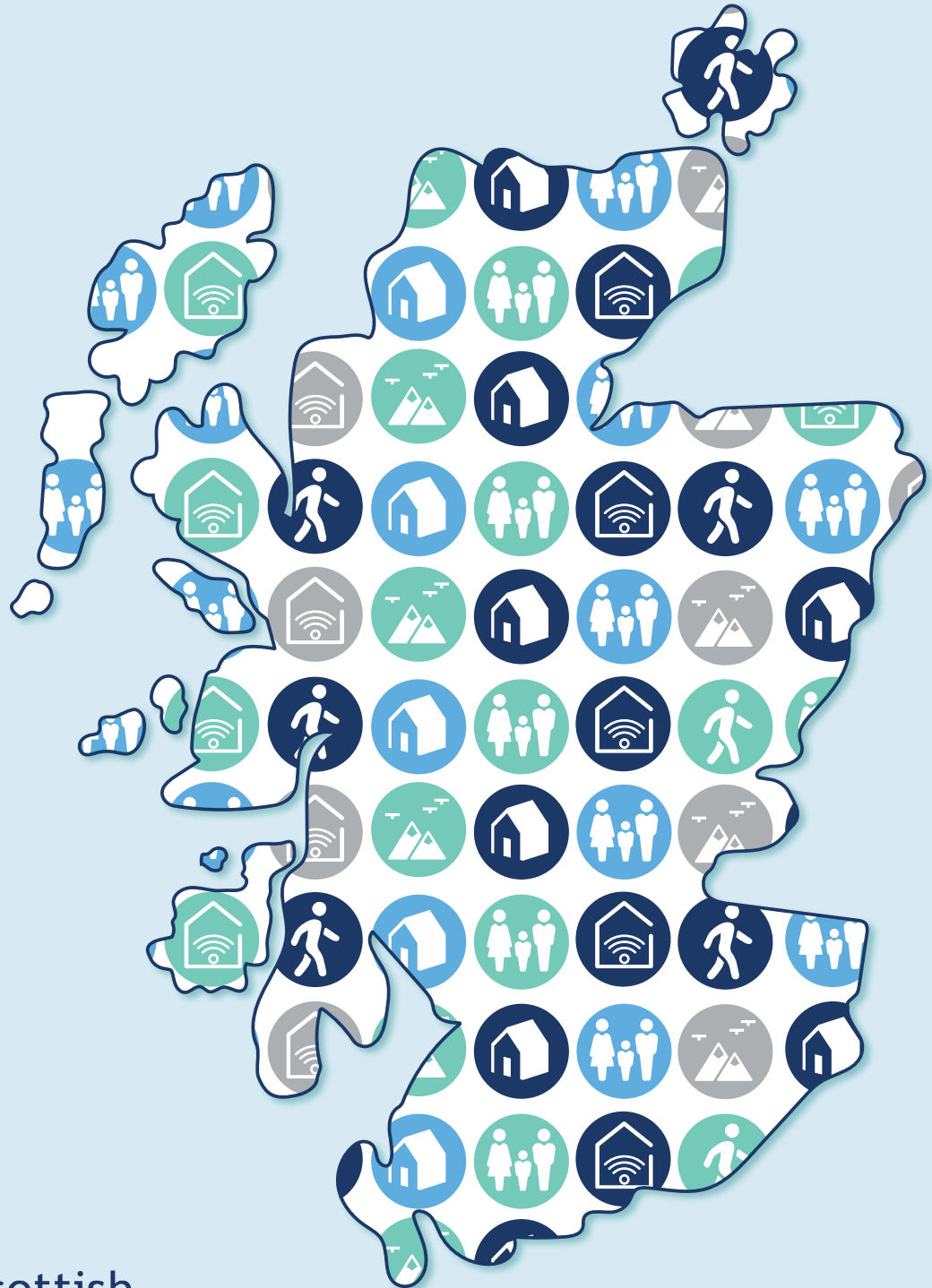


Scottish Household Survey 2020

Methodology and Impact of Change in Mode



The Scottish Household Survey 2020: Methodology and Impact of Change in Mode

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Executive Summary

The Scottish Household Survey is an annual survey carried out since 1999. It collects data on a wide range of different topics not available from any other sources, and is at the heart of the Scottish Government's evidence-based approach to policy. The social survey uses face-to-face in-home interviewing. It is followed by the physical survey, dwelling inspections carried out by a surveyor team. The physical survey provides national estimates of the energy efficiency and the condition of the domestic housing stock and of fuel poverty.

In March 2020, fieldwork was suspended in response to the Covid-19 pandemic. Only a small proportion of the 2020 survey had been completed. The approach was adapted and the remainder of the 2020 social survey fieldwork was carried out using remote interviewing. The dwelling inspection fieldwork remained suspended.

This report describes the adaptations to the methodology for the 2020 social survey, and explores the impact of the change in approach on the survey estimates.

Adapting the approach for the 2020 social survey fieldwork

Until the pandemic, all interviews were undertaken **in-home face-to-face**. Householders were sent an advance letter and leaflet in advance of an interviewer calling. Interviewers were required to make multiple visits to secure an interview at a sampled address. A sizeable proportion of addresses where the first interviewer did not secure an interview were revisited by another interviewer. This approach helped ensure that the Scottish Household Survey has achieved a consistently high response rate. No respondent incentives were used.

The interview averaged 60 minutes, the first part with a householder and the second with a random adult in the household. A wide range of topics were covered including the composition, characteristics, attitudes and behaviour of Scottish households and individuals.

The revised approach used the addresses that had not been worked when the interviewing was suspended. **Telephone matching** was undertaken to allow interviewers to try to get agreement to interview from some addresses by telephone. This involved matching names and telephone numbers to addresses using publicly available sources, such as the electoral register and the telephone directory. Matching was successful for 23% of addresses.

With no interviewer travel allowed, gaining consent for interview came either from respondents opting-in on receipt of the advance materials, or in response to an approach by telephone. After the initial mail-out, addresses where a phone number had been obtained were followed up by a telephone call. For those where we were unable to obtain a telephone number, two reminders were sent after the initial mail-out, a postcard reminder followed by a final letter reminder.

Respondents were given a conditional incentive of £20 for completing the interview, to encourage participation.

All interviews were undertaken remotely, either by telephone or video link.

Video link interviews used one-way Microsoft Teams, where the respondent could see the interviewer but where the interviewer could not see the respondent. Most interviews were conducted by telephone.

Fieldwork was undertaken by interviewers from the SHS face-to-face interviewer panel. Fieldwork for the pilot was undertaken in Oct 2020 and the main stage was undertaken between January and April 2021.

Where possible, questions, response options and format were kept the same as the face-to-face survey. Some adaptations were necessary, especially to questions that relied on showcards.

The weighting strategy was updated to mitigate against the impact of different patterns of non-response.

Impact on estimates

As the SHS has used a broadly consistent approach since its inception until the pandemic, any biases or errors are likely to have been consistent across time. This means that changes in results year-on-year are likely to have reflected real changes.

Any change in approach means that, in addition to any real change, estimates may be affected by a) changes to the profile of the responding sample (non-response bias) and/or b) changes to how questions are asked and answered (measurement error).

Change to the profile of the responding sample

Overall, where response rates are lower, there is greater potential for non-response bias.

The unadjusted¹ overall response rate achieved using the revised approach was 20%: 14% for the opt-in only sample, and 37% for the telephone matched sample. This compares to a response rate in 2019 of 63%. The revised push-to-telephone/video approach not only resulted in a lower response rate overall, but there was considerably more variation across different types of area compared to the face-to-face in-home approach. Response rates were particularly low among those in the most deprived areas.

Despite this, among most survey measures where major changes would not be expected, the estimates for 2020 were in line with those from 2019. However, there

¹ Normally, response rates are adjusted to account for deadwood.

were a number of estimates where it is less plausible that the change from 2019 reflected a real change over time.

Among the household measures these were tenure (with an increase in owner-occupiers and a decrease in social renters) and length of time at current address (with an increase in the proportion who had lived at their address for over 15 years).

Among the random adult measures, highest educational attainment and satisfaction with local health services showed large differences compared to 2019. The increase in respondents with a degree or professional qualification is likely to be due to a different pattern of non-response compared to previous years. The increase in satisfaction with local health services could be genuine, resulting from the increased appreciation for the NHS that we have seen during the pandemic. However, it could also be driven, at least in part, by the change in approach.

For a range of other measures – such as the proportion of people feeling lonely, being able to rely on neighbours, cultural attendance and visits to the outdoors – there were notable changes from 2020. These changes were all plausible and could be attributable to the impact of the pandemic, although we cannot discount that the change in approach has had some impact on comparability.

The estimates from the telephone matched sample were further from the 2019 figures than those from the opt-in sample, with younger higher income householders, those in social rented and private rented housing, and those who have lived in their current address for a short period of time, under-represented. Despite the response rate for the opt-in sample being considerably lower than the telephone matched sample, the estimates generally appear closer to those from the 2019 wave. The one notable exception is educational attainment, where the opt-in sample appears further from the 2019 estimates than the telephone-matched sample. The opt-in sample over-represented those with degree level qualifications compared with 2019.

Change in relation to how questions are asked and answered

With no interviewer travel allowed, interviews had to be undertaken remotely, either by telephone or by video. Overall, 16% of household respondents undertook the SHS interview by one-way video link, and 84% by telephone. Younger householders, those working, and those in privately rented accommodation, were more likely to undertake the interview by video.

The impact of mode on measurement error – how people respond to questions and whether their measured responses were accurate – is complex and difficult to disentangle from response patterns.

Mode of interview also differed considerably by mode of approach. For the opt-in only sample, 22% undertook the household interview by video. In contrast, only 8% of those in the telephone-matched sample did likewise.

The design of the questionnaire was not optimal for interviewing by telephone or video. It has relied on interviewer facilitation to maximise participant engagement.

The main challenge was how to adapt questions that relied on showcards. If interviewing using video, interviewers could use showcards via screenshare. However, an alternative strategy was needed for the telephone interviews. Where a question was factual (e.g., ethnicity and educational qualifications), interviewers were instructed to read the question, wait for the respondent to answer, and then select the corresponding code(s). For questions where the range of response options that were not obvious from the question, the interviewer was directed to read out all the response codes along with the question.

As well as differences in visual cues given through the showcards, there are a number of ways in which the revised modes of approach may have differed from the in-home, face-to-face approach, in relation to the relationship between interviewer and respondent. These include the level of trust built, level of attention throughout the hour-long interview, ability of interviewers to pick up visual cues that questions have been misinterpreted, and whether other people in the household were influencing what answers were given.

On a variety of measures examined, there did not appear to be any differences by mode of interview. However, evidence of a mode effect was found in a number of estimates, such as:

- **Educational qualifications.** Video interviews appear to measure the full list of educational measures held better than other modes. This was probably due to differences in visual cues given.
- **Components of income.** Interviews conducted by video had less missing data compared to interviews conducted by telephone.
- **Cultural attendance, cultural engagement, and sports participation.** Estimates for these measures were higher among those interviewed by video than among those interviewed by telephone. This appeared to be independent of any impact of the different sample profiles.
- **Use of agree/disagree scales on questions on council services.** There were fewer neutral responses (neither agree nor disagree and don't know) in telephone interviews than in video interviews. This is likely to be due to differences caused by showcards.

Despite efforts to minimise measurement error, the analysis suggests that the mode of interview is likely to have had some effect on some estimates.

Conclusions

Most estimates were consistent with previous findings, or show changes that were plausible and could be attributed to the impact of the pandemic. On the other hand, the analysis found evidence of changes to estimates of a number of key measures, which appear to be driven by the change in approach.

This means that it is not possible to determine the extent to which any differences between 2020 and previous years represent genuine changes in people's views

and experiences, as opposed to being due to changes in how the survey was carried out.

Difficulty in making comparisons between the 2020 survey and previous years does not mean that the data from the 2020 SHS is poor quality. Mode effects do not necessarily imply changes in data quality and examining results and breaking analysis down by variables within the survey is robust: it just cannot be compared with previous trend data.

All surveys are subject to different types of error and bias that cannot be fully addressed through weighting. Consistency of approach year on year helps to ensure that one year's results can confidently be compared to the next. In 2020, the pandemic forced the survey to change approach.

The results also provide evidence to feed into consideration of changing the approach for the survey in the future and adopting innovative methods. Any revised approach to the SHS needs to be robust over the long-term, as a change of approach may introduce an additional break in the time-series, making it difficult to compare results over time. The likely impact on the representativeness of the sample and the impact of mode(s) of interview on measurement error should be considered as part of any potential move away from in-home interviewing to remote interviewing. And any cost savings should be weighed against any likely impact on the accuracy of estimates.

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Chapter 1: Introduction

The Scottish Household Survey (SHS) is one of the largest and most important surveys in Scotland. It provides robust evidence on the composition, characteristics, attitudes and behaviour of private households and individuals in Scotland, as well as evidence on the physical condition of Scotland's homes. The national fuel poverty estimates rely on data from both the social and physical elements of the survey. Data from the SHS provides estimates for National Indicators in Scotland's National Performance Framework.

Since 1999, fieldwork for the Scottish Household Survey has been conducted annually, with interviews undertaken throughout the year. It has used the gold standard survey methodology of interviewing face-to-face, in people's homes, a random sample of households, to consistently produce high quality estimates. By maintaining a high response rate, it has minimised the potential for non-response bias. And by skilled interviewers carrying out the fieldwork face-to-face, it has also ensured that participants were able to fully engage with the questionnaire.

In March 2020, to help prevent the spread of Covid-19, fieldwork for the Scottish Household Survey was suspended. A revised approach was piloted and adopted for the remainder of the 2020 sample. This involved no interviewer travel, and surveys conducted remotely, either by telephone or by video.

The change in data collection method from the traditional face-to-face interviewing to the push-to-telephone/video approach has the potential to change the accuracy of the estimates and introduce discontinuity into the data series.

This report describes the methodology for the 2020 survey and explores the impact of the change in approach on the survey estimates. It covers the impact of (a) how people are approached to take part and whether this had led to increased bias, and (b) how they are interviewed and whether this had changed the way they responded to questions.

The report is structured as follows.

- Chapter 2 provides an overview of the change in approach
- Chapter 3 gives a short summary of relevant previous literature on survey error and mode effects
- Chapter 4 provides analysis of telephone matching rates and response rate patterns for the different approaches.
- Chapter 5 examines the size of differences between estimates from the telephone-matched sample and the opt-in only sample to previous estimates. This covers a range of key survey measures, before and after weighting, at both the national level and within key sub-groups

- Chapter 6 explores whether the mode of interview has had an impact on how people respond to the survey.

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Special thanks go to the respondents who agreed to take part in the survey. Without them, the survey would not be possible.

Chapter 2: Overview of the change in approach

This chapter provides a brief overview of the changes in approach to the design and execution of the survey.

Summary of change in survey approach

The design of the SHS has been broadly consistent since its inception in 1999. A number of amendments were made in 2012, when the SHS was combined with the Scottish House Condition Survey. However the core approach of a face-to-face, interviewer administered, in-home survey has remained unchanged since the beginning.

In March 2020, SHS fieldwork was suspended in response to the Covid-19 pandemic. Following the suspension of fieldwork, the SHS team at the Scottish Government, together with Ipsos MORI Scotland, assessed different options for restarting the fieldwork in a safe way. There were two key constraints that shaped considerations around the re-design of the fieldwork approach.

Firstly, the method could not involve any interviewer travel. This was to ensure that it complied with all public health guidance on social contact and appropriate working arrangements and avoided reputational and ethical risk. This precluded the use of a 'knock-to-nudge' approach, where interviewers would undertake the actual interviews remotely, but would still call in-person at sampled addresses to encourage people to take part.

Secondly, the method had to be designed to enable, as far as possible, data collected in interviews conducted before lockdown to be compared with data from interviews undertaken by the revised approach.

Approval was given in September 2020 to pilot an alternative approach. Following the pilot², this approach was extended to the remainder of the SHS 2020 sample with fieldwork resuming in early January 2021 and completed in March.

Table 2.1 summaries the key elements of the change of approach.

² <https://www.gov.scot/isbn/9781802019568>

Table 2.1 Summary of change in approach

	Pre-lockdown approach	Revised Push-to-Telephone/video approach
Survey overview	<p>Target of around 10,450 surveys a year³.</p> <p>The target population is the Scottish population living in private households⁴. All parts of Scotland are included including the small islands.</p> <p>A two-part 60-minute social interview, the first part with a householder, the second with a random adult in the household⁵.</p>	<p>The target for the revised approach was to achieve a large enough sample size from the unworked sample to allow for national level analysis.</p>
Sample design	<p>The Royal Mail's small user Postcode Address File (PAF) is used as the sample frame for the address selection⁶.</p> <p>The sample has been drawn as a completely un-clustered sample since 2012⁷. It is stratified by local authority with disproportionate sampling to meet minimum target numbers in each area.</p> <p>18,195 addresses were drawn for the 2020 wave of the SHS.</p> <p>Prior to the break in fieldwork necessitated by the COVID-19 pandemic, interviewing had been continuous, with fieldwork organised into annual waves.</p>	<p>The revised approach used the addresses that had not been worked when the face-to-face interviewing was suspended in March 2020.</p> <p>When fieldwork was suspended, 15,400 addresses in the 2020 SHS sample had not been started or fully worked and were worked using the revised approach.</p> <p>Telephone matching was undertaken to allow interviewers to try to get agreement to interview by telephone. Matching was successful for 23% of addresses.</p> <p>Details of the sub-samples profiles and the telephone matching are given in Chapter 4.</p>
Questionnaire	<p>The social survey covers a wide range of topics including the composition, characteristics, attitudes and behaviour of Scottish households and individuals.</p>	<p>The questionnaire was amended in places, partly because of concerns about length, and partly to adapt it for the different modes of interview. Amendments were kept to a minimum to facilitate comparability with data collected face-to-face.</p> <p>Further details are provided below this table.</p>
Mode of approach	<p>Householders were sent an advance letter and leaflet in advance of interviewers calling.</p>	<p>With no interviewer travel allowed, gaining consent for interview came either in response to respondents opting-in on receipt of the advance materials, or in response to an approach by telephone.</p>

³ Before 2012, the target was around 15,000. Between 2013 and 2017, the target was 10,678 interviews.

⁴ The target population of the SHCS is subtly different, excluding dwellings that do not have foundations – eg. static caravans, canal boats etc. – that are used as permanent homes. This has no effect on the SHS social survey.

⁵ Before 2012, the survey length was 45 minutes.

⁶ This excludes institutional locations such as prisons, hospitals, military bases, and student halls of residence.

⁷ Before 2012, a degree of clustering was used in the least densely populated Local Authorities.

	Pre-lockdown approach	Revised Push-to-Telephone/video approach
	Interviewers were required to make at least 6 attempts to secure an interview at a sampled address.	After the initial mail-out, addresses where a phone number had been obtained were followed up by telephone call . For those where we were unable to obtain a telephone number, two reminders were sent after the initial mail-out , a postcard reminder followed by a final letter reminder. Advance letters directed participants to a portal where they could log in using a unique reference and then submit their name and contact details. These were then passed to the interviewer team. Respondents were given a conditional incentive of £20 for completion, to encourage participation.
Fieldwork and mode of interview	Interviews were conducted in-home, face-to-face using Computer Assisted Personal Interviewing (CAPI). Pre-pandemic, interviewing would normally take around fourteen months per wave, starting in January and finishing in the February of the following year. Face-to-face interviewing on the 2020 wave was suspended on 17 March.	All interviews were undertaken remotely, either by telephone or video link . Video link interviews used one-way Microsoft Teams, where the respondent could see the interviewer. Fieldwork was undertaken by interviewers from the SHS face-to-face interviewer panel. All interviewers were briefed via video call on the revised approach, prior to the pilot starting. Fieldwork for the push-to-telephone pilot was undertaken in Oct 2020. The rest of the fieldwork was undertaken between January and April 2021. Appendix 3 provides some analysis of seasonal effects on the SHS data.
Physical survey	Since 2012, the survey has included a follow-up physical survey for a sub-sample of addresses, to incorporate the Scottish House Condition Survey (SHCS) elements.	As the SHCS physical survey requires an extensive inspection of both the inside and outside of dwellings, this element of the SHS remained suspended .
Data Processing	As well as data checks and editing involving range checks, simple logic checks and complex logic checks, the data undergoes three additional processes: calculation of derived variables such as age and gender of the Highest Income Householder; imputation of household income; and imputation of housing costs.	The data processing approach was unchanged.
Survey response	An overall response rate of around 63% - 65% was achieved between 1999 and 2019.	The response rate for the opt-in only sample was 14%. For the telephone number matched sample, it was 37%. Overall, the response rate achieved using the revised approach was 20%. This is detailed further in Chapter 4.

	Pre-lockdown approach	Revised Push-to-Telephone/video approach
	In total, 1,545 interviews from 2,796 addresses pre-lockdown were achieved.	3,031 interviews were achieved from the 15,399 addresses that used the revised approach.
Survey weighting	The SHS incorporates selection weighting to address the unequal selection probabilities and calibration weighting to correct for non-response bias. Calibration weighting derives weights such that the weighted survey totals match known population totals for sex and age band within Local Authorities.	<p>The calibration model chosen for 2020 (model 2 in Appendix 2) calibrates to NRS population and household estimates for 2020 for age band and sex within Local Authorities, but also to SIMD quintiles and Urban-Rural Classification. Age bands used in the calibration for 2020 are wider than in 2019, due to smaller respondent numbers.</p> <p>An additional alternative weighting model was chosen for housing related questions to take specific account of tenure bias in the achieved sample.</p>
Limitations of the data	Like all sample surveys, the SHS can only produce estimates and these estimates are limited by factors such as sample coverage, sampling variability, the number of cases that analysis is based on, and the bias in the achieved sample ⁸ .	<p>The smaller achieved sample size means that the confidence intervals around the estimates are wider.</p> <p>The change in approach means that the profile of bias in the achieved sample is different to before. This is discussed throughout the rest of the report.</p> <p>Chapter 3 summarises previous literature on Total Survey Error. Chapter 4 examines the profile of the achieved sample. Chapter 6 looks for evidence of changes to measurement error.</p>

Amending the questionnaire

At around an hour in length, and often involving relatively complex questions and showcards, the SHS questionnaire in its existing format has relied on interviewer facilitation to encourage full participant engagement and, in turn, the quality of the data captured. The design of the questionnaire was not optimal for interviewing by telephone or video. However, changes to the questionnaire had to be kept to a minimum to facilitate comparisons with the data collected face-to-face prior to lockdown.

⁸ Further discussion of the limitations of the data using the pre-lockdown approach can be found in [Scottish Household Survey 2019: methodology and fieldwork outcomes - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/scottish-household-survey-2019-methodology-and-fieldwork-outcomes/pages/100.aspx)

The full questionnaire was reviewed and revised prior to the pilot. The changes between the pre-lockdown questionnaire and the pilot questionnaire are fully detailed in the questionnaire documentation⁹.

