Computer Assisted Personal Interviewing (CAPI) / Computer Assisted Self Interviewing (CASI) script. This approach allows the interviewer to tailor how questions are introduced to each respondent, for example by providing some additional explanation where it is clear that the meaning is not understood by that respondent. 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 have been found 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) from 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 respondent's answer could not be correct based on other information given by the respondent. In these cases the question has to be asked again, and the response changed, in order to proceed with the interview. Other checks are 'soft checks', for responses that seem unlikely but could be correct. In these cases the interviewer is prompted to confirm with the respondent 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 main 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.
- A household dataset, containing responses to the enumeration grid and any information asked of the respondent about other members of the household; and
- A respondent dataset, containing each respondent's answers to the main questionnaire.

Each dataset is checked by the survey contractor. A formalised set of checks on the content and format of the datasets is then carried out by the Welsh Government and any amendments made 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. A First Release containing headline statistics for Wales and basic local authority statistics is published each June. The standard time lapse between end of fieldwork and publication for each full set of results is therefore around **three 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 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 of the reasons for the change is made available.

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](#). The National Survey web pages have been designed to be engaging and easy 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.

A large number of tables of results are available via an interactive [results viewer](#).

For further information about the survey results, for example if you would like to see a different breakdown of results, contact the National Survey team at surveys@gov.wales or on 03000 256 685.

Disclosure control

Outputs are designed to ensure that individuals are not identifiable from the published results. We follow the requirements for confidentiality and data access set out in the [Code of Practice for 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 comply with the Welsh language standards for all our outputs. Our website, First Release and Results Viewer are published in both Welsh and English.

We aim to write clearly (using plain English or 'Cymraeg Clir' as appropriate).

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](#) in the autumn after the publication of each year's results. These datasets may be accessed by registered users for specific research projects.

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 and data security are maintained.

Methods and definitions

The National Survey [technical report](#) contains more detailed information on how the survey is undertaken. It provides 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. An interactive question viewer and copies of the questionnaires are available on our [web pages](#).

2.5 Comparability and coherence

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

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.

Comparisons with other countries

Wherever possible, survey questions are taken from surveys run elsewhere. This allows for some comparisons across countries to be made (although differences in design and context may affect comparability).

Comparisons over time

As noted above, up until 2015 the Welsh Government (WG) and its sponsored bodies conducted five large-scale social surveys: the 2012-15 National Survey for Wales, Welsh Health Survey, Active Adults Survey, Arts in Wales Survey, and Welsh Outdoor Recreation Survey. A [review](#) of the way social surveys were carried out in Wales concluded that a viable approach was to bring together the five surveys into a single National Survey, and this is the approach that has been followed from 2016-17.

The new National Survey is longer than its predecessor surveys, and is carried out using a different methodology than for some of those surveys. The characteristics of the original surveys are set out in Table 1.

Table 1 Design features of original surveys

Survey	Frequency and last instance	Avg length (mins)	Sample size	Design
National Survey	Annual, continuous. Final year 2014-15.	25	14,500	Face-to-face, random sample, 65-70% response rate
Welsh Health Survey	Annual, continuous. Final year 2015.	25	15,000	Primarily self-completion, random sample, 64% response rate
Active Adults Survey	Every two years. Final year 2014.	20	8,000	Face-to-face, random sample, 52% response rate
Arts in Wales Survey	Every five years. Final year 2015.	15	7,000	Face-to-face, quota sample
Welsh Outdoor Recreation Survey	Every three years. Final year 2014.	15	6,400	Telephone interview, random selection of telephone contacts in target Spatial Planning Areas

In 2016, a [report on discontinuities](#) was commissioned to investigate whether the new survey would produce results that are comparable with the previous surveys, and so provide information on what the change means for understanding trends over time. The project compared key results from a large-scale test of the new National Survey (carried out in summer 2015) with results for the same topics from the predecessor surveys, and any large differences were identified as potential discontinuities.

This project did not find any discontinuities between the variables selected from the previous design of the National Survey for Wales (from 2012-15) and the new survey. However, discontinuities were identified for some variables from the Welsh Health Survey, Active Adults Survey, Arts in Wales Survey and the Welsh Outdoor Recreation Survey. Where discontinuities were identified, these generally suggested that for those particular variables the new National Survey will provide lower estimates than did the predecessor surveys.

Comparisons over time are therefore likely to be straightforward for questions that were included in both the 2012-15 National Survey and the new National Survey (although changes in context may have an effect on the results). However, care should be taken in making comparisons between results from the new survey and the other pre-existing surveys. We are continuing to investigate whether and how the pre-existing survey results can be adjusted statistically to allow comparison with results from the new National Survey.

Where there is a continuing demand to make comparisons over time, topics will be included in future years of the new National Survey. As the new survey proceeds, this will largely address issues of comparability over time.

3. Feedback or further information

If you would like further information please visit our [website](#), or contact us on 03000 256 685 or at surveys@gov.wales. We welcome comments from users of the survey, for example on the content and presentation of our publications.

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