The main consideration was how to adapt the questions that relied on showcards. A total of 119 showcards were used in the face-to-face SHS 2020 questionnaire. If interviewing using video, the interviewer could use showcards via screenshare, but an alternative strategy was needed for the telephone interviews. Two main approaches were devised. First, in instances where the question was factual (e.g. ethnicity), interviewers were instructed to read the question, wait for the respondent to answer and then select the corresponding code. Interviewers then confirmed the code they had selected with the respondent before continuing. Second, for questions where the range of response options are not obvious from the question, the interviewer was directed to read out all the response codes along with the question. The strategy for each showcard was added as an interviewer instruction below the question. Online showcards were developed for a small number of questions for the telephone interviews during the push-to-telephone main stage. However, these were not widely used.

The questions were reviewed with the impacts of COVID in mind, so that they still made sense to respondents. Where there might be ambiguity – particularly around whether the question related to the participants’ ‘usual’ pre-COVID circumstances, or their current circumstances – this was clarified in interviewer instructions and/or through tweaks to the question wording. An example of this is given in Figure 2.1, with changes detailed in orange.

Figure 2.1 Example amendment to the questionnaire

Ask if (ANY VOL1A2018, 1 TO 16) OR (ANY VOL1B2018, 1 TO 16)

SHOWCARD O2

THINKING ABOUT ALL THE UNPAID HELP YOU PROVIDE TO GROUPS, CLUBS OR ORGANISATIONS, HOW OFTEN DO YOU DO THIS NOWADAYS? ~~HAVE YOU DONE THIS OVER THE LAST 12 MONTHS?~~

(Ask without reading out codes. Code based on respondents’ answer(s), and confirm code(s) with respondent before continuing. IF ASKED – we want them to think about their CURRENT level of volunteering, which may be different to before/during lock down)

(1) Several times a week	[1]
(2) About once a week	[2]
(3) Less than once a week but at least once a month	[3]
(4) Less than once a month	[4]

There were some changes in relation to the streaming and the proportion of people who were asked particular sets of question. These changes were driven by considerations around interview length, which was expected to increase given the change in approach, and the suspension of the SHCS physical survey.

⁹ <https://www.gov.scot/isbn/9781802019568>

Two new questions were added to the questionnaire. The first relating to furlough and the second to changes in income that resulted from COVID.

There were also a limited number of questions that were temporarily paused from the survey because of their complexity and heavy reliance on detailed showcards, such as the section on repairs and maintenance undertaken in the last year.

Revisions to the questionnaire and the impact of the change in mode and are discussed in more detail in Chapter 6.

Chapter 3: Summary of previous literature on mode effects

This chapter gives a short summary of previous literature on mode effects and survey error by way of an introduction to how we explore the impact of the change of approach to the SHS on the quality of the survey estimates.

When we refer to mode it is important to note that there is a distinction between the mode that people are approached to take part in the survey and the mode of interview.

Table 3.1 Summary of mode difference by approach

	Traditional SHS approach	Revised Push-to-Telephone/video approach
Mode of approach	Face-to-face (repeated calls, preceded by an advance letter and leaflet)	Opt-in only: Postal invite (letter with leaflet plus two reminders) AND Telephone matched sample: Telephone recruitment (letter and leaflet followed by telephone recruitment where possible).
Mode of interview	Face-to-face (in-home, CAPI)	Telephone OR Video (Microsoft Teams).

The revised design for the SHS relied on approaching respondents in a different way from previously. Instead of interviewers visiting addresses face-to-face and persuading people to take part in conversation on the doorstep, either a) people opted-in via an online portal in response to advance letters or b) interviewers attempted to get agreement by telephone for the portion of the sample for which telephone numbers had been successfully matched to the sampled address.

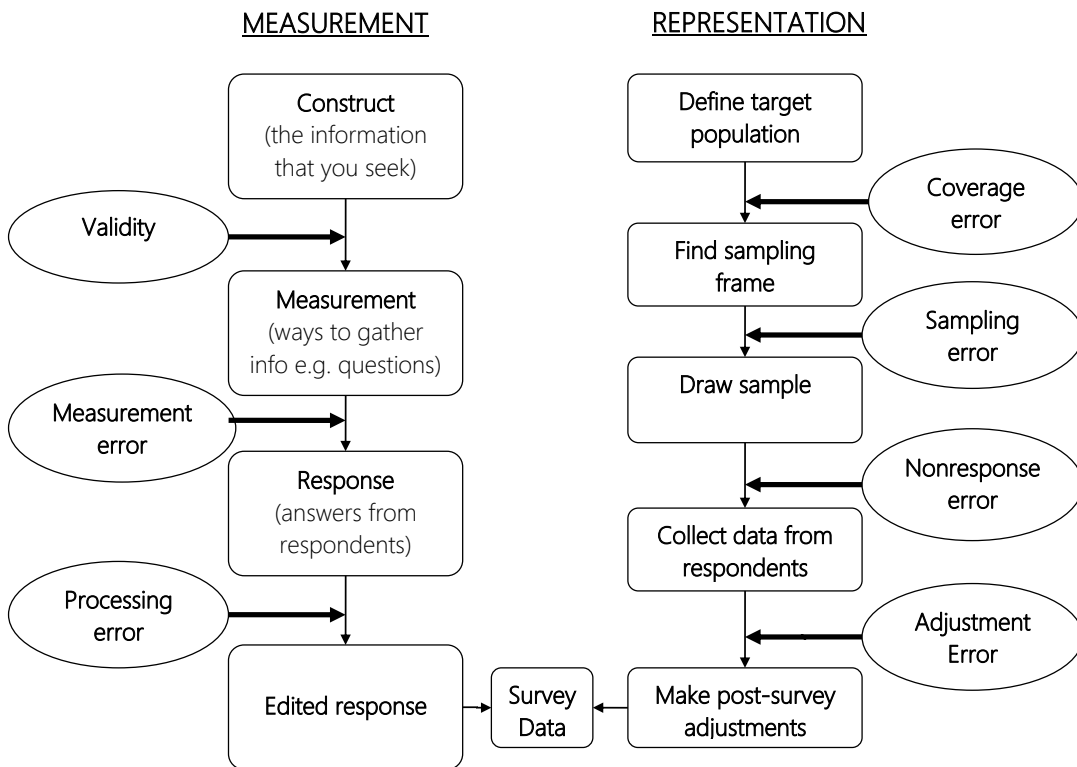
The mode by which interviews were undertaken also changed. All interviews pre-lockdown were conducted face-to-face in-home. With no interviewer travel allowed, interviews in the revised design were conducted either by telephone or by video (one-way Microsoft Teams - so that the respondent could see the interviewer, but the interviewer could not see the respondent). The change in mode of interview may have shaped how people responded to questions. This is likely to have had the greatest impact on questions that relied heavily on showcards.

Mode effect and the Total Survey Error Framework

Mode effects can impact the quality of survey estimates in a number of ways. In assessing this, it is useful to refer to the Total Survey Error (TSE) Framework, the

generally accepted approach for assessing survey quality. The TSE approach identifies all possible errors that can arise at each stage of the survey process and provides a systematic basis for structuring consideration of mode effects. The survey process is divided into two main strands: a representation strand and a measurement strand. The relationship between survey process and error type is shown in Figure 3.1.

Figure 3.1 Total Survey Error framework



Mode effects tend to impact survey estimates because of the difference they make to **who responds** and on **what they report**. That is, different modes of data collection often differ both in terms of coverage and nonresponse, on the one hand, and in terms of measurement error, on the other. We discuss each in turn.

Non-response error

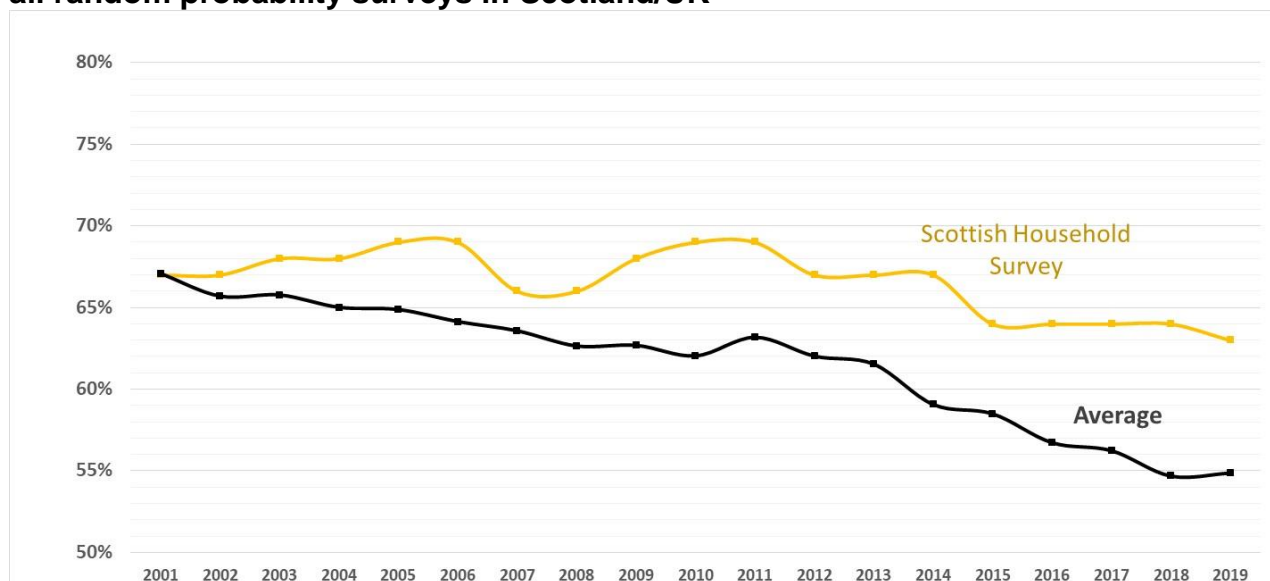
Social survey samples are normally designed so that if everyone responded, the sample would be an accurate representation of the whole population of interest. Non-response bias is where those who take part in a survey are different from those who do not. This can mean that the survey participants are not representative of the whole population of interest. An example of this would be if interviewers only approached households during working hours. In this case, the likelihood of obtaining interviews with retired people would be considerably higher than the likelihood of interviewing the employed population, leading to skewed data.

Research that is dependent upon voluntary participation is always vulnerable to this type of bias and surveys such as the Scottish Household Survey are designed to reduce the potential for non-response bias. This is done by maximizing the

response rate and trying to ensure that it is not more difficult for some groups than others to take part. The traditional face-to-face methodology required interviewers to make at least six visits to each address, on different days and at different times, to establish contact. Moreover, most cases that were unproductive at first issue were then reissued to a second and potentially a third interviewer to try to convert to a successful interview.

The SHS response rate has been consistently higher than the average achieved by other comparable surveys (See Figure 3.2) over the last decade.

Figure 3.2 Scottish Household Survey response rate over time compared to trend in all random probability surveys in Scotland/UK



The wider literature on non-response bias and mode effects has emphasised that a high response rate does not necessarily create a quality, unbiased survey sample. Instead, it depends on the patterns of who participates. For example, Groves and Peytcheva (2008) make the distinction between three types of missing data: ‘missing at completely random’, ‘missing at random’, or ‘non-ignorable’.

‘Missing at completely random’ means there is no consistent reason for nonresponse, and the reliability of the data is upheld, as the sample still maintains its random nature. An example would be if someone does not respond to a survey because it got lost in the mail. Provided every case had an equal chance of getting lost in the mail, then this is missing at completely random.

Data is ‘missing at random’ when there is a common cause for both nonresponse and key output variables. For example, being young may cause nonresponse, and it may also mean a person is likely to participate in sport. Therefore, if young people are less likely to respond, people who participate in sport will be under-represented.

‘Non-ignorable’ missing data happens when there is a consistent reason for non-response, and therefore a danger of excluding this subgroup from the sample,

creating non-response bias. For example, if the reason for non-response is because some of the respondents cannot read, then this is non-ignorable, as illiterate people are now excluded from the sample. Similarly, if people who participate in sport are less likely to be contacted by interviewers (because they are at home less often) then this would also be 'non-ignorable'.

Overall, research concerning non-response bias generally agrees on the demographics of those who respond less frequently to surveys. They tend to be young, single, and in employment (Luiten, 2013; Foster, 1998; Lynn and Clark, 2002; Hall et al, 2011). This is mainly because these types of people are harder to contact. Good weighting strategies help to correct for patterns of differential response. However, weighting can only correct data 'missing at random', not 'non-ignorable' missing data.

These different types of missing data exemplify why higher response rates do not necessarily mean there will be less bias. A survey can have a low response rate without impacting on the accuracy of its estimates, as long as the unit non-response is missing at completely random or missing at random (provided weighting strategies are used to correct for the latter).

However, the higher the response rate, the less potential there is for non-response bias. While the traditional SHS approach is subject to non-response bias, weighted has ensured that estimates appear to have been fairly robust. Moreover, because of the consistency of the SHS approach over time, and the relative consistency of the achieved response rate, the effect of non-response bias is likely to be reasonably consistent between waves. This means that changes in estimates are unlikely to be the result of changing non-response bias.

Face-to-face fieldwork almost always has a considerably higher response rate than other modes, such as telephone and postal. This is clearly seen in the SHS push-to-telephone-video approach. The overall response rate for the push-to-telephone/video approach was 20%.

The response rate for the opt-in only sample was 14.5%. The addresses without telephone numbers were entirely reliant on householders opting-in in response to the advance letters. With no possibility of interviewers visiting properties to persuade people to take part, it was inevitable that there would be a considerable drop in the response rate. The design of the advance materials, and the introduction of incentives, became more central to encouraging response.

Where a telephone number had been matched to an address, interviewers were required to make least six telephone calls to establish contact. While this is similar to the face-to-face approach, the response rate was considerably lower compared with face-to-face response rates for the SHS, at 37%.

Previous research on both the Scottish Household Survey and the Scottish Crime and Justice Survey emphasises these points. Two recent methodological papers have examined the impact that lower response rates would have on SHS and SCJS estimates (Hutcheson, Martin and Millar (2020) & Martin (2020)). Both

papers found that a response rate change of 5-10 percentage points would have made very little impact on the estimates themselves – both in terms of the absolute level and also as a share of normal survey error¹⁰. These findings echo previous findings¹¹, that the link between response rate and non-response bias is weak.

However, these papers explored the impact of varying only the response rate by a relatively small amount and keeping all other aspects the same¹². Contrasting findings emerge from an earlier study on the Scottish Crime Survey. In 2003, following a “Fundamental Review” of the survey, McCaig and Leven (2003) suggested “that the revised SCS should contain a significant telephone survey element if the necessary scale of survey is to be acquired in a practicable way at an acceptable cost”. The survey moved from face-to-face to a telephone approach, and this model was tested by running parallel face-to-face and telephone fieldwork. The calibration exercise found considerable evidence of substantial differences between the approaches that could not be accounted for, and concluded that “we have not found sufficient evidence to conclude that the telephone survey is likely to be accurately measuring victimisation. We have been unable to devise a weighting approach that satisfactorily corrects the many demographic biases that are observable in the data” (Hope 2005). The telephone element of the Scottish Crime Survey was subsequently dropped, and it returned to a traditional face-to-face approach.

The potential impact of non-response and other sources of error on SHS results has been examined in two other ways in the past. Firstly, by linking the census directly to the survey. The SHS was included in the Census-linked study of survey non-response carried out by ONS following the 2001 Census. This compared the census characteristics of different categories of responding and non-responding households to identify variables that are independently associated with non-response (Freeth and Sparks, 2004). It found that non-response overall was associated with particular local authorities, living in a flat, not containing a married or cohabiting couple, and having no educational qualifications and suggested that the weighting approach was updated to adjust for these effects. Since refusals accounted for a major part of non-response, the characteristics associated with total non-response were more similar to those associated with refusal than those associated with non-contact. For example, tenure was a significant predictor of non-contact but was not a significant predictor of non-response overall.

Secondly, by comparing estimates from the survey to estimates from other robust sources. Alternative high-quality sources are scarce, and the Census has been the main source used. The 2012 SHS Methodology and Fieldwork Outcomes report (Scottish Government, 2014) compared SHS estimates for tenure and property characteristics with the 2011 Census. It concluded that “the sample appears to be

¹⁰ The impact was less than half of the standard error for the majority of estimates included in the analysis

¹¹ Such as analysis undertaken by ONS in 2015 on the impact of a lower response rate on the Crime Survey of England and Wales. (Williams & Holcekova, 2015).

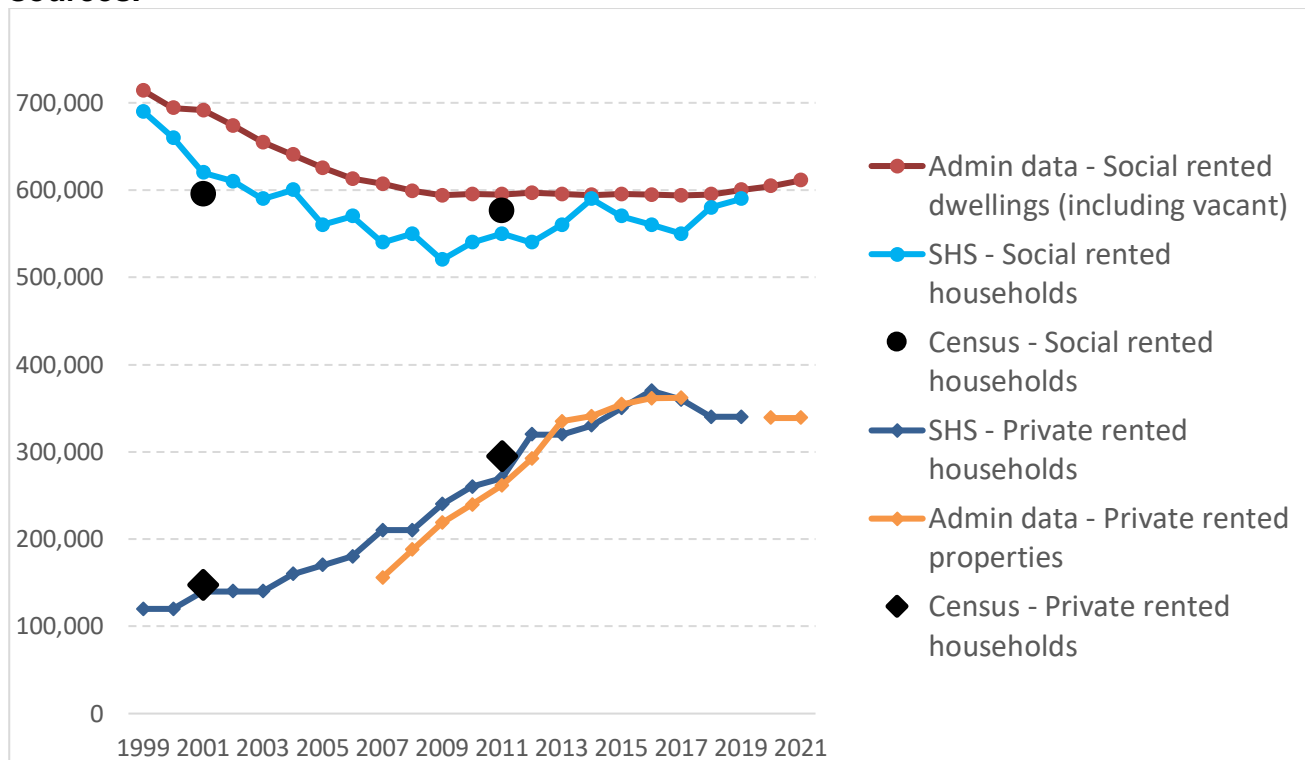
¹² It did this by re-weighting the results of the sample achieved at first issue and ignored data collected at reissue.

fairly robust in terms of variables associated with accommodation/property characteristics”.

Figure 3.3 below shows the housing tenure trend in the SHS against census estimates and two administrative sources¹³. Note that the estimates for social rented data are based on dwellings rather than households and will include vacant stock. Additionally, some of the households who respond to the SHS or Census as “living rent-free” may be actually in social housing dwellings but may have interpreted having their housing costs fully covered by housing benefit as being “rent free” as opposed to renting from a social landlord. Overall, the gradual decrease of the size of the social rented sector and the growth of the private rented sector is seen in both the SHS estimates and the administrative data.

¹³ The administrative source on the number of social rented households comes from information held by each social landlord on their housing stock. This data is collected from social landlords in Scotland by the Scottish Housing Regulator as part of annual Charter Data and Stock returns, with information published at www.housingregulator.gov.scot/landlord-performance/statistical-information. The Scottish Government also collects aggregate annual statistics from local authorities on levels of council housing stock, which is reported on in annual housing statistics releases at www.gov.scot/collections/housing-statistics, with further information on the data quality, sources and suitability of these statistics available at www.gov.scot/publications/housing-statistics-data-quality-sources-and-suitability. The administrative source on the number of private rented households comes from the Scottish Landlord Register. The Scottish landlord registration scheme provides a register of all private landlords, in which private landlords must register with their local authority and ensure they meet the legal requirements for letting houses. Local authorities are responsible for the administration and enforcement of landlord registration. The figures are not subject to any formal statistical quality assurance checks, and may depend on the quality of the underlying data being recorded and maintained by each local authority. In addition there are risks of duplicated data due to errors in the imported data from a previous IT system, and some double counting of rental properties in certain instances for joint owners. The administrative figures presented may therefore not be as robust as if they were produced as part of a set of official statistics.

Figure 3.3 Comparison of tenure trends since 1999 from various different data sources.



Overall, while response rate should not be taken as a simple proxy for survey quality, the estimates from the standard face-to-face approach are likely to be more robust and less affected by non-response bias than estimates from the push-to-telephone approach.

Coverage error

Coverage error, like non-response error, has the potential to affect the representativeness of the survey data. It is bias that occurs when the sampling frame does not coincide with the target population.

For the normal face-to-face approach, the likelihood that bias is introduced from this type of error is very low. The target population of the SHS is all adults living in private households in Scotland. The survey uses the small user Postcode Address File (PAF) as the sampling frame. Overall, the PAF is a good record of all private households in Scotland. It has previously been estimated that the number of addresses that should be on the PAF but are missing is small. In 1991, this was estimated at 2.2% in Scotland, and there is evidence that its coverage has improved over time (Loud, 2014)¹⁴.

For the revised push-to-telephone/video approach, no new sample was drawn. The sample used consisted of addresses that had been drawn for the 2020 wave but

¹⁴ Note that this is different from deadwood - addresses that are on the PAF but are ineligible because they are vacant, demolished, used as second homes, or ineligible for some other reason. While the deadwood rate has typically been 8-9% in the major Scottish surveys, this has not impacted the representativeness of survey estimates.

had not been fully worked face-to-face before lockdown. In most local authorities, the sample was randomly assigned to months. As such the face-to-face sample and the sample used for the revised approach should both have been broadly representative and the change in approach should not have had an impact on the coverage error of the push-to-telephone/video approach. However, in a small number of the local authorities, the allocation of batches to months was undertaken with some manual intervention to aid fieldwork practicalities. This was to help ensure that the more remote addresses were allocated to Quarter 2 and 3. This means that the sample worked prior to lockdown under-represented remote rural areas. This is discussed further in Chapter 4.

However, the revised approach involves two linked samples – the opt-in only sample and the telephone matched sample – depending on whether a telephone number could be linked to an address. Given that it was possible to find telephone numbers for only 23% of addresses, and that some types of areas had considerably higher matching rates than others (as detailed in the next chapter), there is considerable potential for coverage error among the telephone-matched sub-sample. In other words, there is considerable likelihood that the telephone-matched sample does not accurately coincide with the population the SHS aims to sample (all private households in Scotland). Additionally, as the opt-in only sample is composed of only the addresses where we did not get a matching telephone number, it is also likely to be subject to coverage error, with bias in the exact reverse direction to that in the telephone matched sample.

There is not an extensive literature on the interplay between mode and coverage error. Telephone surveys tend to be more prone to coverage error than face-to-face surveys because they tend to rely on Random Digit Dialing. This was highlighted in the Scottish Crime Survey experiment with telephone surveying¹⁵ (Hope 2003). Indeed, one of the barriers to the greater use of telephone as the mode of approach for random pre-selected surveys is the lack of a sampling frame that has similar coverage to the PAF.

Measurement error

Measurement error is the difference between a respondent's answer and a true value. In survey research, responses are shaped by a number of factors: the skills of interviewers, the profile of respondents, the wording of survey questions, and the mode of data collection (Biemer and others, 1991). In the context of the change in approach to data collection on the SHS, the question of interest is whether the change in mode led to any changes in the way that respondents answered the interview questions.

Prior to lockdown, all interviews were conducted face-to-face in-home. Interviews in the revised design were conducted either by telephone or by one-way video

¹⁵ In this study, the telephone survey element used Random Digit Dialing while the face-to-face approach drew a sample from the PAF.

interviewing, where the respondent could see the interviewer, but the interviewer could not see the respondent.

A number of potential mode effects are detailed in the literature. First, there is a social-desirability effect, where answers are adjusted to what respondents expect the interviewer wants to hear. These are strongest in face-to-face interviews, and weaker in online interviews. They also differ by type of question, and are stronger where a question covers topics perceived to be sensitive (Kreuter, Presser, & Tourangeau 2008).

Second, another difference is between interviewer-administered and self-completion surveys in relation to “don’t know” response categories. These tend not to be read out to respondents or included on showcards in face-to-face or telephone surveys, but have to be either explicitly included or excluded in self-completion questionnaires (Dillman & Christian 2005). Given that both approaches were interviewer-administered, this is of less relevance to the SHS’s change of approach.

Thirdly, and perhaps most importantly, are differences relating to whether information is transmitted visually or not. For example, interviewing by telephone normally involves the question and all possible answer categories being read out before respondents give their answer. This means that later answer categories are more likely to be remembered and chosen. This is known as a recency effect. In internet surveys and pen and paper self-completion, the opposite is the case, where respondents are more likely to choose the first answer category that appears on screen (Dillman & Christian 2005). This is known as a primacy effect. The SHS has traditionally used a sizeable number of showcards, which help mitigate recency effects. Questions that previously used showcards are potentially liable to be affected by the change in approach, particularly when interviews were undertaken by telephone and no visual cues were available.

As well as primacy and recency effects, other factors related to the interviewer-respondent interaction could shape responses. Although both the traditional SHS approach and the revised approach were interviewer-administered, the interaction between interviewer and respondent will have been quite different – for example, in relation to: the level of trust built; how much respondents retain full attention throughout the hour-long interview; how easy it is for interviewers to pick up visual cues that questions have been misinterpreted or have not been fully understood; and whether other people in the household are influencing what answers are given.

A common concept used to understand survey response effects is ‘satisficing’ (Kronick 1991). This is based on the idea that answering survey questions requires a significant amount of cognitive work. Depending on the respondent’s ability, their motivation and the complexity of the question, respondents may take shortcuts in responding (de Leeuw, 2005).

Separating the impact of measurement error from differences in sample composition is not straightforward. This has been done in a variety of ways in the past, all of which have advantages and disadvantages:

- Using an experimental design, where some respondents change mode during an interview (Heerwegh 2009). This approach is not suitable for studies of the general population like the SHS.
- Comparison of estimates with external 'gold-standard' estimates (de Leeuw 2005; Kreuter, Presser & Tourangeau 2008). This approach relies on the availability of such estimates, from sources such as the census or unbiased administration records.
- Statistical modelling, with the aim of taking out any differences in sample composition and then comparing the results. This can be done by using regression modelling (Dillman et al 2009) or Propensity Score Matching (Lugtig et al, 2011).

In Chapter 6, we explore the impact of the change from face-to-face interviewing to using telephone and video on a range of different estimates in the SHS.

Summary

Mode of approach shapes patterns of response, which in turn influences the representativeness of the achieved sample. Lower response rates mean there is more potential for bias. However, the literature emphasises that this is not a given or a linear/straight forward relationship, that this differs between different types of survey, and that non-response bias can differ considerably between different types of estimate within the same survey.

The mode of interview, on the other hand, will shape how people respond to survey questions and how accurate their answers are. It is hard to quantify measurement error without using an experimental design. In the previous literature, no mode is favoured as a low measurement error mode, and different modes are better suited for some types of question than others.

Chapter 4: Sample coverage, telephone matching rates, and response rates

This chapter provides details on the coverage of the push-to-telephone/video sample, the telephone matching and where it was most successful, and patterns of response rates by approach.

Sample coverage

The annual SHS sample is drawn using a single-stage unclustered sample design using the small user Postcode Address File as the sampling frame. The sample is disproportionately stratified by local authority with smaller local authorities having a higher sample proportion relative to their populations than the larger local authorities. Overall, the likelihood of any bias from the sampling is low.

The sample is then batched up into workable allocations for interviewers. Batches are spread across fieldwork months to ensure a broad geographic spread of interviews each month with all quarters having, as far as possible, the same number of batches in each local authority. Batches that include addresses that are more remote, such as those requiring ferry trips, tend to be allocated outwith the winter months to help facilitate the fieldwork. Additionally, a sizeable proportion of interviews are achieved from addresses that are reissued to a second or third interviewer and will therefore not be completed in the month that they were first worked.

This means that while the overall sample for 2020 should be representative of the target population, the split between the sample worked pre-lockdown face-to-face and the post-lockdown push to telephone/video sample may be less representative overall.

Table 4.1 shows the urban/rural distribution of addresses in the two samples. Compared to the 2020 sample overall, the face-to-face sub-sample included more other urban addresses (39.4% compared to 32.2% overall) and more Remote Small Towns (12.5% compared to 5.2% overall). In contrast, accessible rural (4.9% compared to 11.4%) and remote rural addresses were underrepresented in the sample worked face-to-face.

Table 4.1 Urban/rural distribution across all sampled addresses by how the sample was worked

	Face-to-face sample	Push to telephone/video sample	All 2020 Addresses
Large Urban	32.0%	32.8%	32.6%
Other Urban	39.4%	30.9%	32.2%
Accessible Small Towns	8.8%	9.2%	9.2%
Remote Small Towns	12.5%	3.9%	5.2%
Accessible Rural	4.9%	12.6%	11.4%
Remote Rural	2.3%	10.7%	9.4%
Total	100%	100%	100%
N	2,795	15,400	18,195

The addresses worked as part of the push-to-telephone/video show the reverse pattern. However, because most of the 2020 sample was worked this way, the differences are smaller. Compared with all 2020 addresses, the push-to-telephone/video sample has more accessible rural addresses (12.6% compared to 11.4%) and remote rural addresses (10.7% compared to 9.4%), and fewer other urban (30.9% compared to 32.2%) and remote small town addresses (3.9% compared to 5.2%).

Both sub-samples are closer to the overall 2020 sample in relation to deprivation (Table 4.2). The face-to-face sample has slightly more addresses in the 2nd most deprived quintile (23.4% compared to 20.2%), and slightly fewer addresses in the 4th quintile (18.1% compared to 20.6%) and the least deprived quintile (16.9% compared to 17.6%).

Table 4.2 SIMD distribution across all sampled addresses in 2020 by how the sample was worked

	Face-to-face sample	Push to telephone/video sample	All 2020 Addresses
Most deprived	21.1%	20.0%	20.2%
2nd	23.4%	19.6%	20.2%
Middle quintile	20.5%	21.5%	21.4%
4th	18.1%	21.1%	20.6%
Least deprived	16.9%	17.8%	17.6%
Total	100%	100%	100%
N	2,795	15,400	18,195

Table 4.3 shows the distribution of addresses the two sub-samples by local authority area. Overall, the distributions are broadly representative, especially for the larger push-to-telephone/video sample. For the face-to-face sample, Orkney (3.3% compared to 2.0%), Shetland islands (3.4% compared to 2.1%) West Dunbartonshire (3.8% compared to 2.3%) and East Ayrshire (3.7% compared to 2.7%) were over-represented, while Dumfries and Galloway (0.9% compared to 2.4%) Dundee City (1.1% compared to 2.2%) and Stirling (1.1% compared to 2.1%) were under-represented.

Table 4.3 LA distribution across all sampled addresses in 2020 by how the sample was worked

	Face-to-face sample	Push to telephone/video sample	All 2020 Addresses
Aberdeen City	1.7%	4.0%	3.7%
Aberdeenshire	3.7%	3.3%	3.4%
Angus	2.4%	2.3%	2.3%
Argyll and Bute	1.9%	2.6%	2.5%
Clackmannanshire	1.5%	2.2%	2.1%
Dumfries and Galloway	0.9%	2.6%	2.4%
Dundee City	1.1%	2.4%	2.2%
East Ayrshire	3.7%	2.5%	2.7%
East Dunbartonshire	3.1%	2.1%	2.2%

	Face-to-face sample	Push to telephone/video sample	All 2020 Addresses
East Lothian	2.4%	2.3%	2.3%
East Renfrewshire	1.8%	2.7%	2.6%
Edinburgh, City of	8.1%	8.0%	8.0%
Eilean Siar	3.2%	1.8%	2.0%
Falkirk	2.0%	1.9%	1.9%
Fife	3.5%	5.2%	5.0%
Glasgow City	11.4%	10.9%	10.9%
Highland	4.2%	3.5%	3.6%
Inverclyde	2.0%	2.5%	2.5%
Midlothian	2.4%	2.4%	2.4%
Moray	2.5%	2.5%	2.5%
North Ayrshire	2.0%	2.6%	2.5%
North Lanarkshire	4.9%	4.8%	4.8%
Orkney Islands	3.3%	1.8%	2.0%
Perth and Kinross	1.9%	2.5%	2.4%
Renfrewshire	3.3%	2.7%	2.8%
Scottish Borders	2.2%	2.4%	2.3%
Shetland Islands	3.4%	1.8%	2.1%
South Ayrshire	3.4%	2.4%	2.5%
South Lanarkshire	5.4%	4.7%	4.8%
Stirling	1.1%	2.2%	2.1%
West Dunbartonshire	3.8%	2.1%	2.3%
West Lothian	1.8%	2.2%	2.1%
Total	100%	100%	100%
N	2,795	15,400	18,195

Overall, these differences are smaller, especially between the push-to-telephone/video sample and the overall 2020 sample and unlikely to have a sizable effect on the point estimates after weighting.

Telephone matching rates

The telephone matching exercise was undertaken to help increase the number of completed surveys. This involved matching names and telephone numbers to addresses using publicly available sources, such as the electoral register and the telephone directory. Telephone matching was undertaken for the entire 15,400 addresses remaining in the 2020 sample when face-to-face fieldwork was stopped.

Two different suppliers were engaged to undertake the telephone matching. The process involved linking the addresses, sampled from the PAF, with databases they held to attempt to match in a name of someone within the household and then, if possible, a telephone number.

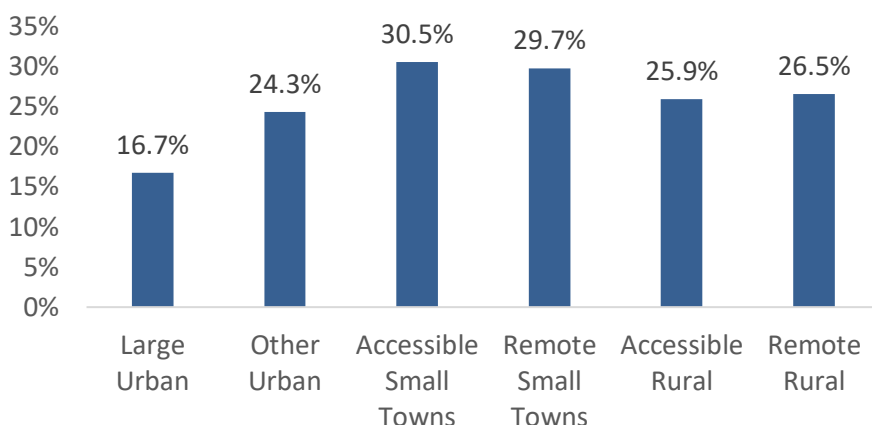
Table 4.4 Telephone matching rates

	N	%
No match	11,857	77.0%
Match	3,543	23.0%
<i>Supplier 1 only</i>	419	2.7%
<i>Supplier 2 only</i>	2,263	14.7%
<i>Both¹⁶</i>	861	5.6%
Total	15,400	100.0%

The matching rate was 8.3% from one supplier and 20.3% from the other supplier, giving an overall match rate of 23.0% (Table 4.4).

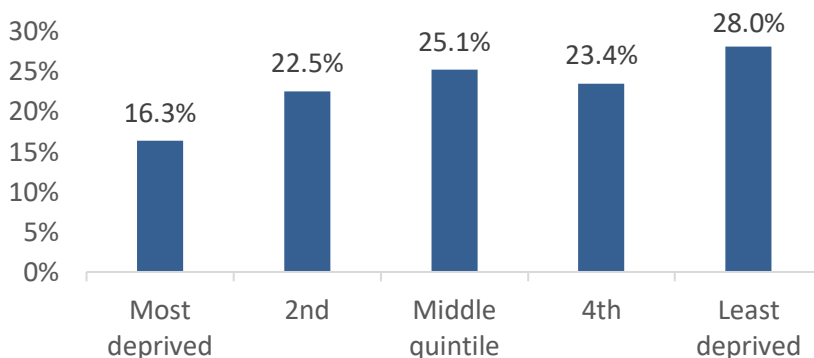
Telephone number matching rates (i.e. the proportion of addresses successfully matched with a telephone number) differed considerably across Scotland. As shown in Figure 4.1, they were lowest in urban areas (17% in large urban areas, and 24% in other urban areas) and highest in small towns (30% in accessible and remote small towns).

Figure 4.1 Telephone matching rates by urban/rural indicator



As shown in Figure 4.2, telephone matching was lowest in the most deprived SIMD quintile (16%) and highest in the least deprived quintile (28%).

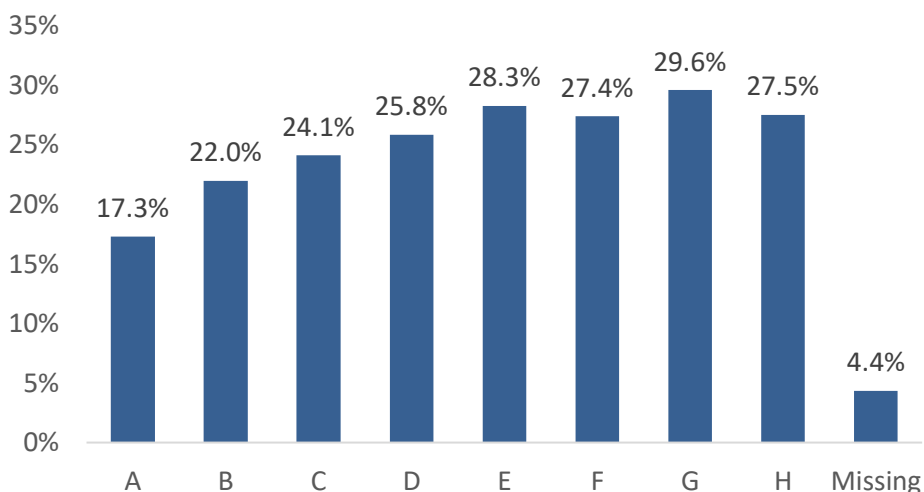
Figure 4.2 Telephone matching rates by SIMD quintile



¹⁶ For almost all addresses where both suppliers managed to link in a telephone number, the number was identical.

Analysis by Council Tax Band shows a similar pattern (Figure 4.3) with the lowest matching rates in Band A and B (17% and 22%). The bands at the upper end of the scale, E, F, G and H all had higher matching rates, though it is noticeable that there is less variation among these bands, all within the range of 27%-30%.

Figure 4.3 Telephone matching rates by Council Tax band



Overall, the matching rate varied considerably by local authority (Table 4.5). It was lowest in Glasgow (12%), Edinburgh (15%), Renfrewshire (16%) and Dundee City (17%) and highest in West Lothian (33%), Aberdeenshire, Orkney Islands, Moray, and East Lothian (all 31%).

Table 4.5 Telephone matching rates by Local Authority

Local Authority	Match rate	Matched addresses
West Lothian	32.7%	339
Aberdeenshire	31.1%	511
Orkney Islands	30.9%	275
Moray	30.7%	378
East Lothian	30.7%	352
Clackmannanshire 7	28.7%	342
Argyll and Bute	28.3%	403
Scottish Borders	28.0%	364
Fife	27.9%	806
Midlothian	27.4%	372
Dumfries and Galloway	27.4%	405
Angus	27.1%	358
Highland	26.9%	539
North Ayrshire	26.4%	401
East Ayrshire	26.2%	385
South Ayrshire	26.1%	368
Eilean Siar	25.9%	282
Shetland Islands	24.7%	284
South Lanarkshire	23.3%	725
Stirling	23.1%	346

Local Authority	Match rate	Matched addresses
Aberdeen City	23.1%	620
East Renfrewshire	22.2%	414
North Lanarkshire	22.2%	740
Perth and Kinross	21.7%	387
Falkirk	21.6%	296
Inverclyde	21.5%	390
East Dunbartonshire	21.5%	321
West Dunbartonshire	18.4%	316
Dundee City	16.9%	368
Renfrewshire	15.8%	412
Edinburgh, City of	15.1%	1,229
Glasgow City	12.2%	1,671
Total	23.0%	2,309

Details of the precise telephone matching process are guarded as they are commercially sensitive. However, success in matching a telephone number is likely to be highest among those who use landlines. Landline usage has declined over the last couple of decades, and around a quarter of households in Scotland do not have a working landline¹⁷. Matching success is likely to be shaped by such things as whether the telephone number is publicly available, and whether they have opted out of the open register¹⁸. The longer that householders have lived at their current addresses, the more likely they are to have a landline with a publicly available number.

There are a limited number of characteristics with which to examine differences in matching rates - all, except for Council Tax band, relate to area characteristics rather than to individual addresses. However, the analysis above does suggest that addresses where we were able to obtain a matched telephone number are not likely to be representative of all addresses. This should be borne in mind when looking at the composition of both the telephone-matched data and the opt-in data, as any bias in the types of household where a matched telephone number was obtained affects both sub-samples.

Fieldwork outcomes and response rates

Table 4.6 provides details of the number of addresses worked and number of interviews achieved at each stage. When the survey was suspended in March 2020, 2,796 addresses had been fully worked at first issue, 15.4% of all addresses sampled for the 2020 wave.

Table 4.6 SHS 2020: Number of addresses worked at each stage

	Unproductive address	Interview	All addresses
Face-to-face pre-lockdown	1,251	1,545	2,796

¹⁷ Ofcom technology tracker

¹⁸ <https://www.gov.uk/electoral-register/opt-out-of-the-open-register>

Push to telephone/video pilot	789	211	1,000
<i>Pilot - Opt-in only</i>	605	95	700
<i>Pilot - Telephone matched</i>	184	116	300
Push to telephone/video mainstage	11,579	2,820	14,399
<i>Mainstage - opt-in only</i>	9,533	1,623	11,156
<i>Mainstage - telephone matched</i>	2,046	1,197	3,243
Total	13,619	4,576	18,195

The pilot was undertaken on 1,000 addresses. Addresses with a matched telephone number were over-sampled, to give more robust information on likely response rates among this group. The pilot therefore included 300 addresses where a telephone number had been successfully found (increased from the 230 that would have been selected if they had been included proportionately), and 700 opt-in only addresses. The remaining 14,399 address (79% of the 2020 sample overall) were worked in the push to telephone/video main stage.

Overall, 4,576 interviews were achieved, with around a third (33.8%) undertaken face-to face pre-lockdown, and the remainder undertaken using the revised push-to-telephone/video approach. For most of the analysis in the rest of this report, no distinction is made between the pilot and the main stage of the push-to-telephone/video sample.

Response rates

Normally response rates are reported as total interviews over eligible addresses. However, it is not possible to get accurate estimates of deadwood (ineligible addresses) from the alternative SHS approaches (since without face-to-face visits, we cannot identify what proportion of addresses were vacant or derelict or otherwise ineligible). The best comparison between the different approaches is to use total interviews achieved divided by all addresses. This is sometimes referred to as the “unadjusted response rate”.

Table 4.7 shows response rates by SHS wave. As detailed in the previous section, the SHS has enjoyed a consistently high response rate from 1999 to 2019. The unadjusted response rate for the 2020 wave prior to lockdown was 55.3%, similar to the two previous waves¹⁹.

Table 4.7 Unadjusted response rates by wave

	Unadjusted response rate (interviews/all addresses)	Households responding
2018 Face-to-face	56.3%	10,532
2019 Face-to-face	57.2%	10,577

¹⁹ The main reason why it was lower than 2018 and 2019 was that the lockdown meant that no reissuing of unproductive addresses was carried out.

2020 Face-to-face (pre-lockdown)	55.3%	1,545
2020 Push to telephone/video	19.7%	3,031
2020 Push to telephone/video - Opt-in only	14.5%	1,718
2020 Push to telephone/video - Telephone matched sample	37.1%	1,313

In contrast, the unadjusted response rate for the telephone matched sample was 37.1%, a drop of 18 percentage points from the 2020 face-to-face response. For the opt-in only sample, the unadjusted response rate was 14.5%. While this is relatively high compared to other surveys that use a similar approach, it is more than 40 percentage points lower than the pre-lockdown face-to-face response rate.

In addition to the overall response rate, another indicator of the potential for non-response bias is the amount of variation in the response rate between different types of area.

Table 4.8 shows the unadjusted response rate²⁰ by SIMD quintile for the different SHS waves. Across all waves, the response rate is lowest in the most deprived areas of Scotland. In the 2018 wave, the unadjusted response rate in the lowest SIMD quintile was 53.8% compared to 56.3% overall. A similar difference was seen in the 2019 wave (53.1% compared to 57.2%) and in the 2020 fieldwork conducted face-to-face prior to lockdown (51.8% compared to 55.3%).

Table 4.8 Unadjusted response rates by SIMD quintile by wave

	2018	2019	2020 f2f	2020 Push to telephone/video		
				Opt-in	Telephone matched	All
Most deprived	53.8%	53.1%	51.8%	9.1%	23.5%	11.4%
2nd	53.3%	57.2%	54.0%	11.3%	33.4%	16.3%
Middle quintile	57.5%	57.6%	57.1%	15.7%	39.2%	21.6%
4th	58.8%	58.9%	58.6%	17.9%	44.6%	24.2%
Least deprived	58.4%	59.4%	55.5%	19.5%	39.4%	25.1%
Total	56.3%	57.2%	55.3%	14.5%	37.1%	19.7%

The difference between quintiles was considerably more marked in the push-to-telephone/video fieldwork. Among the opt-in only sample, the unadjusted response rate in the most deprived quintile was 9.1%, compared to an average response of 14.5%. Among the telephone-matched sample, the difference was also considerable (23.5% compared to 37.1%). This means that there is considerably more variation in participation by SIMD quintile with the push-to-telephone/video approach compared with the face-to-face approach.

It is also noteworthy that, among the face-to-face waves, the least deprived SIMD quintiles are relatively equal with regard to the response rate. In comparison,

²⁰ Total interviews achieved divided by all addresses. No adjustment for deadwood is made. Therefore, the overall figure for response is lower than the published headline figures.

among the push-to-telephone approach, there are still differences between the middle quintile, the fourth quintile and the least deprived quintile. This is especially pronounced among the opt-in sample, where the relationship between response rate and SIMD appears linear throughout.

A similar pattern is seen in unadjusted response rates by council tax band across the different waves (Table 4.9). There is more variation in the unadjusted response rate by Council Tax band among the push-to-telephone/video approach than the face-to-face waves. Again, this is more pronounced among the opt-in only sample than among the telephone number matched sample.

Table 4.9 Unadjusted response rates by council tax band by wave

	2018	2019	2020 f2f	2020 Push to telephone/video		
				Opt-in	Telephone matched	All
A	54.1%	55.6%	55.6%	8.8%	30.2%	12.5%
B	55.7%	56.7%	54.1%	12.2%	34.4%	17.0%
C	56.0%	56.4%	54.5%	12.5%	34.3%	17.7%
D	55.8%	58.2%	58.0%	17.1%	41.0%	23.3%
E	59.9%	60.9%	56.9%	21.0%	39.2%	26.1%
F	65.0%	63.2%	66.7%	22.0%	49.2%	29.5%
G	63.5%	65.4%	60.6%	25.9%	38.3%	29.6%
H	48.9%	56.4%	66.7%	19.0%	27.3%	21.3%
Total	56.3%	57.2%	55.3%	14.5%	37.1%	19.7%

Table 4.10 shows the unadjusted response rates by the six-fold urban/rural indicator. Across previous face-to-face waves, response rates have been highest in rural areas and lowest in urban areas. However, the differences have been relatively modest. For example, in 2019, compared to the overall unadjusted response rate of 57.2%, the rate was 53.2% in large urban areas and 62.3% in remote rural areas.

For the push-to-telephone/video approach, the pattern of differential response by rurality is more marked. For the opt-in only sample, the response rate ranged from 12.4% in other urban areas to 18.5% in accessible rural areas. Among the telephone matched sample, the absolute difference is much more pronounced, ranging from 31.2% in large urban areas to 47.1% in remote rural areas. However, while the absolute difference is greater among the telephone number matched sample, the relative difference in likelihood to take part was similar²¹.

²¹ Unadjusted response rates by LA by wave are provided in Table A4.1 in Appendix 4.

Table 4.10 Unadjusted response rates by urban/rural indicator by wave

	2018	2019	2020 f2f	2020 Push to telephone/video		
				Opt-in	Telephone matched	All
Large Urban	54.0%	53.2%	51.5%	13.8%	31.2%	16.7%
Other Urban	54.5%	56.4%	55.0%	12.4%	33.1%	17.4%
Accessible Small Towns	58.8%	61.3%	55.9%	15.0%	40.0%	22.6%
Remote Small Towns	58.9%	60.9%	62.2%	14.5%	41.2%	22.5%
Accessible Rural	60.9%	61.8%	57.3%	18.5%	43.2%	24.9%
Remote Rural	61.8%	62.3%	67.7%	18.0%	47.1%	25.7%
Total	56.3%	57.2%	55.3%	14.5%	37.1%	19.7%

Summary

Telephone matching was successful for 23% of addresses. However, these addresses were not representative of all addresses and were more likely to be in less deprived areas and small towns.

Previous SHS waves, using the traditional face-to-face approach, have achieved relatively high response rates. The sample design has used historic response rate information to help set the number of addresses required to avoid under-representation. These waves have seen some differences in response rates by SIMD and rurality, but these differences have been relatively modest and consistent across waves.

In contrast, the push-to-telephone/video approach has resulted in a much lower response rate overall. In addition, there is considerably more variation in response rates across different types of area. Overall, where response rates are lower, there is greater potential for non-response bias. This is explored further in the next chapter.

Chapter 5: Impact of the change of mode of approach on respondent profile

The analysis in this chapter looks at the composition of the achieved SHS sample. It compares estimates from the 2019 waves of the SHS to those from 1) the interviews carried out face-to-face in 2020 prior to lockdown 2) the push-to-telephone/video opt-in only sample 3) the push-to-telephone/video telephone number matched sample and 4) the combined push-to-telephone/video sample.

All the analysis is based on weighted data. For the 2020 data, the weights were constructed separately for the three different sample types, independent of each other, as if each were the final achieved sample.

Prior to 2020, calibration weighting was used to derive weights that matched NRS population totals for age bands and sex within each Local Authority. For household weights, this involved all population in responding households and for random adult weights, just those over interviewed. The 2020 weights have attempted to adopt a similar approach, but due to the smaller sample sizes, age groups have been expanded for within local authority calibration targets. The proportion of the population living in each SIMD quintile and 6-fold rural-urban classification were also added as calibration targets in an attempt to address the response rate differences discussed in the last chapter.

The weights for the combined push-to-telephone/video sample were constructed by combining the unweighted opt-in only and telephone number matched samples and then calibrating. They were not constructed by combining the weighted opt-in only and telephone number matched samples. Therefore, it is possible that for some measures the weighted estimate for the combined sample will be higher or lower than the weighted estimates for the opt-in only and telephone number matched samples (e.g. see the estimates of households where the highest income householder is male in Table 5.3)²².

It is worth emphasising that all surveys are only estimates of what they seek to measure, and the 2018 and 2019 waves will be subject to error and bias. Even so, they are useful as benchmarks to examine changes in the nature of bias affecting SHS estimates.

Overall, 49 key survey measures were included for analysis:

- 2 Geographic measures: rurality and SIMD quintile.
- 8 Household measures: tenure, length of time at address, property type, household type, household working status, household income, whether managing financially, and satisfaction with housing.

²² See Appendix 2 for more details.

- 3 Highest Income Householder measures: Banded age, gender, an economic status.
- 36 measures from the random adult interview. These are split into 8 where we would expect minimal change between 2019 and 2020 (such as age, gender, and educational attainment and general health), and 28 others that are more likely to have been seen considerable changes to the estimates as a results of external changes, such as changes arising from the Covid-19 pandemic and associated restrictions.

Geographic variables

Table 5.1 compares the 2019 estimates with results from the three different approaches used in 2020 for Rurality and SIMD Quintile²³.

Table 5.1 Rurality and SIMD quintile by wave (weighted, households)

	2019	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Urban/rural indicator								
Large Urban	35.1%	35.7%	34.6%	-0.5%	35.7%	0.6%	35.2%	0.1%
Other Urban	35.5%	36.3%	36.8%	1.3%	36.0%	0.5%	36.2%	0.7%
Accessible Small Towns	8.7%	8.1%	7.7%	-1.0%	9.7%	0.9%	8.7%	0.0%
Remote Small Towns	3.8%	3.6%	2.2%	-1.6%	2.5%	-1.2%	2.6%	-1.2%
Accessible Rural	10.9%	10.4%	11.5%	0.6%	9.8%	-1.2%	11.4%	0.5%
Remote Rural	6.0%	5.9%	7.2%	1.2%	6.3%	0.4%	6.0%	0.0%
SIMD Quintile								
Most deprived	20.8%	19.9%	20.6%	-0.2%	20.4%	-0.4%	21.0%	0.2%
2nd	20.6%	21.9%	15.4%	-5.2%	18.2%	-2.4%	16.7%	-3.9%
Middle quintile	20.0%	19.9%	20.0%	0.0%	13.7%	-6.3%	18.7%	-1.3%
4th	19.5%	19.9%	25.9%	6.3%	29.0%	9.5%	25.1%	5.6%
Least deprived	19.1%	18.5%	18.2%	-0.9%	18.7%	-0.4%	18.5%	-0.6%
N	10,577	1,545	1,718		1,313		3,031	

In summary:

- **Urban/Rural indicator** – the estimates from the push-to-telephone/video opt-in sample and the telephone matched sample are similar to the 2019 results. The maximum difference is 1.6 percentage points and there is no obvious pattern to the differences across the categories.
- **SIMD Quintile** – although SIMD is used in the weighting approach, there are considerable differences between the 2019 estimates and the push-to-telephone/video opt-in sample. Because of the small sample size, calibration targets were only set for quintile 1, quintiles 2 to 4 combined, and quintile 5.

²³ Further details are provided in the tables in Appendix 2 including the unweighted figure and the figures for 2018.

There should be very little change in either of these measures year on year. SIMD, rurality and local authority were all explicitly included in the weighting, and differences are likely to be due to how the calibration weights have been produced²⁴.

Household measures

Table 5.2 shows the same comparisons for eight household measures.

Table 5.2 Household measures by wave (weighted)

	2019	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Tenure								
Owner-occupied	61.6%	61.7%	68.1%	6.5%	79.5%	18.0%	71.8%	10.3%
Social Rented	23.5%	23.8%	15.4%	-8.1%	17.4%	-6.1%	15.5%	-8.0%
Private Rented	13.8%	13.3%	15.2%	1.4%	2.7%	-11.0%	11.6%	-2.2%
Other	1.1%	1.1%	1.4%	0.3%	0.3%	-0.8%	1.0%	-0.1%
Length of time at address²⁵								
Less than a year	11.2%	11.8%	10.9%	-0.3%	4.3%	-6.8%	8.2%	-3.0%
1-3 years	19.6%	19.3%	25.0%	5.4%	16.8%	-2.8%	20.8%	1.2%
4-15 years	35.1%	34.4%	36.3%	1.2%	35.5%	0.4%	34.0%	-1.0%
Over 15 years	34.1%	34.6%	27.8%	-6.4%	43.4%	9.3%	37.0%	2.9%
Property type								
House	65.8%	64.1%	62.2%	-3.6%	78.2%	12.4%	67.8%	2.0%
Flat	33.6%	35.6%	37.3%	3.7%	21.5%	-12.1%	32.1%	-1.5%
Other	0.6%	0.3%	0.5%	-0.1%	0.2%	-0.4%	0.1%	-0.5%
Household type								
Single adult	20.4%	20.6%	20.3%	-0.1%	9.6%	-10.8%	16.6%	-3.8%
Small adult	20.2%	20.4%	19.3%	-0.9%	17.0%	-3.2%	18.7%	-1.5%
Single parent	4.4%	4.7%	3.5%	-0.9%	5.3%	1.0%	3.9%	-0.4%
Small family	12.8%	12.4%	14.5%	1.7%	18.1%	5.3%	14.1%	1.3%
Large family	5.2%	5.1%	5.9%	0.8%	8.1%	2.9%	6.9%	1.7%
Large adult	8.8%	9.1%	8.6%	-0.2%	15.8%	7.0%	11.9%	3.1%
Older smaller	13.9%	13.1%	14.1%	0.2%	14.4%	0.5%	15.8%	1.9%
Single pensioner	14.4%	14.6%	13.8%	-0.6%	11.7%	-2.7%	12.1%	-2.3%
Household working status								
Single working adult	19.6%	20.3%	18.5%	-1.1%	17.5%	-2.1%	16.5%	-3.1%
Non-working single	26.4%	28.6%	24.7%	-1.7%	18.2%	-8.2%	22.5%	-3.9%
Working couple	30.0%	26.9%	31.7%	1.8%	36.6%	6.6%	33.7%	3.8%
Couple, one works	10.5%	11.1%	10.9%	0.5%	15.6%	5.2%	12.4%	1.9%
Couple, neither work	13.6%	13.1%	14.1%	0.5%	12.1%	-1.5%	14.9%	1.3%
N	10,577	1,545	1,718		1,313		3,031	

²⁴ For example, the impact of the calibration adjustments to match household totals and how the calibration targets have been set for each variable.

²⁵ The household weight has been applied to this random adult question to obtain an estimate of households. Households with no completed random adult interview are excluded.

	2019	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Net annual household income								
£0-£10,000	8.3%	7.5%	6.9%	-1.4%	3.6%	-4.7%	6.5%	-1.8%
£10,001-£20,000	26.6%	28.0%	22.5%	-4.0%	20.0%	-6.6%	20.5%	-6.1%
£20,001-£30,000	21.3%	21.6%	21.9%	0.7%	22.3%	1.0%	21.6%	0.3%
£30,001-£40,000	15.4%	17.1%	16.9%	1.5%	14.7%	-0.7%	16.5%	1.1%
£40,001+	28.4%	25.8%	31.7%	3.3%	39.4%	10.9%	34.9%	6.5%
Whether struggling financially								
Struggling financially	8.8%	7.3%	8.7%	-0.1%	2.8%	-6.1%	6.9%	-2.0%
Satisfaction with housing								
Very/fairly satisfied	90.1%	90.0%	92.2%	2.1%	94.6%	4.5%	94.0%	3.8%

This shows the following:

- Tenure:** The overall estimate for owner-occupation among the combined push-to-telephone/video samples is 10 percentage points higher than the 2019 estimate (71.8% compared to 61.6%). Both the push-to-telephone/video samples appear to be considerably biased, with the telephone matched sample showing particularly large differences compared to the 2019 figures: the estimate for owner-occupiers is 18.0 percentage points higher (79.5% compared to 61.6%), social renters are 6.1 percentage points lower (17.4% compared to 23.5%), and the estimate for private renters is 11.0 percentage points lower, dropping from 13.8% to only 2.7%²⁶. In the opt-in sample, the estimate for owner-occupation is 6.5 percentage points more than the 2019 estimate (68.1% compared to 61.6%) and social rented is 8.1 lower than the 2019 estimate. However, the estimate for private renters is closer to the 2019 estimate (15.2% compared to 13.8%).
- Length of time at address:** the telephone-matched sample appears very biased against those who have only lived at their address for a short time. In 2019, 11.2% said they had lived at their address for less than a year, and 19.6% had lived there for between 1 and 3 years. The corresponding estimates among the telephone matched sample were only 4.3% for less than a year and 16.8% for between 1 and 3 years. In comparison, the differences between the opt-in sample and the 2019 wave were smaller but still considerable. The revised approach overall reflects the difference between the telephone-matched sample and the 2019 wave, and appears particularly biased against those who have lived at their address for less than one year.
- Property type:** The estimates from the telephone matched sample over-represent those living in houses (78.2% compared to 65.8%) and under-estimate those living in flats (21.5% compared to 33.6%). The estimates from

²⁶ Additional weighting by tenure was introduced for housing related questions for the 2020 results because of these large changes in the tenure estimate.

the opt-in only sample are closer to the 2019 wave but with flats over-represented (37.3% compared to 33.6%) and houses under-represented (62.2% compared to 65.8%). Overall, the revised approach over-estimates those living in houses (67.8% compared to 65.8%).

- **Household type:** The telephone-matched sample again shows large differences compared to the 2019 wave and appears to over-represent large adult households and small family households and under-represent single adult and small adult households. The differences from the 2019 wave are again smaller for the opt-in sample, with a maximum difference of 1.7 percentage points (for small family households). Overall, single adult and single pensioner households are under-represented in the push-to-telephone/video combined data.
- **Household working status:** Reflecting differences in household type, both single working households and non-working single households are under-represented in the push-to-telephone/video combined data. This is seen in both the telephone-matched sample and the opt-in sample, although the differences compared with the 2019 wave are larger for the telephone-matched sample.
- **Household income:** Households with a net income of over £40,000 are over-represented in the push-to-telephone/video data, while households in the lower income bands are under-represented. This is much more pronounced in the telephone-matched sample than the opt-in only sample. In the telephone-matched sample, the estimate for households with £40,000+ is 10.9 percentage points more than the 2019 estimate, while the corresponding difference for the opt-in only sample is 3.3%.
- **Whether struggling financially:** In the 2019 wave, 8.8% said that they were not managing well financially or were in deep financial trouble. Overall, the estimate from the push-to-telephone/video approach was 6.9%. The estimate from the opt-in sample (8.7%) was much closer to the 2019 figure than the estimate for the telephone matched sample (2.8%). The impact of the pandemic on this measure is likely to have been complex with changes to both income and expenditure patterns, and significant differences across different types of households.
- **Satisfaction with housing:** The proportion saying that they are very or fairly satisfied with their housing is 94.0% in the push-to-telephone/video sample compared to 90.1% in 2020.

The opt-in only sample is considerably closer to the 2019 results than the telephone matched-sampled sample on all these measures.

Although there might have been greater than usual change to household formation during the pandemic, we would not expect anything more than minimal changes for these measures. As discussed in Chapter 3 previous face-to-face estimates have

matched up well with census data as well as administrative sources in the past. The available administrative data on social housing stock from social landlords and on private rented properties from the Landlord Registration System indicates that the number of households in the social rented and private rented sectors are likely to have remained at relatively similar levels across the 2020 period compared to 2019, with the number of social rented dwellings expected to have seen a slight increase in 2020 due to the increase in recent years in the level of new affordable housing along with the ending of the Right to Buy scheme. Overall, this suggests that the revised push-to-telephone video approach appears to have introduced bias, particularly in relation to tenure and length of time at the address. This would also mean that estimates that are highly correlated with these characteristics are also likely to be affected.

Highest Income Householder measures

Table 5.3 provides comparisons by wave for three variables related to the highest income householder (HIH).

Table 5.3 HIH measures by wave (weighted)

	2019	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
HIH Banded age								
16-24	4.6%	4.9%	3.7%	-0.8%	.	-4.6%	2.4%	-2.1%
25-44	30.3%	30.0%	31.3%	0.9%	31.9%	1.6%	31.0%	0.7%
45-59	28.7%	27.5%	29.2%	0.5%	32.3%	3.6%	29.6%	0.9%
60+	36.4%	37.6%	35.8%	-0.6%	35.8%	-0.7%	36.9%	0.5%
HIH Gender								
Male	57.7%	57.3%	56.2%	-1.4%	57.9%	0.2%	58.0%	0.4%
Female	42.3%	42.7%	43.5%	1.2%	42.1%	-0.2%	41.8%	-0.5%
HIH Economic status								
Self employed	7.5%	8.2%	6.5%	-1.0%	6.2%	-1.3%	6.3%	-1.1%
Employed full time	43.8%	40.0%	44.1%	0.4%	51.7%	8.0%	47.1%	3.3%
Employed part time	7.0%	8.0%	8.7%	1.7%	8.5%	1.4%	7.0%	-0.1%
Looking after the home/family	1.8%	1.4%	0.8%	-1.1%	0.5%	-1.3%	0.9%	-0.9%
Retired from work	28.3%	28.9%	28.8%	0.4%	28.1%	-0.2%	29.3%	1.0%
Unemployed	2.5%	2.5%	4.2%	1.7%	1.0%	-1.5%	3.2%	0.7%
In further/higher education	2.6%	4.1%	2.5%	-0.1%	0.0%	-2.5%	1.7%	-0.9%
Permanently sick or disabled	5.0%	5.4%	3.5%	-1.5%	3.9%	-1.1%	3.6%	-1.4%
Short-term illness or injury	1.0%	0.6%	0.6%	-0.4%	0.0%	-0.9%	0.6%	-0.4%

As with the household factors, the differences between the estimates from the telephone-matched sample and the 2019 wave tend to be larger than between the opt-in sample and the 2019 wave. In summary:

- **HiH age:** Overall, younger HIHs are under-represented in the push-to-telephone/video data. This pattern is very marked among the telephone matched sample. This is likely to be because young people are less likely to

have landlines and therefore to be in the telephone-matched sample. Among the opt-in sample, the differences are much smaller²⁷.

- **HiH Gender:** The push-to-telephone/video data is very similar to the 2019 figures. This is not surprising given the weighting strategy. Unusually, the opt-in sample estimate was further from the 2019 figures than the estimate from the telephone matched sample.
- **HiH Economic Status:** The push-to-telephone/video data over-represents those employed full-time by 3.3 percentage points. The telephone-matched sample is 8.0 percentage points above the 2019 estimate. In contrast, the corresponding difference for the opt-in only sample is 0.4 percentage points.

The change in approach appears to have introduced bias in terms of the age profile of Highest Income Householders, with younger age groups under-represented. The level of change in the estimate for gender is smaller, and economic activity may have been impacted by the pandemic. However, again the opt-in sample appears to be closer to the 2019 estimates than the telephone-matched sample.

Random Adult measures

Table 5.4 shows how the estimates from the revised approach compare to 2019 for eight random adult measures that we would expect to be relatively stable between the waves – age, gender, ethnicity, attainment, general health, disability, access to greenspace and personal use of the internet:

- **Banded age:** Age is used in the weighting, and the differences are relatively small with no clear pattern.
- **Gender:** Gender is also used in the weighting²⁸. There was very little difference (0.4 percentage points) in the estimates for men and women between the 2020 push-to-telephone/video data and the 2019 wave.
- **Ethnicity:** Compared to the 2019 figures, the telephone-matched sample underestimates minority ethnic groups²⁹ (0.1% compared to 4.2%). The estimate for minority ethnic groups from opt-in only sample is much closer to the 2019 figure (5.1% compared to 4.2%).
- **Attainment:** Overall, the push-to-telephone/video approach under-represents those who have no qualifications (10.9% compared to 15.3%) and those with the lowest attainment level (13.7% compared to 17.4%) and over-represents

²⁷ While age and gender of household members are used in the weighting, we do not weight specifically for the HiH's age and gender.

²⁸ Calibration weighting by gender uses NRS population estimates for sex.

²⁹ 'Minority ethnic groups' includes mixed or multiple, Asian, African, Caribbean or Black, Arab or any other ethnic groups

those with degrees or professional qualifications (40.0% compared to 32.0%). Unlike most other measures, the estimates from the opt-in sample are further from the 2019 estimates than those from the telephone matched sample and appear particularly biased towards those with degrees or professional qualifications (44.1% compared to 32.0%). This is likely to be because those who are more highly educated may be more familiar with surveys and more interested in taking part without needing further convincing from an interviewer either at the doorstep or on the telephone.

- **General health:** In 2019, 8.4% described their general health as bad or very bad. The corresponding figure for the push-to-telephone/video approach overall was 5.6%, with the estimate among the telephone matched sample slightly further from the 2019 estimates than the opt-in sample (5.5% and 6.4% respectively).
- **Disability:** Overall, the push-to-telephone/video approach produced a slightly lower estimate of disabled adults than the 2019 estimate (22.9% compared to 24.4%)
- **Proximity to greenspace:** The push-to-telephone/video approach produced a slightly higher estimate of being within 5 minutes of greenspace than the 2019 estimate (67.8% compared to 65.5%). It is possible that perceptions of proximity to greenspace may have changed over lockdown.
- **Personal use of internet:** The push-to-telephone/video approach also gave a higher estimate of using the internet for personal use (91.5% compared to 87.4%) with the estimate for the opt-in only sample (93.1%) higher than the estimate from the telephone-matched sample (89.7%). This measure may have been less stable than the other measures detailed above. The estimates may be reflecting a real change in internet use over lockdown. However, it is also likely to reflect that the easiest way to opt-in to the survey was online.

These comparisons again show that the revised approach appears to have introduced bias, and that the telephone matched sample estimates tend to be further from the 2019 estimates than those from the opt-in only sample. A key exception is educational attainment, where the opt-in only sample appears more biased.

Table 5.4 Random adult measures by wave (weighted)

	2019	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Banded age								
16-24	11.1%	12.5%	12.5%	1.4%	12.5%	1.4%	12.5%	1.4%
25-44	33.0%	31.5%	31.5%	-1.5%	31.5%	-1.5%	31.5%	-1.5%
45-59	25.6%	24.2%	25.2%	-0.4%	23.7%	-2.0%	24.0%	-1.6%
60+	30.3%	31.9%	30.9%	0.5%	32.4%	2.1%	32.1%	1.7%
Gender								

	2019	2020 - f2f	2020 – p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Man/Boy	48.1%	48.0%	48.6%	0.5%	48.3%	0.1%	48.5%	0.4%
Woman/Girl	51.8%	51.9%	51.2%	-0.6%	51.7%	-0.1%	51.4%	-0.4%
Ethnicity								
White Scottish/British	88.9%	87.6%	89.1%	0.2%	94.8%	6.0%	90.3%	1.4%
White other ³⁰	6.8%	8.1%	5.8%	-1.1%	5.0%	-1.8%	5.3%	-1.5%
Minority ethnic groups ³¹	4.2%	4.2%	5.1%	0.9%	0.1%	-4.1%	4.3%	0.1%
Highest educational attainment								
None	15.3%	15.0%	10.0%	-5.3%	13.2%	-2.1%	10.9%	-4.4%
Level 1 - O grade etc	17.4%	16.6%	11.7%	-5.7%	19.1%	1.7%	13.7%	-3.7%
Level 2 - Higher, A	16.7%	15.0%	18.8%	2.0%	18.7%	2.0%	18.8%	2.1%
Level 3 - HNC/HND	12.8%	15.0%	12.6%	-0.2%	13.4%	0.6%	12.8%	0.0%
Degree or prof qual	32.0%	33.5%	44.1%	12.1%	30.2%	-1.8%	40.0%	8.0%
Other qualification	5.0%	3.5%	2.2%	-2.8%	4.4%	-0.6%	3.2%	-1.9%
General health								
General health bad or very bad	8.4%	6.5%	6.4%	-2.0%	5.5%	-2.9%	5.6%	-2.8%
Disability								
Disabled	24.4%	24.4%	23.4%	-1.0%	25.5%	1.2%	22.9%	-1.5%
Non-disabled	75.2%	75.1%	76.5%	1.2%	73.1%	-2.1%	76.8%	1.6%
Greenspace								
Within 5 mins of greenspace	65.5%	66.1%	70.4%	4.9%	63.5%	-2.0%	67.8%	2.3%
Personal use of internet								
Used internet for personal use	87.4%	89.6%	93.1%	5.7%	89.7%	2.2%	91.5%	4.1%

Table 5.5 shows results for a variety of other key measures, such as satisfaction with services, cultural attendance, and other attitudinal and behavioural measures that are more likely to have changed during lockdown. Differences on most of these variables are likely to be influenced by the differences between modes in the profile of the respondents. However, they are also more likely to have changed during the pandemic than other estimates. Therefore, they are less illuminating in relation to the impact of the change of approach, since it is even more challenging to assess how much of any observed change is attributable to the change in approach rather than to external circumstances.

In terms of the attitudinal measures, the 2020 estimates compared with the 2019 figures suggest an improvement in relation to satisfaction with services and ratings of local neighbourhood as a good place to live. Similarly, community cohesion measures, such as being able to rely on neighbours, suggest an improvement. The cultural attendance measure shows a considerable decrease, as would be expected because of the pandemic and associated restrictions. Conversely, visits

³⁰ 'White other' includes Irish, Gypsy/Traveller, Polish and other white ethnic groups

³¹ 'Minority ethnic groups' includes mixed or multiple, Asian, African, Caribbean or Black, Arab or any other ethnic groups

to the outdoors show a marked increase, which again would be expected given the reduction in indoor leisure opportunities and emphasis on meeting outdoors rather than indoors, when restrictions permitted.

The number of people reporting feeling lonely increased considerably.

Table 5.5 Additional random adult measures by wave (weighted)

	2019*	2020 - f2f	2020 - p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (-2019)
Culture and Heritage								
Cultural attendance	81.0%	80.8%	48.5%	-32.5%	35.4%	-45.6%	44.2%	36.8%
Cultural participation	75.1%	76.1%	84.0%	8.9%	82.0%	6.9%	83.2%	8.1%
Cultural engagement	90.3%	89.2%	86.8%	-3.5%	85.2%	-5.1%	86.4%	-3.8%
Physical Activity and Sport								
Participated in sport in last 4 weeks	79.6%	81.2%	86.9%	7.3%	82.8%	3.2%	85.9%	6.3%
Discrimination and Harassment								
Experienced either discrimination or harassment	9.3%	10.1%	9.2%	-0.1%	6.8%	-2.5%	8.3%	-1.0%
Satisfaction with local services								
Satisfied with local health services (excluding no opinion)	79.7%	78.3%	88.4%	8.7%	87.5%	7.8%	88.3%	8.6%
Satisfied with local schools (excluding no opinion)	73.2%	73.1%	76.4%	3.2%	83.4%	10.2%	78.2%	5.0%
Satisfied with public transport (excluding no opinion)	67.8%	63.6%	68.5%	0.7%	73.2%	5.3%	69.9%	2.0%
Satisfied with all three services (no opinion for up to two)	52.6%	48.7%	59.3%	6.7%	64.4%	11.8%	60.5%	8.0%
Outdoors								
One+ visits to the outdoors	56.0%	58.3%	79.8%	23.8%	76.9%	20.8%	78.8%	22.8%
Social capital								
Feels lonely some, most, almost all or all of the time ³²	21.3%	22.0%	36.2%	14.9%	34.4%	13.1%	34.7%	13.4%
Meets socially at least once a week ³³	72.6%	68.8%	43.3%	-29.3%	41.5%	-31.1%	42.9%	29.7%
Volunteering								
Volunteered	26.0%	31.5%	27.2%	1.2%	24.0%	-2.0%	25.6%	-0.4%
Provided unpaid help to improve their local environment ³⁴	4.5%	4.4%	7.8%	3.3%	7.9%	3.4%	8.0%	3.5%
Rating of neighbourhood								
Rating of neighbourhood as very good	57.0%	53.4%	59.6%	2.7%	59.6%	2.7%	59.1%	2.2%
Rating of neighbourhood as fairly good	37.2%	41.1%	36.1%	-1.1%	37.7%	0.5%	37.2%	0.0%
Community belonging								
Very/fairly strong feeling on belonging to immediate neighbourhood	77.8%	75.9%	78.3%	0.5%	87.0%	9.2%	80.9%	3.1%

³² Figures for 2018 rather than 2019 for these measures (biennial questions)

³³ Figures for 2018 rather than 2019 for these measures (biennial questions)

³⁴ Figures for 2018 rather than 2019 for these measures (biennial questions)

	2019*	2020 - f2f	2020 – p2tv Opt-in	Diff (-2019)	2020 - p2tv Tel	Diff (-2019)	2020 - p2tv All	Diff (- 2019)
Culture and Heritage								
Agreement with statements about local neighbourhood								
If I was alone and needed help, I could rely on someone in this neighbourhood to help me	85.4%	84.0%	85.8%	0.4%	90.0%	4.6%	87.5%	2.1%
If my home was empty, I could count on someone in this neighbourhood to keep an eye on my home	84.8%	83.4%	85.7%	0.9%	92.7%	7.9%	87.6%	2.8%
I feel I could turn to someone in this neighbourhood for advice or support	78.4%	74.9%	78.0%	-0.4%	83.1%	4.7%	80.0%	1.6%
In an emergency, I would offer to help people in my neighbourhood who might not be able to cope well	89.7%	89.4%	90.9%	1.2%	92.8%	3.0%	92.1%	2.4%
This is a neighbourhood where people are kind to each other	82.8%	81.7%	87.2%	4.5%	92.6%	9.9%	89.1%	6.3%
This is a neighbourhood where most people can be trusted	78.6%	76.9%	83.2%	4.6%	87.2%	8.5%	84.0%	5.4%
There are welcoming places and opportunities to meet new people	51.7%	49.1%	54.5%	2.9%	49.9%	-1.8%	53.9%	2.2%
There are places where people can meet up and socialize	57.1%	55.9%	61.9%	4.8%	58.1%	1.0%	61.1%	4.0%
This is a neighbourhood where people from different backgrounds get on well together	69.2%	69.1%	75.6%	6.4%	75.1%	5.9%	76.7%	7.5%
This is a neighbourhood where local people take action to help improve the neighbourhood	57.3%	58.3%	65.8%	8.5%	66.4%	9.1%	67.1%	9.7%
I can influence decisions affecting my local area	17.8%	18.1%	23.2%	5.4%	23.5%	5.7%	24.5%	6.7%

Summary

Overall, for most variables that we would expect to be relatively stable, the differences between the 2019 wave and the 2020 push-to-telephone/video approach, after corrective weighting, were relatively small. However, for a selection of key variables, the observed changes in estimates would not be expected. These include tenure, length of time at property, and educational attainment.

In general, the estimates from the telephone matched sample are substantially further from the 2019 figures than those from the opt-in sample, with under-representation of younger highest income householders, those in social rented and private rented housing, and those who have lived in their current address for a short period of time.

Note that this is despite the response rate for the opt-in sample being considerably lower than the telephone matched sample and is a reminder that higher response rates do not necessarily lead to lower non-response bias.

There is one notable exception. The opt-in only sample appears further from the 2019 estimates on educational attainment, with those with degree level qualifications over-represented.

Chapter 6: Impact of change of mode of interview

The previous chapter examined the impact of changes to the mode of approach – the way potential respondents were invited to take part. This chapter focuses on the impact on how interviews were undertaken – the mode of interview. With no interviewer travel allowed, surveys had to be undertaken remotely, either by telephone or video. Video interviewing used one-way Microsoft Teams, so that the respondent could see the interviewer, but the interviewer could not see them.

At around an hour in length and often involving relatively complex questions and showcards, the SHS questionnaire has relied on interviewer facilitation to maximise participant engagement. The design of the questionnaire was not optimal for interviewing by telephone or video, and was reviewed and revised prior to the pilot. However, changes to the questionnaire also had to be kept to a minimum, so that the data could be compared with the data collected face-to-face prior to lockdown.

The main challenge was how to adapt questions that relied on showcards³⁵. If interviewing using video, the interviewer could use showcards via screenshare, but an alternative strategy was needed for the telephone interviews. Two main approaches were devised. First, in instances where the question was factual (e.g. ethnicity and educational qualifications), interviewers were instructed to read the question, wait for the respondent to answer and then select the corresponding code. Interviewers then confirmed the code they had selected with the respondent before continuing. Second, for questions where the range of response options are not obvious from the question, the interviewer was directed to read out all the response options along with the question.

Additionally, where there might be ambiguity – for example when a question related to the participants' "usual" pre-COVID circumstances, or their current circumstances – this was clarified in interviewer instructions and/or through tweaks to the question wording. There were also a limited number of questions that were temporarily paused from the survey because of their complexity and heavy reliance on detailed showcards.

As discussed in Chapter 3, the impact of mode of interview on how people respond is more complicated and harder to estimate than the impact of mode of approach on response patterns. While the impact of non-response biases on response patterns are binary – people either take part or do not – the impact of mode on how people respond to questions, and whether their measured responses accurately capture this information, is more complex. We look for evidence of this in a number of ways:

³⁵ A total of 119 showcards were used in the face-to-face SHS 2020 questionnaire.

- Levels of missing information from refusals or don't know information in selected variables (missing information on earnings and benefits).
- Use of agree/disagree scales, mid-points and don't know responses (views on council services and material deprivation)
- Number of responses to multi-code questions (such as educational qualifications, number of health conditions, and cultural activities undertaken)
- Impact on rarer response categories (sexuality, religion and whether smoke)
- Other indicators of interview quality (consent to be recontacted and the random adult conversion rate).

Before we examine the impact of mode of interview on a selection of survey estimates, we briefly compare the preferences for undertaking the interview by telephone or video, and the resulting profiles of respondents by mode of interview.

Variation in mode preference and impact on sample composition

Generally, there was reluctance from both interviewers and respondents to undertake interviews by video. Overall, 16% of household respondents undertook the SHS interview by one-way video link, and 84% by telephone. (Table 6.1). A similar split was seen in the random adult interviews, with 18% undertaken by video and 82% by telephone.

Table 6.1 Mode of interview by sample type: Household interview (unweighted)

	Telephone-matched	Opt-in only	Push-to-TV all
Household respondents			
Video	8.1%	22.3%	16.1%
Telephone	91.9%	77.7%	83.9%
Total	100%	100%	100%
N	1,718	1,313	3,031
Random Adult respondents			
Video	8.1%	20.8%	17.9%
Telephone	91.9%	79.2%	82.1%
Total	100%	100%	100%
N	1,612	1,176	2,788

Mode of interview differed considerably by mode of approach. For the opt-in only sample, 22% undertook the household interview by video. In contrast, only 8% of those in the telephone-matched sample did likewise.

This difference is likely to be because of when respondents agreed to take part. For the telephone-matched sample, most respondents will have agreed to take part when telephoned by an interviewer. At this point, changing mode from telephone to video would have required additional effort for both interviewers and respondents, and would involve scheduling a video interview. Additionally, the possibility of reluctant respondents braking video appointments may have dissuaded interviews from switching mode. In contrast, almost all respondents from the opt-in only

sample agreed to take part through the respondent portal before any contact with the interviewer. Respondents were asked to state a preference for a telephone or video interview in advance of speaking to an interviewer.

Table 6.2 shows the mode of interview by a number of household characteristics. Overall, younger householders, those working, and those in privately rented accommodation were more likely to undertake the interview by video.

Table 6.2 HIH characteristics and tenure by mode of household interview (unweighted, row percentages).

	Video	Telephone	Total	N
Age of HIH				
16-24	41%	59%	100%	27
25-44	27%	73%	100%	547
45-59	20%	80%	100%	880
60+	10%	90%	100%	1,577
Total	16%	84%	100%	3,031
Gender of HIH				
Male	16%	84%	100%	1,760
Female	16%	84%	100%	1,269
In another way	*	*	*	2
Total	16%	84%	100%	3,031
Economic status of HIH				
Working	22%	78%	100%	1,599
Retired	9%	91%	100%	1,222
Other	13%	87%	100%	210
Total	16%	84%	100%	3,031
Tenure				
Owner-occupied	17%	83%	100%	2,373
Social Rented	6%	94%	100%	394
Private Rented	22%	78%	100%	228
Other	*	*	*	36
Total	16%	84%	100%	3,031
N	489	2,542	3,031	

A similar pattern is seen among the random adult sample (Table 6.3). While 25% of 16-24 year olds completed the interview by video, this proportion dropped to 9% among those aged 60 and over. Similarly, those with higher educational qualifications were more likely to take part via video, with 24% of those with degree level qualifications taking part by video compared to only 3% of those with no qualifications.

Table 6.3 Mode of household interview by Random Adult characteristics (unweighted)

	Video link	Telephone	Total	N
Age of random adult				
16-24	25%	75%	100%	111
25-44	23%	77%	100%	556
45-59	21%	79%	100%	715
60+	9%	91%	100%	1406
Total	15%	85%	100%	2788
Gender of random adult				
Man/Boy	16%	84%	100%	1253
Woman/Girl	15%	85%	100%	1533
In another way	*	*	*	2
Total	15%	85%	100%	2788
Highest Educational qualification				
No qualifications	3%	97%	100%	377
Level 1 - O grade or equivalent	9%	91%	100%	368
Level 2 - Higher, A Level or equivalent	13%	88%	100%	423
Level 3 - HNC/HND or equivalent	12%	88%	100%	331
Degree or professional qualification	24%	76%	100%	1171
Other qualification	7%	93%	100%	104
Total	15%	85%	100%	2788

Different preferences to mode of interview among different groups meant that the sample profile of those who undertook interviews by telephone is different from those who undertook interviews by video. Details are provided in Tables A4.2 and A4.3 in Appendix 4. In summary.

- **Age:** Household respondents who took part by telephone were more likely to be older than video respondents, with 41% aged 60 or over compared to 17%.
- **Gender:** There was no difference in the gender profile by mode of interview.
- **Economic status:** Linked with age, telephone respondents were more likely to be retired than video respondents (33% compared to 13%) and less likely to be in employment (56% compared to 78%).
- **Educational qualifications:** Telephone respondents were more likely to have no qualification than video respondents (13% compared to 2%) and less likely to have a degree or professional qualification (36% compared to 56%).
- **Tenure:** Telephone respondents were more likely than video respondents to be in social rented accommodation (18% compared to 6%) and less likely to be owner-occupiers or privately renters.

- **SIMD:** Telephone respondents were more likely than video respondents to be in the most deprived quintile and less likely to be in the least deprived areas.
- **Urban/rural:** Telephone respondents were less likely to be in large urban areas than video respondents (33% compared to 41%).
- **Property type:** Telephone respondents were more likely to live in houses than video respondents (70% compared to 60%) and less likely to live in flats (30% compared to 40%).

The remainder of this chapter examines a selection of survey findings and the possible impact of change in the mode of interview on how people respond. The different profiles of those who respond by video and those who respond by telephone, as described above, should be borne in mind.

Impact of mode of interview on selected survey findings.

Educational qualifications

Respondents in the adult interview were asked to indicate all educational qualifications they hold. This question used a showcard when administered face-to-face. For the push-to-telephone/video approach, interviewers were asked not to read out each category, but to code based on respondents' answers. Therefore, unlike face-to-face and video respondents, telephone respondents did not have a visual prompt to assist them in responding to the question.

Figure 6.1 Revision to Qualifications held question

SHOWCARD K1	
NOW ON A DIFFERENT SUBJECT. PLEASE COULD YOU LOOK AT THIS CARD AND TELL ME WHICH, IF ANY, OF THESE EDUCATIONAL QUALIFICATIONS YOU HAVE.	
CODE ALL THAT APPLY	
(Ask without reading out codes. Code based on respondents' answer(s) and confirm code(s) with respondent before continuing.)	
(1) School Leaving Certificate, National Qualification Access Unit	[1/0]
(2) O Grade, Standard Grade, GCSE, GCE O Level, CSE, National Qualification Access 3 Cluster, Intermediate 1 or 2, National 4 or 5, Senior Certificate or equivalent	[1/0]
(3) GNVQ/GSVQ Foundation or Intermediate, SVQ Level 1 or 2, SCOTVEC/National Certificate Module, City and Guilds Craft, RSA Diploma or equivalent	[1/0]
(4) Higher Grade, Advanced Higher, CSYS, A Level, AS Level, Advanced Senior Certificate or equivalent	[1/0]
(5) GNVQ/GSVQ Advanced, SVQ Level 3, ONC, OND, SCOTVEC National Diploma, City and Guilds Advanced Craft, RSA Advanced Diploma or equivalent	[1/0]
(6) HNC, HND, SVQ Level 4, RSA Higher Diploma or equivalent	[1/0]
(7) First Degree, Higher Degree, SVQ Level 5 or equivalent	[1/0]
(8) Professional qualifications <u>e.g.</u> teaching, accountancy	[1/0]
(9) Other school examinations not already mentioned	[1/0]
(10) Other post-school but <u>pre Higher</u> education examinations not already mentioned	[1/0]
(11) Other Higher education qualifications not already mentioned	[1/0]
(12) No qualifications	[1/0]
*Don't know	[1/0]

Table 6.4 shows highest educational qualification by mode of interview. Overall, the pattern is similar between the 2020 telephone respondents and the earlier face-to-face respondents. However, those who were interviewed by video are much less likely to hold no qualifications (2% compared to 15% in 2019) and much more likely to hold a degree or professional qualification (56% compared to 32% in 2019).

Table 6.4 Highest educational qualification by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Highest educational qualification				
No qualifications	15%	15%	2%	13%
Level 1 - O grade or equivalent	17%	17%	8%	15%
Level 2 - Higher, A Level or equivalent	17%	15%	20%	19%
Level 3 - HNC/HND or equivalent	13%	15%	13%	13%
Degree or professional qualification	32%	33%	56%	36%
Other qualification	5%	3%	1%	4%
Unknown	1%	1%		1%
Total	100%	100%	100%	100%
N	9,776	1427	431	2,357

This is likely to be driven by the profile of those who responded by each mode rather than by how the question was answered – in other words, that those with lower educational qualifications are more likely to prefer telephone over video.

However, Table 6.5 shows the number of different types of qualification held among those who have a degree or professional qualification. As this group are likely to hold more than one type of qualification, it is a useful measure of the likelihood of capturing all qualifications held.

Table 6.5 Number of types of qualification held among those who have a degree or professional qualification by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Number of qualification categories held among those who have a degree or professional qualification				
One	21%	30%	11%	17%
Two	16%	14%	9%	13%
Three	29%	26%	34%	38%
Four or more	35%	30%	45%	32%
Total	100%	100%	100%	100%
N	2,957	425	285	886

Overall, more types of qualification were recorded for graduates who undertook the interview by video than those who undertook it by telephone or face-to-face. While only 11% of video respondents who were recorded as holding a degree or

professional qualification did not have any other types of qualification, the corresponding figure for telephone respondents with a degree was 17%, and for 2019 respondents was 21%. This suggests that video interviews measure educational qualifications held better than the other modes of interviewing.

It is interesting to note that telephone interviews – which did not have a visual cue to help respondents answer the question – appear to be no less accurate than the face-to-face interviews in capturing all qualifications. This suggests that the difference by mode is likely to be shaped for more factors than just these visual cues.

Household income – under-reporting of receipt of income components and level of missing data on amount received.

Mode of interview has the potential to affect the data quality of the income data in two ways – in correctly recording receipt of all components of income that the respondent is receiving, and in minimising the level of missing information on the amount received. Within the SHS, total net annual household income is the main indicator of household income. This is derived from a large number of different components:

- 4 earnings components. Income for the main job and other jobs of the HIH and their spouse.
- 42 different benefits (such as child benefit, state retirement benefit, means-tested benefits, disability benefits, various sources of crisis support etc.)
- 10 different sources of miscellaneous income (such as private pensions, income from investments, income from property etc.)

The questionnaire approach for each component is broadly the same. The respondent is asked if they received each, and if so how much they receive and over what period. Amounts are adjusted to give an annual figure, gross earnings are converted to net earnings, and amounts are imputed for any components where receipt is confirmed but where the respondent does not know or does not want to give the amount. Note that only missing amounts are imputed and receipt of any components of income are not imputed³⁶. Incomes are set to missing if the total received after all imputation and summing is less than £25 a week.

Receipt of the benefits is split into four questions that have traditionally used showcards. These were adapted from the push-to-telephone-video approach so that the interviewer would read out the list of benefits if the respondent could not see the list. Figure 6.2 shows these revisions.

³⁶. There are some soft checks in the script, for example, if not receiving child benefit and a child under 16 is in the household. Full details of the income imputation routines used in the SHS can be found here: www.gov.scot/binaries/content/documents/govscot/publications/statistics/2020/12/scottish-household-survey-2019-methodology-fieldwork-outcomes/documents/shs-income-imputation-project-adults-income-final-memo-ipsos-mori/shs-income-imputation-project-adults-

Figure 6.2 Revision to question HH56A: Receipt of benefits, first list

Ask all

SHOWCARD E1 **ONLINE**

I'D LIKE TO TALK ABOUT INCOME FROM SOURCES OTHER THAN WORK. ARE YOU (OR YOUR PARTNER) RECEIVING ANY OF **THESE** BENEFITS ~~LISTED ON THIS CARD?~~

(Read out list, and make a note of all those they mention to code at next question. If easier, skip to next screen with yes and return if not receiving any)

Universal Credit, Housing Benefit, Council Tax Reduction, Working Tax Credit, Child Tax Credit, Income Support, Jobseeker's Allowance, Employment and Support Allowance, Carer's Allowance, Child Benefit, Guardian's Allowance, Maternity Allowance, Statutory Maternity/Paternity pay, Statutory Adoption Pay, Statutory Sick pay?

Yes	[1]
No	[2]
Don't know	[3]
Refused	[4]

There will be a considerable difference in how each mode transmits visually the information to respondents here:

- For face-to-face interviews, respondents should see the list of benefits on a showcard.
- For telephone interviews, respondents will get no visual clue but should have each list of benefits read out by the interviewer.
- For the video interviews, respondents will see the list of benefits and the screen will display what the interviewer is seeing. The interviewer may also read out the list of categories.

As well as the difference in visual cues, any difference in the engagement of respondents (and interviewers) is likely to shape patterns of response of receipt of different components of income. In contrast, the following questions on the amount received for each component – how much did you receive and over what period – do not have any visual cues and are asked in a relatively consistent way across modes.

It is also difficult to completely disentangle the impact of the mode of interview from the change in the respondent profile, particularly with regard to any under-reporting of receipt of different components. Video respondents are younger, more likely to be working, and less likely to be living in the most deprived areas than telephone respondents. This is reflected in their recorded sources of income. Table 6.6 shows a summary of all information by waves.

Table 6.6 Summary of income information by wave, mode of approach and mode of interview.

	2019 f2f	2020 f2f	2020 Video	2020 Telephone
Summary of earnings				
No earnings	38%	38%	18%	38%
Received - no imputation	39%	41%	64%	38%
Received - some imputation	23%	21%	18%	24%
Total	100%	100%	100%	100%
HIH Income for main job				
Not in paid employment	42%	42%	21%	44%
Amount given	44%	44%	70%	44%
Amount imputed	15%	14%	9%	12%
Total	100%	100%	100%	100%
Spouse income for main jobs				
No spouse/not in employment	68%	71%	47%	68%
Amount given	23%	23%	45%	23%
Amount imputed	9%	7%	8%	9%
Total	100%	100%	100%	100%
Summary of income from benefits				
No income from benefits	37%	37%	47%	36%
Received - no imputation	35%	34%	39%	40%
Received - some imputation	28%	29%	15%	24%
Total	100%	100%	100%	100%
Summary of miscellaneous income				
No miscellaneous income	69%	68%	69%	63%
Received - no imputation	22%	23%	26%	28%
Received - some imputation	8%	9%	5%	9%
Total	100%	100%	100%	100%
Summary of Total income				
Income - none imputed	50%	52%	71%	57%
Income - some imputed	45%	44%	27%	39%
Missing	4%	4%	1%	3%
Total	100%	100%	100%	100%
N	10,577	1,545	489	2,542

The following patterns emerge from Table 6.6:

- **Earnings.** Those interviewed by video were more likely to say they received income from earnings than those interviewed by telephone (82% compared to 62%). Additionally, less than a quarter of those interviewed by video, who received income from earnings, needed the amount imputed. In comparison, over a third of those interviewed by telephone had the amount of earnings imputed. The same pattern is seen in HIH income from their main job and their spouse's income. Overall, the pattern of receipt of earnings income, and

the amount of imputation necessary, was very similar between the telephone interviews and the 2019 data across all three measures.

- **Benefits.** A higher proportion of telephone respondents than video respondents said that received benefit income (53% compared to 64%). However, among respondents in receipt of income from benefit, levels of missing data were lower for video respondents compared to telephone respondents.
- **Miscellaneous sources of income.** Levels of receipt of income from miscellaneous sources among telephone and video respondents are similar to those from the 2019 wave. However, the level of imputation required for video respondents is lower again indicating lower levels of missing data.

To try to disentangle the impact of mode of interview from the change in the respondent profile, two benefits where receipt should be very high among key sub-groups were examined: child benefits among household types with children, and state retirement pension among households where the HiH and/or their spouse is aged 65 or over. These are shown in Table 6.7:

For both these measures, the profile of responses from the revised approach is broadly in line with estimates from the earlier face-to-face data. Overall, there is no clear difference in level of receipt. Non-receipt of child benefits is higher among telephone respondents than video respondents (28% compared to 24%) while non-receipt of state-pension shows the reverse pattern (9% among telephone respondents and 12% among video respondents).

Table 6.7 Receipt of Child Benefit among single parent, small family and large family households and Receipt of State Retirement Pension (asked where HiH or their spouse is >64) by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Receipt of Child Benefits among single parent, small family, and large family households				
Receipt not known or refused	4%	3%	2%	2%
Not received	21%	25%	24%	28%
Received, amount given by respondent	66%	61%	70%	63%
Received, amount imputed	9%	11%	6%	7%
Total	100%	100%	100%	100%
N	2,435	331	127	365
Receipt of State Retirement Pension (asked where HiH or their spouse is >64)				
Receipt not known or refused	5%	5%	1%	3%
Not received	7%	8%	12%	9%
Received, amount given by respondent	64%	64%	70%	67%
Received, amount imputed	24%	24%	16%	21%
Total	100%	100%	100%	100%
N	3,408	481	103	1,097

Overall, there is no clear pattern that the change in mode impacts on changes in measurement error in relation to what components of income are received. While interviewing by video appears to reduce the level of missing data on the amount of income received, this is less likely to be because of any change to the mode of interview but the profile of this group being different, higher education levels possibly meaning they are more willing and able to give this information.

Long-term health and disability

Household respondents are asked whether any of the people in the household has any physical or mental health condition or illness lasting or expected to last 12 months or more. Details of the conditions affecting each household member who has a long-term illness or disability are also captured. This question used a showcard when administered face-to-face. For the push-to-telephone/video approach, interviewers were not asked to read out each category but to code based on respondents' answers (Figure 6.3).

Figure 6.3 Revision to question HF2A: long-term health conditions

Ask for each person with a physical or mental health condition or illness (Yes at HF1A)	
SHOWCARD B2	
WHICH OF THE CONDITIONS LISTED ON THIS CARD BEST DESCRIBES THE PHYSICAL OR MENTAL HEALTH CONDITION THAT (NAME) HAS?	
<i>(Ask without reading out codes. Code based on respondents' answer(s), and confirm code(s) with respondent before continuing.)</i>	
(1) Arthritis	[1/0]
(2) A speech impairment	[1/0]
(3) Chest or breathing problems (asthma/ bronchitis)	[1/0]
(4) Diabetes	[1/0]
(5) Difficulty hearing	[1/0]
(6) Difficulty seeing (even when wearing spectacles/ contact lenses)	[1/0]
(7) Dyslexia	[1/0]
(8) Epilepsy	[1/0]
(9) Heart, blood pressure or circulation problems	[1/0]
(10) Learning or behavioural problems (e.g. autism, Down's Syndrome)	[1/0]
(11) Mental health problems	[1/0]
(12) Problems or disabilities related to arms or hands	[1/0]
(13) Problems or disabilities related to legs or feet	[1/0]
(14) Problems or disabilities related to back or neck	[1/0]
(15) Severe disfigurement, skin condition or allergies	[1/0]
(16) Severe stomach, liver, kidney or digestive problem	[1/0]
(17) Some other progressive disability or illness	[1/0]
(18) Difficulty understanding spoken and/or written word	[1/0]
(19) Some other health problem or disability	[1/0]
Refused	[1]

Table 6.8 shows shows the proportion of household respondents and second person in the household with long-term health conditions and the number of health conditions recorded.

Table 6.8 Long-term health and disability of respondent and second person in the household by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Physical or mental health condition or illness > 12 months for <u>second person in the household</u>				
Yes	22%	23%	22%	25%
No	78%	76%	78%	75%
Don't know/refused	0%	1%		0%
Total	100%	100%	100%	100%
N	6,999	975	377	1,723
Number of different conditions if <u>second person in household has long-term illness/disability.</u>				
Refused	1%	2%	-	1%
One	61%	60%	56%	68%
Two	20%	22%	26%	18%
Three plus	18%	17%	18%	13%
Total	100%	100%	100%	100%
N	1,560	232	89	460
Physical or mental health condition or illness > 12 months for the <u>household respondent</u>				
Yes	32%	34%	24%	35%
No	67%	65%	76%	65%
Don't know/refused	0%	1%	-	0%
Total	100%	100%	100%	100%
N	10,577	1,545	489	2542
Number of different conditions if <u>household respondent had a long-term illness/disability.</u>				
Refused	0%	1%	-	0%
One	52%	51%	66%	60%
Two	22%	25%	18%	21%
Three plus	26%	23%	16%	19%
Total	100%	100%	100%	100%
N	3511	552	122	945

For the second person in the household where applicable, the prevalence of long-term illness or disability does not differ by mode of interview. In relation to the number of conditions recorded, telephone respondents are more likely to record a single condition (68%) than video respondents (56%) and 2019 respondents (61%) if the second person in the household has a long-term illness or disability.

For the household respondent, the prevalence of long-term illness or disability does differ by mode of interview with fewer video respondents (24%) than telephone respondents (35%) or 2019 respondents (32%) being recorded as such. Fewer conditions were reported by video respondents with a long-term illness or disability (34% with two or more) compared to telephone respondents (40% with two or more) or 2019 respondents (48% with two or more).

Those who respond by video are more likely to be younger than average. However, this effect appears to be independent of age as a confounding variable. It may also be that long-term illness or disability impacts on their propensity to use a particular mode of interview, directly or indirectly. Regardless, householders with a long term physical or mental condition make up a disproportionately smaller proportion of the survey sample who completed the video link survey.

It is difficult to interpret the differences by mode. However, there does not appear to be clear evidence of the impact of mode on the number of conditions recorded.

Cultural attendance and cultural activity

Adult respondents are asked about attendance at cultural events or places and about participation in cultural activity. Both these questions involved long showcards and interviewers were instructed to read out the full list. Figure 6.4 shows the list of cultural attendance categories.

Figure 6.4 Changes to questions Cult3a: Cultural events or places visited in the last 12 months

ASK ALL	
SHOWCARD-Q2	
I'D NOW LIKE TO ASK YOU SOME QUESTIONS ABOUT CULTURE, HERITAGE AND THE ARTS.	
IN THE LAST 12 MONTHS HAVE YOU BEEN TO ANY OF THESE EVENTS OR PLACES?	
(Read out)	
INTERVIEWER: Do not include paid work, school or academic activities	
(1) Cinema	[1/0]
(2) Library (including mobile and online)	[1/0]
(3) Classical music performance or opera	[1/0]
(4) Live music event - <u>e.g.</u> traditional music, rock concert, jazz event (not opera or classical music performance)	[1/0]
(5) Theatre - <u>e.g.</u> pantomime / musical / play	[1/0]
(6) Dance show / event - <u>e.g.</u> ballet	[1/0]
(7) Historic place - <u>e.g.</u> castle, stately home and grounds, battle or archaeological site	[1/0]
(8) Museum	[1/0]
(9) Art gallery	[1/0]
(10) Exhibition - including art, <u>photography</u> and crafts	[1/0]
(11) Street arts (<u>e.g.</u> musical performances or art in parks, streets or shopping centre)	[1/0]
(12) Culturally specific festival (<u>e.g.</u> Mela /Feis/ local Gala days)	[1/0]
(13) Book festival or reading group	[1/0]
(14) Archive or records office (<u>e.g.</u> Scotland's Family History Peoples Centre)	[1/0]
(15) Streaming of a live performance (<u>e.g.</u> theatre or dance) into a local venue such as a cinema or community hall	[1/0]
None	[1]

Table 6.9 shows the extent of cultural attendance and activity by mode of interview. Given the impact of the pandemic, it is unsurprising that cultural attendance has decreased among video respondents and telephone respondents, 43% and 59% reporting that they had done none of the categories listed compared to 19% in the

2019 data. Neither is it a surprise that the reverse pattern is seen with regard to cultural activity (such as reading, playing a musical instrument, crafts, viewing cultural content online) where participation rates have increased.

Table 6.9 Extent of cultural attendance and cultural activity done in the last year by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Number of different types of cultural attendance (cinema/library/etc.) in last year				
None	19%	19%	43%	59%
1 or 2	29%	26%	34%	29%
3 or 4	23%	20%	15%	7%
5 to 8	22%	24%	6%	4%
9+	7%	10%	1%	1%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357
Number of different types of cultural activity done in last year				
None	25%	24%	10%	18%
1 or 2	50%	45%	40%	52%
3 or 4	16%	22%	35%	20%
5 to 8	8%	9%	14%	9%
9+	1%	0%	1%	0%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357

Overall, estimates for cultural attendance and cultural participation were higher for video respondents than telephone respondents. In order to disentangle the potential impact of the profile of the different samples with the effect of the different modes, regression models were fitted to each.³⁷ After controlling for key characteristics, mode of interview was a significant factor. This means that, unless there is some confounding variable like technophobia that is causing the same people who use the telephone to also be less likely to engage culturally, or some other difference in the samples that have not been included in the models, mode of interview is having an effect on the measurement of these two estimates.

In other words, video interviewing may be slightly better than telephone interviewing at recording cultural attendance and activity. This would be consistent with the lack of a showcard leading to a slight undermeasurement of cultural participation and attendance.

³⁷ Logistic regression of any/none cultural attendance and any/none cultural activity. Independent variables included were age band, gender, highest educational qualification, rurality, and SIMD quintile. These were treated as categorical variables.

Sports participation

Adult respondents were also asked about sports participation in the last four weeks. The question used a similar format to those on cultural attendance and participation with a showcard listing different sports and exercise activities being read out to telephone respondents. Compared to 2019, fewer video respondents or telephone respondents reported having not done any sporting activity in the past four weeks (6% and 16% compared to 20%).

A regression model was fitted to whether they had participated in sports in the last four weeks. Again, after controlling for key characteristics, mode of interview was significant. This again suggests that video interviewing could be more accurate at capturing sports participation than telephone interviewing.

Table 6.10 Number of types of sporting activity undertaken in past four weeks and number of days undertaking at least one sporting activity by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Number of sports done in past four weeks				
None	20%	19%	6%	16%
1	32%	31%	39%	45%
2	21%	22%	27%	24%
3+	26%	27%	28%	15%
Total	100%	100%	100%	100%
Number of days doing sport in last four weeks				
None	20%	19%	6%	16%
1-13 days in last 4 weeks	37%	37%	27%	31%
14-20 days in last 4 weeks	15%	17%	25%	19%
21+ days in last four weeks	26%	26%	42%	33%
Don't know	1%	1%	-	1%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357

Views on council services

A number of questions in the SHS use five point disagree scales with an additional 'no opinion' category. This is a standard formulation in questionnaire design. One important example is to gather views on council services. Respondents are asked to say whether they agree or disagree with 7 different statements about their local council and two statements about decisions in their local area.

When conducted face-to-face, respondents were given a showcard with the five agree/disagree categories on it. A response of don't know/no opinion could be recorded although this was not prompted on the showcard. For the telephone respondents interviewers were asked to read out the response categories after the

first statement and then again as needed. Video respondents were able to see all the options including the no opinion option. (See Figure 6.5)

Figure 6.5 Change to Serv1: Views on council services and decisions affecting local area.

SHOWCARD N1

I AM GOING TO READ OUT A LIST OF PHRASES WHICH MIGHT BE USED TO DESCRIBE THINGS A LOCAL COUNCIL DOES. FOR EACH OF THESE, PLEASE TELL ME TO WHAT EXTENT YOU AGREE OR DISAGREE THAT IT APPLIES TO YOUR LOCAL COUNCIL.

Statements

A - My local council provides high quality services
 B - My local council does the best it can with the money available
 C - My local council is addressing the key issues affecting the quality of life in my local neighbourhood
 D - My council is good at listening to local people's views before it takes decisions
 E - My local council designs its services around the needs of the people who use them
 F - My council is good at letting local people know how well it is performing
 G - My local council is good at letting people know about what services it provides
 H - I can influence decisions affecting my local area
 I - I would like to be more involved in the decisions my council makes that affect my local area

(Read out answer codes after first statement, and then again as needed)

Response options

(1) Strongly agree	[1]
(2) Tend to agree	[2]
(3) Neither agree nor disagree	[3]
(4) Tend to disagree	[4]
(5) Strongly disagree	[5]
*No opinion	[6]

Previous research has suggested that with telephone interviews with no visual cues to the response codes tend to result in fewer neutral responses, ‘neither agree or disagree’ and ‘no opinion’, than face-to-face interviews. Table 6.11 shows the results for the statement “My Council provides high quality services”. Overall, 27% of video respondents said ‘neither agree nor disagree’ while 20% of telephone respondents did likewise. This suggests that having no showcard results in fewer neutral responses.

Table 6.11 Agreement with the statement, ‘My council provides high quality services’ by mode of interview.

	2019	2020 f2f	2020 video	2020 telephone
Strongly agree	7%	8%	7%	10%
Tend to agree	38%	36%	44%	45%
Neither agree nor disagree	24%	24%	27%	20%
Tend to disagree	16%	16%	16%	13%
Strongly disagree	10%	10%	4%	8%
No opinion	5%	6%	2%	4%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357

Table 6.12 shows the total number of neutral responses to the seven statements about their local council by mode of interview. Overall, while only 17% video respondents do not use a neutral response to any of the seven statements, the corresponding figure for telephone respondents is 34%³⁸. This again suggests that visual cues do have an impact on the estimates and that the lack of cues for the neutral options mean that these are lower among the telephone respondents. It is notable that the 17% of video respondents who do not use a neutral response to any of the seven statements is lower than the corresponding figure of 25% for the respondents in the 2019 fieldwork. This difference is likely to be driven by the visibility of the ‘no opinion’ option to video respondents.

Table 6.12 Number of neither agree nor disagree or don’t know response to the seven statements about their local council by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
0	25%	25%	17%	34%
1-2	34%	36%	43%	36%
3-4	22%	22%	28%	19%
5-7	18%	18%	12%	10%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357

Table 6.13 shows the correlation coefficients of the initial statement, “My local council provides high quality services” with the other six statements with each mode. The questions on local council services show a relatively high correlation. Moreover, there is a high degree of consistency in the correlations across mode. This is reassuring that mode is not having a more substantive impact on measuring views on local council services.

Table 6.13 Correlation of “My local council provide high quality services” with other statements on the local council by survey mode

	2019	2020 f2f	2020 video	2020 telephone
Correlation with “My council does the best it can with the money available”.	0.58	0.57	0.50	0.54
Correlation with “Local council is addressing the key issues affecting the quality of life in my local neighbourhood”	0.60	0.58	0.52	0.54
Correlation with “My council is good at listening to local people’s views before it takes decisions”	0.51	0.44	0.40	0.45
Correlation with “My local council designs its services around the needs of the people who use them”	0.55	0.51	0.56	0.51
Correlation with “My council is good at letting local people know how well it is performing”	0.33	0.32	0.22	0.31
Correlation with “My local council is good at letting people know about what services it provides”	0.40	0.37	0.35	0.40

³⁸ Both neither agree nor disagree and no opinion responses are less common for telephone respondents than for other respondents.

Material deprivation.

The questions that were used to measure material deprivation have a different set of response options. Respondents are read out a list of different items and asked whether they have it, whether they don't have it but don't want it, or whether they don't have it and can't afford. They were also given a don't know response option. These response options were shown in the video interviewing but not the telephone interview. Seven items (such as enough money to take part in a sport or exercise and enough money for home contents insurance) were asked to the full sample.

Table 6.14 shows the frequency of don't know responses to these questions. There does not appear to be a difference by mode. Unlike council services, the lack of a showcard does not appear to affect these questions.

Table 6.14 Number of don't know responses in seven material deprivation categories asked to the full sample by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
None	95%	94%	96%	95%
1	4%	5%	4%	4%
2+	1%	1%	1%	1%
Total	100%	100%	100%	100%
None	10,577	1,545	489	2,542

Religion, sexual orientation, and smoking.

Table 6.15 shows the religion and sexual orientation of adults. While the differences by mode were relatively small, it is noticeable that the estimates for 'other religion' and 'gay/lesbian/bisexual/other' were higher among video respondents than telephone respondents. The size of the difference is not large and the difference between the estimates could be due to sampling error or differences in the composition of the profiles. However, it is also possible that these differences are related to the mode of interview and people are more comfortable giving these responses when interviewed by video.

Table 6.15 Selected characteristics of adults aged 16-59 by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Religion				
None	63%	63%	64%	60%
Church of Scotland	12%	13%	13%	14%
Roman Catholic	13%	12%	9%	13%
Other Christian	7%	8%	8%	9%
Other Religion	4%	4%	6%	4%
Total	100%	100%	100%	100%
Sexual orientation				
Heterosexual/straight	97%	96%	92%	96%
Gay/Lesbian/Bisexual/Other	3%	3%	7%	4%
Refused	0%	1%	1%	1%

Total	100%	100%	100%	100%
N	5763	841	305	1077

Table 6.16 shows smoking rates by age band and mode of interview. Overall, the estimate for smoking among video respondents (5%) and telephone respondents (11%) is smaller than it was among 2019 respondents. The pattern is seen in all age groups.

Table 6.16 Whether smokes nowadays by age band and mode of interview.

	2019	2020 f2f	2020 video	2020 telephone
16-24				
Yes	14%	15%	*	7%
No	86%	85%	*	93%
Total	100%	100%	*	100%
N	617	105	28	83
25-44				
Yes	21%	19%	4%	14%
No	79%	81%	96%	86%
Total	100%	100%	100%	100%
N	2,740	393	130	426
45-59				
Yes	20%	19%	8%	15%
No	80%	81%	92%	85%
Total	100%	100%	100%	100%
N	2,406	343	147	568
60+				
Yes	12%	11%	4%	8%
No	88%	89%	96%	92%
Total	100%	100%	100%	100%
N	4,013	586	126	1,280
All				
Yes	17%	16%	5%	11%
No	83%	84%	95%	89%
Total	100%	100%	100%	100%
N	9,776	1,427	431	2,357

Modelling was undertaken in order to control for the impact of different respondent profiles. Two regression models were fitted, the first to compare video respondents with telephone respondents and the second to compare telephone respondents with 2019 respondents³⁹. After controlling for key characteristics, the mode of interview was significant in both models. This means that regardless of age, educational qualifications, SIMD and the other factors controlled for, face-to-face

³⁹ Logistic regression of whether smokes. Independent variables included were age band, gender, highest educational qualification, rurality, and SIMD quintile. These were treated as categorical variables.

respondents were more likely than telephone respondents to say they smoked, and telephone respondents were more likely than video respondents to say likewise.

These results are difficult to fully explain. The question is simple and short, “Do you smoke cigarettes nowadays?” and was asked in a consistent way across modes. The response options are obvious. It could be that there are factors missed from the model that would explain the differences, or that smoking patterns may have changed over time.

However, there is also the potential that the differences are due to mode effects, but not driven by how the question is asked. In particular, under-reporting smoking might be more likely when interviews are being undertaken remotely and the interviewer is not in the respondent’s home. However, while this would explain the higher rate of smoking among face-to-face respondents, it would not explain the difference between telephone respondents and video respondents.

Permission to recontact and random adult conversion rate

Both household and adult respondents are asked for consent to be recontacted for future research. Overall, video and telephone respondents were more likely than 2019 face-to-face respondents to give this permission (89% and 79% compared to 66%). This is likely to reflect that lower response rates will tend to lead to higher agreement to recontact rates as fewer ‘reluctant’ respondents are interviewed.

Table 6.17 Permission to be recontacted for household and random adult respondent by mode of interview.

	2019	2020 f2f	2020 video	2020 telephone
Household respondent permission to be reinterviewed				
Permission given	66%	71%	89%	79%
Permission refused	34%	29%	11%	21%
Total	100%	100%	100%	100%
N	10384	1521	489	2520
Random adult permission to be reinterviewed				
Permission given	63%	71%	87%	76%
Permission refused	37%	29%	13%	24%
Total	100%	100%	100%	100%
N	9776	1427	440	2348

There is no difference in random adult conversion rate – the proportion of household interviews where a random adult interview is also achieved – between telephone respondents and 2019 respondents. The conversion rate is slightly lower among the video sample than the telephone sample (89% compared to 92%). This suggests that if the adult respondent is different from the household respondent, the transition is more difficult using video interviewing than telephone or face-to-face interviewing.

Table 6.18 Random Adult conversion rate by mode of interview

	2019	2020 f2f	2020 video	2020 telephone
Random adult interview achieved	92%	92%	89%	92%
N	10,577	1,545	489	2,542

Summary

Two modes were available for remote interviewing, video and telephone. Overall, 16% of household respondents undertook the SHS interview by one-way video link, and 84% by telephone. This difference was likely to be partly because of the relative effort on the part of both respondents and interviewers to set-up the interview. Younger householders, those working, and those in privately rented accommodation were more likely to undertake the interview by video.

Mode of interview also differed considerably by mode of approach. For the opt-in only sample, 22% undertook the household interview by video. In contrast, only 8% of those in the telephone-matched sample did likewise.

Mode effects are complex and interact with response patterns. As well as differences in visual cues given through the showcards, there are a number of ways in which patterns of measurement error are shaped by differences in the way interviewers and respondents interact.

On a variety of other measures examined, there did not appear to be any differences by mode of interview. However, evidence of mode effects was found in a number of estimates:

- **Educational qualifications.** Video interviews appear to measure the full list of educational measures held better than other modes. This was probably due to differences in visual cues given.
- **Components of income.** Interviews conducted by video had less missing data compared to interviews conducted by telephone.
- **Cultural attendance, cultural engagement and sports participation.** Estimates for these measures were higher among those interviewed by video than among those interviewed by telephone. This appeared to be independent of any impact of the different sample profiles.
- **Use of agree/disagree scales on questions on council services.** There were fewer neutral responses (neither agree nor disagree and don't know) in telephone interviews than in video interviews. This is likely to be due to differences caused by showcards.

Despite efforts to minimise measurement error, the analysis suggests that the mode of interview is likely to have had some effect on some estimates.

Chapter 7: Summary and conclusions

Summary

Since 1999, fieldwork for the Scottish Household Survey has been conducted annually, with interviews undertaken throughout the year. It has used random pre-selected face-to-face interviewing in people's homes. In early 2020, the Covid-19 pandemic hit and fieldwork was suspended. A revised push-to-telephone/video approach was developed, piloted and adopted for the remainder of the 2020 sample. This approach involved no interviewer travel, and surveys were conducted remotely either by telephone or by video.

The change in data collection method from the traditional face-to-face interviewing to the push-to-telephone/video approach has the potential to change the accuracy of the estimates and introduce discontinuity into the data series.

- The revised design relied on approaching respondents in a different way from previously. Instead of interviewers visiting addresses face-to-face and persuading people to take part in conversation on the doorstep, either a) people opted-in via an online portal in response to advance letters or b) interviewers attempted to get agreement by telephone for the portion of the sample for which telephone numbers had been successfully matched to the sampled address. The change in mode of approach may have shaped the profile of people who agreed to take part.
- Additionally, the mode by which interviews were undertaken also changed. All interviews pre-lockdown were conducted face-to-face in-home. With no interviewer travel allowed, interviews in the revised design were conducted either by telephone or by one-way video (so that the respondent could see the interviewer, but the interviewer could not see the respondent). The change in mode of interview may have shaped how people respond to questions.

The unadjusted⁴⁰ overall response rate achieved using the revised approach was 20%, 14% for the opt-in only sample, and 37% for the telephone matched sample. This compares to a response rate in 2019 of 63%. There was considerably more variation in response rates across different types of area compared to the face-to-face in-home approach. Response rates were particularly low among those in the most deprived areas.

After calibration weighting, for most measures where major changes would not be expected, the estimates were in line with those from 2019. However, there were a number of estimates where the level of change is less likely to reflect a plausible change over time. Among the household measures, these were tenure (with a sizeable increase in owner-occupation and a sizeable decrease in social rented

⁴⁰ Normally, response rates are adjusted to account for deadwood.

housing) and length of time at their property (with an increase in the proportion who had lived at their address for over 15 years). Among the random adult measures, highest educational attainment and satisfaction with local health services showed large differences compared to 2019.

For a range of other measures – such as an increase in the proportion of people feeling lonely, being able to rely on neighbours, cultural attendance and visits to the outdoors – there were notable changes from 2020. However, although we cannot discount that the change in approach has had some impact on comparability, these changes were all plausible and may well be due to the impact of the pandemic.

Comparing the quality of estimates from the telephone-matched sample and the opt-in sample is difficult, due to different coverage (because of differences in the profile of addresses where we were able to obtain a matched telephone number). However, after corrective weighting, most estimates from the opt-in only sample tended to be closer to the 2019 estimates than those for the telephone-matched sample. The sample with matched telephone numbers particularly under-represented younger householders, those in social rented and private rented housing, and those who have lived in their current address for a short period of time. (This is likely to reflect patterns in land-line usage in the telephone-matched sample). There is one notable exception, educational attainment, with the opt-in only sample over-representing those with degree level qualifications.

Analysis of the impact of mode effects on who responds is also challenging, partly because of the various ways that mode can frame the interviewer-respondent relationship and because these effects are difficult to untangle from changes to the sample profile. Overall, 16% of household respondents undertook the SHS interview by one-way video link, and 84% by telephone. Younger householders, those working, and those in privately rented accommodation were more likely to undertake the interview by video.

On a variety of measures examined, there did not appear to be any differences by mode of interview. However, evidence of a mode effect was found in a number of estimates. This suggests that, despite efforts to minimise measurement error, the mode of interview is likely to have had some effect on some estimates

Conclusions

All surveys are subject to various different types of error and bias that cannot be fully addressed through weighting, such as non-response bias and differences in how questions are answered that are framed by survey mode. Consistency of approach year on year helps to ensure that one year's results can confidently be compared to the next. In 2020, the pandemic forced the survey to change approach.

The analysis found that most estimates were consistent with previous findings, or showed changes that were plausible and could be attributed to the likely impact of the pandemic. It also found evidence of changes to a number of estimates of key measures that appear to be driven by the change in approach.

This means that it is not possible to determine the extent to which any differences between 2020 and previous years represent genuine changes in people's views and experiences, as opposed to being due to changes in how the survey was carried out. However, difficulty in making comparisons between the 2020 survey and previous years does not mean that the data from the 2020 SHS is poor quality, as mode effects do not necessarily imply changes in data quality.

More widely, the results provide evidence to feed into consideration of changing the approach for the survey in the future and adopting innovative methods.

The response rate for the revised approach was considerably lower than the previous approach. Respondents were more likely to be older, living in less deprived areas, and in owner-occupation. Differences in response rates across different types of areas were larger. While data is weighted to try to mitigate against these effects, is it likely that an approach with a considerably lower and variable response rate is likely to result in greater non-response bias and poorer quality of estimate.

Face-to-face approaches are better at including 'harder to reach' respondents, such as those who are less affluent and less educated. At the heart of this is the role interviewers play in persuading people to take part in surveys, particularly reluctant respondents who are unlikely to take part in opt-in only surveys – those with lower literacy skills, those with busy and/or chaotic lifestyles, those who are wary of divulging information about themselves, those who are less civically engaged, and those who are less research-literate. Weighting will, at best, only partially mitigate against this bias.

Moreover, these types of respondent are important not only for accuracy of survey estimates. They are also often the groups public policy initiatives are intended to reach, and of high interest to policy makers and survey analysts.

A 'knock-to-nudge' approach – where interviewers visit addresses to attempt to persuade people to take part face-to-face, but conduct the survey interview remotely – is likely to help ensure that more people from 'harder to reach' groups respond. This approach was not possible in 2020, because of the public health guidelines.

More generally, the findings reinforce some of the other reasons why face-to-face fieldwork has been considered the gold standard of survey methods. Compared to standard telephone and online surveys, there is very little coverage error, and this is likely to be stable over time. Interviewers can record deadwood. There is flexibility in where to target fieldwork effort, and the ability to target resources in ways to increase precision and minimise bias. And during the interview, interviewers can act as a deterrent against respondents giving answers that require minimum effort.

With regard to mode effects and measurement error, there was some indication that interviewing by video provides more accurate estimates than interviewing by telephone – particularly with questions that rely on showcards, and those with a sizeable number of response categories. If a mixed-mode approach was employed,

these impacts might be mitigated by additional questionnaire testing and development to minimise variation by mode. However, any such adaptations would also impact comparisons over time.

Additionally, the trade-off between non-response bias and measurement error in mode choice needs to be considered. Choice in how people take part will encourage participation but may lead to differences in measurement error. There is a tension between making sure that reluctant and busy respondents take part and ensuring that their responses are as accurate as possible. Video interviewing does appear to lead to more accurate estimates. However, so far only a small proportion of people have undertaken the survey via this mode. A choice of modes may help encourage participation overall but may also lead to differences in measurement error. While remote modes could be combined with an in-home face-to-face approach (to provide a 'Covid-secure' approach for people who are uncomfortable undertaking the survey face-to-face), there are trade-offs to be made in how much flexibility is provided and how much the preferred mode is incentivised.

Any revised approach to the SHS needs to be robust over the long-term. A change of approach may introduce a break in the time-series, making it difficult to compare results over time. The likely impact on the representativeness of the sample, and the impact of mode(s) of interview on measurement error, should be considered as part of any potential move away from in-home interviewing to remote interviewing. And any cost savings should be weighed against the likely impact on the accuracy of estimates.

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Appendix 2: Corrective weighting

This appendix details the revised weighting approaches that were considered for the 2020 SHS.

The usual SHS weighting approach calibrates to published NRS mid-year household and population estimates by age and sex within local authorities. For full details on the usual SHS weighting approach and selection weighting, see the 2019 SHS methodology and fieldwork outcomes report⁴¹.

The shift from face-to-face to remote interviewing was associated with a change in the profile of respondents – including a notable decrease in the proportion of respondents living in rented accommodation, and a corresponding increase in the proportion of owner occupiers. This is unlikely to be a genuine shift, and raises the question of whether alternative weighting strategies would assist in making the data more representative.

Non-response weighting is always problematic, because while we have a great deal of information about people who respond to the survey, we know very little about those who do not.

A calibration model for a survey should:

- Be simple, including as few variables as possible to avoid over-fitting the survey data to the model⁴² and avoid having small groups with few or no respondents in them.
- Set calibration targets using known/accepted population totals that are independent of the survey being calibrated⁴³.
- Include variables for which non-response bias is apparent and that are associated with other measures in the survey.

Five different calibration models were considered.

⁴¹ <https://www.gov.scot/publications/scottish-household-survey-2019-methodology-fieldwork-outcomes/>

⁴² Generally speaking, a calibration model with more constraints will produce weights that are more extreme/have more variation and this will result in larger design effects and confidence intervals. This is another reason for wanting to minimise the number of constraints/variables in a calibration model.

⁴³ It is generally not best practice to calibrate a survey to data from a previous year of the survey. This does nothing to get rid of any underlying non-response bias built into the survey. Furthermore, it is not ideal to calibrate a survey to survey estimates rather than administrative data, because of the sample errors associated with the survey data. When using survey data in a calibration model, the confidence intervals for weighted estimates that arise from these models should reflect the sample error in the calibration targets. This can be done but would involve a lot of effort (see Berger et al. and Estevao and Särndal).

Calibration model 1

The first calibration model considered was as close to the usual SHS calibration model as possible given the smaller sample sizes.

A household weight was created such that the population in households matched population estimates from the National Records of Scotland (NRS) for 2020⁴⁴ by age band (0 to 15, 16 to 34, 35 to 54, 55 to 64 and 65 or over) and sex⁴⁵ for each local authority, and by more detailed age bands (0 to 15, 16 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64 and 65 or over) and sex nationally. An adjustment was then made such that the distribution of households by local authority matched household estimates from NRS for 2020⁴⁶.

A random adult weight was created such that the random adults who responded to the survey matched the NRS population estimates for 2020 by broad age band (16 to 64 and 65 or over) and sex for each local authority, and by more detailed age band (16 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64 and 65 to 74 and 75 and over) and sex nationally.

A random schoolchild weight was created such that the randomly selected schoolchildren in the survey matched an estimate of schoolchildren using the NRS population estimates for 2020 and SHS data⁴⁷ by local authority and by age band (4 to 6, 7 to 9, 10 to 12 and 13 or over) nationally.

Calibration model 2

The first calibration model did not explicitly take steps to account for differential non-response by deprivation and rurality, which was more apparent in 2020 than in previous years (see Chapter 4). Therefore, the second calibration model we considered extended the first one to include the Scottish Index of Multiple Deprivation (SIMD) and Urban Rural Classification.

A household weight was created such that all the constraints of the first calibration model were met, and the population in responding households and the households

⁴⁴ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2020>

⁴⁵ Information on gender was collected in the 2020 SHS but the survey was calibrated to NRS population estimates that are based on sex. Where a respondent in the SHS reported their gender identity as 'In another way' or refused to provide an answer then, only for the purpose of calibrating the survey to NRS estimates, they were randomly allocated to a female or male gender.

⁴⁶ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-estimates/2020>

⁴⁷ For more details see the 2019 SHS methodology and fieldwork outcomes report: <https://www.gov.scot/publications/scottish-household-survey-2019-methodology-fieldwork-outcomes/>

themselves matched small area population⁴⁸ and household⁴⁹ estimates from the NRS for 2020 by SIMD quintile (quintile 1, quintiles 2 to 4 combined and quintile 5) by local authority, and Urban Rural Classification (Large/other urban areas and all other areas combined) by local authority.

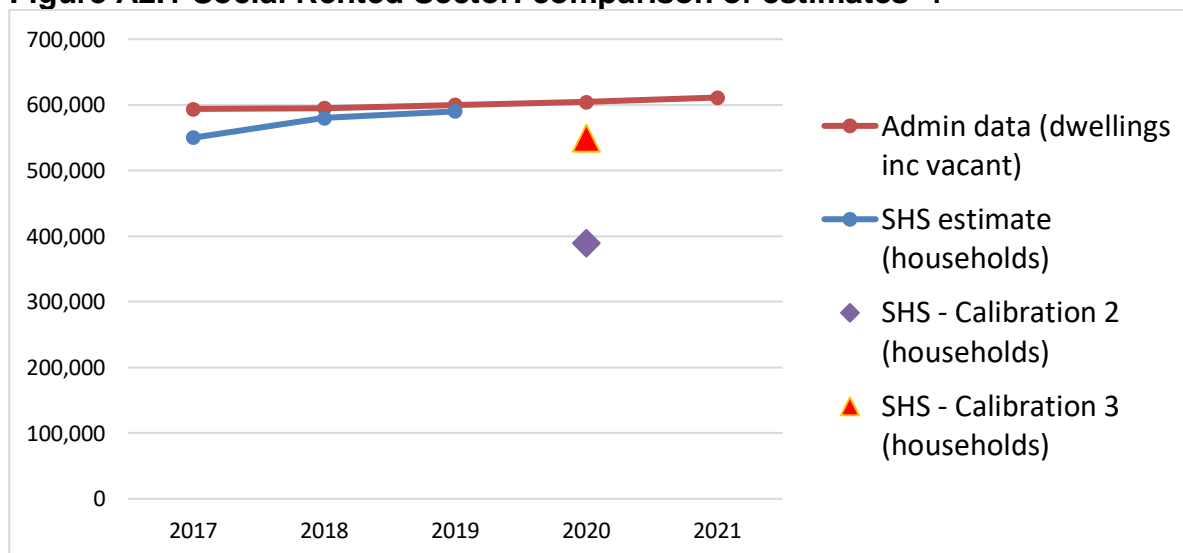
Weights for the random adult and random schoolchild were created in a similar way, by including calibration totals based on SIMD quintile and Urban Rural Classification

Calibration model 3

The third calibration model extended the second one. A constraint was added to ensure that households, adults and school children matched percentage estimates by household tenure (owner occupied households and all other tenures combined) and local authority from the Scottish Survey Core Questions (SSCQ) 2019⁵⁰.

We considered a calibration model that included household tenure in an attempt to resolve the over representation of owner occupied households and under representation of rented households in the achieved sample as discussed in Chapter 5. Figures A2.1 and A2.2 compare the SHS estimates for the size of the Social Rented Sector and the Private Rented Sector against estimates from administrative data. They also show the difference in estimates between calibration model 2 and 3 for the 2020 data. These show that the estimates using the weights from model 3 are more plausible than model 2.

Figure A2.1 Social Rented Sector: comparison of estimates⁵¹.



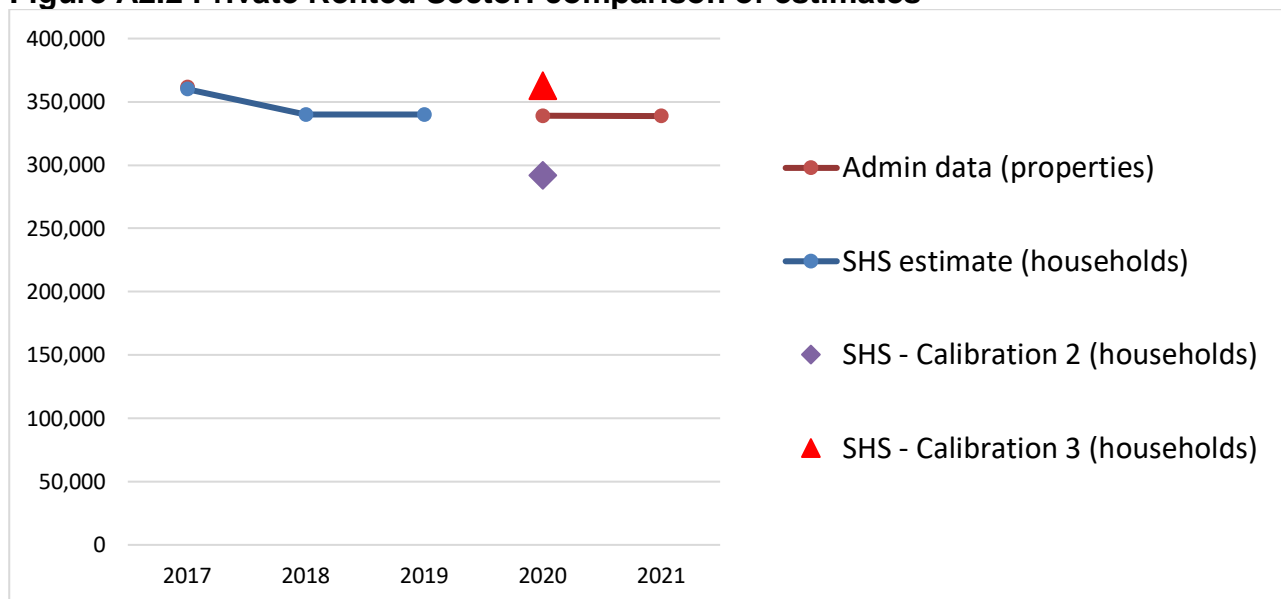
⁴⁸ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/small-area-population-estimates-2011-data-zone-based/mid-2020>

⁴⁹ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-estimates/small-area-statistics-on-households-and-dwellings>

⁵⁰ <https://www.gov.scot/publications/scottish-surveys-core-questions-2019/>

⁵¹ See Chapter 3 for details of the administrative sources and comparability with SHS estimates.

Figure A2.2 Private Rented Sector: comparison of estimates



We acknowledge that it is not best practice to calibrate a survey against itself. Since the SHS is a major component of the SSCQ, this is effectively what we were doing by calibrating to estimates of household tenure from the SSCQ 2019. However, due to the lack of complete administrative data or data from a recent census on household tenure, there was no ideal alternative if we wished to consider a calibration model that included household tenure. Furthermore, the available administrative data on social housing stock from social landlords and on private rented properties from the Landlord Registration System indicates that the number of households in the social rented and private rented sectors are likely to have remained at relatively similar levels across the 2020 period compared to 2019, with the number of social rented dwellings expected to have seen a slight increase in 2020 due to the increase in recent years in the level of new affordable housing along with the ending of the Right to Buy scheme. This provides justification and reassurance for this calibration model.

The SSCQ 2019 was chosen over the 2019 SHS as the source of calibration targets for household tenure as estimates from the SSCQ are from a larger (pooled) sample and have smaller confidence intervals.

Calibration model 4

The fourth calibration model also extended the second one. A constraint was added to ensure that households, adults and school children matched estimates by dwelling type (houses and all other dwelling types combined) and local authority from the 2019 SHS⁵².

Although houses are over represented in the achieved sample relative to flats and other dwelling types, the extent of the bias is not as pronounced as it is for household tenure. We did not, therefore, consider a calibration model that included

⁵² <https://www.gov.scot/publications/scottish-household-survey-2019-annual-report/>

dwelling type primarily to reduce the apparent bias in dwelling type. Household tenure is associated with dwelling type, and it was hoped by including dwelling type in the calibration model that this would reduce the bias in household tenure. If this were to prove to be the case, it may have been possible to use administrative data on dwelling type by local authority in the calibration model and avoid having to calibrate the survey using a previous wave of itself.

Calibration model 5

The fifth calibration model was also an extension of the second one. A constraint was added to ensure that, when weighted, the ratio of the opt-in only sample to the telephone matched sample was 72:28 (18:7).

This calibration model was considered in the hope that it would adjust for the over-representation of telephone matched households in the achieved sample, due to their higher response rate. In general, the estimates from the telephone matched sample are substantially further from the benchmark 2019 (or 2018) figures than those from the opt-in only sample (see Chapter 5). The reasons for this include the under-representation in the telephone matched sample of younger households, those in social rented and private rented housing, and those who have lived in their current address for a short period of time. Therefore, giving more weight to the opt-in only sample could reduce this bias.

The ratio was set such that the samples were weighted in proportion to the inverse of their response rates. The response rates were 37.1% for the telephone matched sample and 14.5% the opt-in only sample (see Table 4.7).

Comparison of the models

We used these five calibration models to produce five sets of weights. These weights were then used to produce estimates for a selection of household and random adult questions asked in the survey. These estimates are provided in Tables A2.1 to A2.4, and are compared with benchmark estimates from 2019 (or 2018 for the biennial questions).

Table A2.1 Geographical measures by calibration model

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Urban/rural indicator											
Large Urban	35%	35%	-1%	35%	0%	35%	0%	35%	0%	35%	0%
Other Urban	35%	33%	-3%	36%	1%	36%	1%	36%	1%	36%	1%
Accessible Small Towns	9%	10%	2%	9%	0%	9%	0%	9%	0%	9%	0%
Remote Small Towns	4%	3%	-1%	3%	-1%	2%	-1%	3%	-1%	3%	-1%
Accessible Rural	11%	13%	3%	11%	0%	12%	1%	11%	0%	11%	1%
Remote Rural	6%	7%	1%	6%	0%	6%	0%	6%	0%	6%	0%
SIMD Quintile											
Most deprived	21%	15%	-6%	21%	0%	21%	0%	21%	0%	21%	0%
2nd	21%	17%	-4%	17%	-4%	18%	-3%	17%	-4%	16%	-4%
Middle quintile	20%	20%	0%	19%	-1%	19%	-1%	19%	-1%	19%	-1%
4th	20%	26%	6%	25%	6%	23%	4%	25%	6%	25%	6%
Least deprived	19%	23%	4%	18%	-1%	18%	-1%	18%	-1%	18%	-1%

Table A2.2 Household measures by calibration model

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Tenure											
Owner-occupied	62%	74%	13%	72%	10%	62%	1%	71%	9%	71%	10%
Social Rented	24%	14%	-10%	16%	-8%	22%	-2%	17%	-7%	16%	-8%
Private Rented	14%	11%	-3%	12%	-2%	14%	1%	12%	-2%	12%	-2%
Other	1%	1%	0%	1%	0%	1%	0%	1%	0%	1%	0%
Length of time at address⁵³											
Less than a year	11%	8%	-3%	8%	-3%	9%	-2%	8%	-3%	8%	-3%
1-3 years	20%	20%	0%	21%	1%	21%	1%	21%	1%	22%	2%
4-15 years	35%	34%	-2%	34%	-1%	35%	0%	34%	-1%	35%	0%
Over 15 years	34%	38%	4%	37%	3%	36%	2%	37%	3%	35%	1%
Property type											

⁵³ The household weight has been applied to this random adult question to obtain an estimate of households. Households with no completed random adult interview are excluded.

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
House	66%	70%	4%	68%	2%	66%	0%	66%	0%	67%	1%
Flat	34%	30%	-4%	32%	-2%	34%	0%	34%	0%	33%	-1%
Other	1%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%
Household type											
Single adult	20%	16%	-5%	17%	-4%	18%	-3%	17%	-4%	17%	-3%
Small adult	20%	19%	-1%	19%	-1%	18%	-2%	18%	-2%	19%	-1%
Single parent	4%	4%	-1%	4%	0%	4%	0%	4%	0%	4%	-1%
Small family	13%	14%	2%	14%	1%	13%	1%	14%	2%	14%	1%
Large family	5%	6%	1%	7%	2%	7%	2%	7%	2%	7%	2%
Large adult	9%	12%	3%	12%	3%	11%	2%	12%	3%	11%	2%
Older smaller	14%	16%	3%	16%	2%	15%	2%	15%	2%	15%	2%
Single pensioner	14%	12%	-2%	12%	-2%	13%	-1%	13%	-2%	13%	-2%
Household working status											
Single working adult	20%	16%	-3%	17%	-3%	17%	-3%	17%	-3%	17%	-3%
Non-working single	26%	22%	-5%	22%	-4%	25%	-2%	23%	-3%	23%	-3%
Working couple	30%	34%	4%	34%	4%	32%	2%	33%	3%	33%	3%
Couple, one works	10%	13%	2%	12%	2%	13%	2%	12%	2%	12%	1%
Couple, neither work	14%	15%	2%	15%	1%	14%	1%	15%	1%	15%	1%
Net annual household income											
GBP 0 to GBP 10,000	8%	6%	-2%	7%	-2%	7%	-1%	7%	-2%	7%	-2%
GBP 10,001 to GBP 20,000	27%	20%	-7%	20%	-6%	23%	-4%	21%	-6%	21%	-6%
GBP 20,001 to GBP 30,000	21%	21%	0%	22%	0%	21%	0%	22%	0%	22%	0%
GBP 30,001 to GBP 40,000	15%	17%	1%	16%	1%	16%	1%	16%	1%	16%	1%
GBP 40,001 and above	28%	36%	8%	35%	7%	33%	4%	34%	6%	34%	6%
Whether struggling financially											
Struggling financially	9%	6%	-3%	7%	-2%	8%	-1%	7%	-2%	7%	-2%

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Satisfaction with housing											
Very/fairly satisfied	90%	94%	4%	94%	4%	94%	4%	94%	4%	94%	4%

Table A2.3 HIH measures by calibration model

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
HIH Banded age											
16-24	5%	2%	-2%	2%	-2%	3%	-2%	2%	-2%	2%	-2%
25-44	30%	31%	0%	31%	1%	30%	0%	30%	0%	31%	0%
45-59	29%	29%	0%	30%	1%	30%	1%	30%	2%	30%	1%
60+	36%	38%	2%	37%	1%	37%	1%	37%	1%	37%	1%
HIH Gender											
Man/Boy	58%	58%	1%	58%	0%	58%	0%	58%	0%	58%	0%
Woman/Girl	42%	42%	-1%	42%	0%	42%	0%	42%	0%	42%	0%
HIH Economic status											
Self employed	7%	6%	-1%	6%	-1%	6%	-1%	6%	-1%	6%	-1%
Employed full time	44%	47%	4%	47%	3%	46%	2%	47%	3%	46%	3%
Employed part time	7%	7%	0%	7%	0%	7%	0%	7%	0%	7%	0%
Looking after the home/family	2%	1%	-1%	1%	-1%	1%	-1%	1%	-1%	1%	-1%
Retired from work	28%	30%	1%	29%	1%	29%	1%	29%	1%	30%	1%
Unemployed	2%	3%	0%	3%	1%	4%	1%	3%	1%	3%	1%
In further/higher education	3%	2%	-1%	2%	-1%	2%	-1%	2%	-1%	2%	-1%
Permanently sick or disabled	5%	3%	-2%	4%	-1%	4%	-1%	4%	-1%	4%	-1%
Short-term illness or injury	1%	1%	0%	1%	0%	1%	0%	1%	0%	1%	0%

Table A2.4 Random adult measures by calibration model

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Banded age											
16-24	11%	12%	1%	12%	1%	12%	1%	12%	1%	12%	1%
25-44	33%	31%	-2%	31%	-2%	31%	-2%	31%	-2%	31%	-2%
45-59	26%	24%	-2%	24%	-2%	24%	-2%	24%	-2%	24%	-1%
60+	30%	32%	2%	32%	2%	32%	2%	32%	2%	32%	1%
Gender											
Man/Boy	48%	48%	0%	49%	0%	48%	0%	48%	0%	49%	0%
Woman/Girl	52%	51%	0%	51%	0%	51%	0%	51%	0%	51%	0%
Ethnicity											
White Scottish/British	89%	90%	1%	90%	1%	90%	1%	90%	1%	90%	1%
White other ⁵⁴	7%	5%	-1%	5%	-2%	6%	-1%	5%	-1%	5%	-1%
Minority ethnic groups ⁵⁵	4%	4%	0%	4%	0%	5%	0%	4%	0%	5%	0%
Highest educational attainment											
None	15%	10%	-5%	11%	-4%	12%	-3%	11%	-4%	11%	-5%
Level 1 - O grade etc	17%	13%	-4%	14%	-4%	14%	-3%	14%	-4%	13%	-4%
Level 2 - Higher, A	17%	19%	2%	19%	2%	19%	2%	19%	2%	19%	2%
Level 3 - HNC/HND	13%	13%	0%	13%	0%	13%	0%	13%	0%	13%	0%
Degree or prof qual	32%	41%	9%	40%	8%	38%	6%	40%	8%	41%	9%
Other qualification	5%	3%	-2%	3%	-2%	3%	-2%	3%	-2%	3%	-2%
General health											
General health bad or very bad	8%	5%	-4%	6%	-3%	7%	-2%	6%	-3%	6%	-3%
Disability											
Disabled	24%	22%	-3%	23%	-1%	25%	1%	23%	-1%	23%	-1%
Non-disabled	75%	78%	3%	77%	2%	75%	-1%	76%	1%	77%	1%
Greenspace											

⁵⁴ 'White other' includes Irish, Gypsy/Traveller, Polish and other white ethnic groups

⁵⁵ 'Minority ethnic groups' includes mixed or multiple, Asian, African, Caribbean or Black, Arab or any other ethnic groups

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Within 5 mins of greenspace	66%	68%	3%	68%	2%	67%	2%	67%	2%	68%	3%
Personal use of the internet											
Used internet for personal use	87%	92%	5%	92%	4%	91%	3%	91%	4%	92%	5%
Culture and Heritage											
Cultural attendance	81%	45%	-36%	44%	-37%	44%	-37%	44%	-37%	45%	-36%
Cultural participation	75%	84%	9%	83%	8%	82%	7%	83%	8%	84%	8%
Cultural engagement	90%	87%	-3%	86%	-4%	86%	-5%	86%	-4%	87%	-4%
Physical Activity and Sport											
Participated in sport in last 4 weeks	80%	87%	7%	86%	6%	85%	5%	86%	6%	86%	7%
Discrimination and Harassment											
Experienced either discrimination or harassment	9%	8%	-1%	8%	-1%	9%	-1%	9%	-1%	9%	-1%
Satisfaction with local services											
Satisfied with local health services (excluding no opinion)	80%	88%	9%	88%	9%	88%	8%	88%	9%	88%	9%
Satisfied with local schools (excluding no opinion)	73%	78%	5%	78%	5%	78%	5%	78%	5%	78%	4%
Satisfied with public transport (excluding no opinion)	68%	69%	1%	70%	2%	70%	2%	70%	2%	69%	2%
Satisfied with all three services (no opinion for up to two)	53%	60%	7%	61%	8%	60%	8%	61%	8%	60%	8%
Outdoors											
One+ visits to the outdoors	56%	80%	24%	79%	23%	77%	21%	79%	23%	79%	23%
Social capital											

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
Feels lonely some, most, almost all or all of the time ⁵⁶	21%	34%	13%	35%	13%	36%	15%	36%	15%	35%	14%
Meets socially at least once a week ⁵⁷	73%	43%	-30%	43%	-30%	42%	-30%	43%	-29%	43%	-30%
Volunteering											
Volunteered	26%	26%	0%	26%	0%	25%	-1%	25%	-1%	26%	0%
Provided unpaid help to improve their local environment ⁵⁸	4%	8%	4%	8%	3%	7%	3%	8%	3%	8%	4%
Rating of neighbourhood											
Rating of neighbourhood as very good	57%	62%	5%	59%	2%	58%	1%	59%	2%	59%	2%
Rating of neighbourhood as fairly good	37%	35%	-2%	37%	0%	38%	1%	37%	0%	37%	0%
Community belonging											
Very/fairly strong feeling on belonging to immediate neighbourhood	78%	81%	4%	81%	3%	80%	2%	80%	3%	80%	2%
Agreement with statements about local neighbourhood											
If I was alone and needed help, I could rely on someone in this neighbourhood to help me	85%	88%	3%	88%	2%	86%	1%	87%	2%	87%	2%
If my home was empty, I could count on someone in this neighbourhood to keep an eye on my home	85%	88%	3%	88%	3%	86%	1%	87%	2%	87%	2%
I feel I could turn to someone in this neighbourhood for advice or support	78%	81%	2%	80%	2%	78%	0%	80%	1%	80%	1%
In an emergency, I would offer to help people in my	90%	92%	3%	92%	2%	91%	1%	92%	2%	92%	2%

⁵⁶ Figures for 2018 rather than 2019 for these measures (biennial questions)

⁵⁷ Figures for 2018 rather than 2019 for these measures (biennial questions)

⁵⁸ Figures for 2018 rather than 2019 for these measures (biennial questions)

	2019	Model 1	Diff (-2019)	Model 2	Diff (-2019)	Model 3	Diff (-2019)	Model 4	Diff (-2019)	Model 5	Diff (-2019)
neighbourhood who might not be able to cope well											
This is a neighbourhood where people are kind to each other	83%	90%	7%	89%	6%	88%	6%	89%	6%	89%	6%
This is a neighbourhood where most people can be trusted	79%	85%	7%	84%	5%	82%	4%	83%	5%	84%	5%
There are welcoming places and opportunities to meet new people	52%	54%	3%	54%	2%	54%	2%	54%	2%	54%	2%
There are places where people can meet up and socialize	57%	61%	4%	61%	4%	61%	4%	62%	5%	61%	4%
This is a neighbourhood where people from different backgrounds get on well together	69%	77%	7%	77%	8%	76%	6%	76%	7%	76%	7%
This is a neighbourhood where local people take action to help improve the neighbourhood	57%	68%	11%	67%	10%	65%	8%	66%	9%	67%	10%
I can influence decisions affecting my local area	18%	24%	7%	25%	7%	25%	7%	24%	7%	25%	7%

Table A2.1 shows that all calibration models except for the first one (which does not include Urban Rural Classification and SIMD) correct for the under-representation of households from urban and deprived areas. As many survey measures are likely to be associated with rurality and deprivation, it is important to correct for the under-representation of these households.

For household and HIH measures, generally all calibration models brought most estimates into line with the benchmark estimates from 2019 (see Tables A2.2 and A2.3). One exception to this was household tenure (see Table A2.2). Only the third calibration model, which includes SSCQ 2019 estimates of household tenure, produced (by constraint) a household tenure profile that was plausible in comparison to that from the 2019 SHS.

For random adult measures, generally all calibration models also brought most estimates into line with the benchmark estimates from 2019 or, for biennial questions, 2018 (see Table A2.4). However, there were some random adult measures (e.g. highest educational attainment, satisfaction with local health services, cultural attendance and visits to the outdoors) with large differences compared to the benchmark estimates from 2019.

The substantial changes in cultural attendance and visits to the outdoors are likely to be due to the pandemic. The increase in satisfaction with local health services could be genuine, resulting from the increased appreciation for the NHS that we have seen during the pandemic. But it could also be driven, at least in part, by the change in mode, and/or by non-response bias (i.e. people who chose to take part in 2020, despite interviewers not being able to persuade them face to face to take part, might tend to be generally more positive people than respondents in previous years).

The increase in respondents with a degree or professional qualification is likely to be due to a different pattern of non-response compared to previous years. We could have considered a calibration model that included highest educational attainment, as we have done for household tenure. However, it is unlikely this would have much if any impact on the changes seen in other random adult measures (e.g. satisfaction with local health services, cultural attendance and visits to the outdoors), as the changes in the measures are generally consistent across attainment levels.

Except for measures included in the calibration models (e.g. household tenure), the calibration models produced similar results for all household and random adult measures. It is likely that the calibration models produced similar results because of associations between the variables used in the models. For example, household tenure is associated with age, deprivation, dwelling type and rurality. Measures associated with household tenure are also likely to be associated with age, deprivation, dwelling type and rurality.

However, though household tenure is associated with age, deprivation, dwelling type and rurality, including these variables in the calibration models did not correct

for the over-representation of owner occupied households in the sample relative to private and social rented households. This is because this over-representation is generally consistent across all ages, levels of deprivation, dwelling types and rurality. The only way to correct for this over-representation via calibration is to consider a calibration model that includes household tenure. Furthermore, a separate assessment undertaken for measures related to housing, focussing on the second and third calibration models, showed that the third model (calibrated to household tenure) appears to give some more feasible looking results compared with the second model when looking across a range of housing related measures such as dwelling type, number of bedrooms, housing views and aspirations, and households on a housing list. This supports the use of the weights produced by the third calibration model when reporting on housing related measures for 2020.

Re-weighting 2019 data based on new approach

For quality assurance, the 2019 SHS was re-weighted using the second calibration model and it was found that this generally made very little difference to any estimates. Full details are not provided here but are available upon request.

Conclusions

Since all calibration models produced similar results for non-housing related measures, we opted to weight the non-housing related results presented in the key findings report using the second calibration model. This is similar to the usual SHS calibration model, with the addition of Urban Rural Classification and SIMD to address the more pronounced under-representation of households from urban and deprived areas than in previous years. With these additions, it is similar to the model used to weight the results from the 2020 Scottish Health Survey telephone survey⁵⁹. All of the calibration targets for this model are sourced from NRS population and household estimates.

The only other calibration model that merited consideration was the third one, which included SSCQ 2019 estimates of household tenure. The obvious benefit of this model over the second one is that it brings housing related measures, e.g. tenure, dwelling type, number of bedrooms, housing views and aspirations, and households on a housing list, more into line with estimates from the 2019 SHS. Therefore, we opted to weight the housing results presented in the key findings report using this calibration model.

It is worth noting that as the third calibration model contains more constraints than the second calibration model, it produces weights that are more extreme/have more variation and this results in slightly larger design effects⁶⁰ and confidence intervals. Therefore, we felt it was best to use the third calibration model only when the non-response bias in household tenure that was being corrected was also having a

⁵⁹ <https://www.gov.scot/publications/scottish-health-survey-telephone-survey-august-september-2020-main-report/>

⁶⁰ The survey average design factor for the second calibration model was calculated to be 1.34 compared to 1.41 for the third calibration model.

corrective effect on other measures associated with tenure. This was most notable for housing related measures and less so for non-housing related measures.

Appendix 3: Seasonal effects

The 2020 face-to-face fieldwork was undertaken between January and 16 March 2020. The 2020 push-to-telephone/video fieldwork took place during the months of October 2020 and January to March 2021, whereas SHS face-to-face surveys normally run throughout the year.

The SHS is designed to provide results that are representative on an annual basis and not on a quarterly basis.

This appendix looks at the level of fluctuation in key SHS estimates on a quarterly basis. These fluctuations are due to three different drivers:

- Sampling error and the natural propensity for estimates from survey samples to vary.
- Fieldwork practicalities. Once the sample is drawn, all addresses are batched into workable assignments and scheduled for a particular month. This means that for each quarter the addresses worked are not necessarily representative of Scotland as a whole. While we would expect fieldwork in each local authority to be carried out throughout the year, it is possible that for any one quarter, the addresses will be clustered in parts of the council area. Additionally, weighting is carried out only on an annual basis and not on a quarterly basis.
- Real seasonal effects, for example in employment rates.

A range of geographical, household and random adult measures from the 2019 SHS (or the 2018 SHS for biennial even questions) have been analysed by quarter, and the results are presented in Tables A3.1 to A3.4.

Table A3.1 Geographical measures by quarter and the 95 percent confidence intervals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Urban/rural indicator				
Large Urban	34% ± 2%	35% ± 2%	36% ± 2%	34% ± 2%
Other Urban	38% ± 2%	33% ± 2%	34% ± 2%	39% ± 2%
Accessible Small Towns	10% ± 1%	9% ± 1%	8% ± 1%	8% ± 1%
Remote Small Towns	4% ± 1%	4% ± 1%	4% ± 1%	3% ± 1%
Accessible Rural	11% ± 1%	11% ± 1%	11% ± 1%	11% ± 1%
Remote Rural	4% ± 1%	8% ± 1%	7% ± 1%	5% ± 1%
SIMD Quintile				
Most deprived	19% ± 2%	21% ± 2%	22% ± 2%	22% ± 2%
2nd	21% ± 2%	19% ± 2%	22% ± 2%	20% ± 2%
Middle quintile	19% ± 2%	23% ± 2%	19% ± 2%	20% ± 2%
4th	21% ± 2%	19% ± 2%	19% ± 2%	20% ± 2%
Least deprived	20% ± 2%	19% ± 2%	19% ± 2%	18% ± 2%

Table A3.2 Household measures by quarter and the 95 percent confidence intervals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Tenure				
Owner-occupied	62% ± 2%	63% ± 2%	62% ± 2%	59% ± 2%
Social Rented	23% ± 2%	25% ± 2%	23% ± 2%	23% ± 2%
Private Rented	14% ± 2%	11% ± 1%	13% ± 1%	17% ± 2%
Other	1% ± 0%	1% ± 0%	1% ± 0%	1% ± 0%
Length of time at address⁶¹				
Less than a year	12% ± 2%	8% ± 1%	11% ± 1%	14% ± 2%
1-3 years	18% ± 2%	20% ± 2%	20% ± 2%	21% ± 2%
4-15 years	35% ± 2%	35% ± 2%	35% ± 2%	36% ± 2%
Over 15 years	36% ± 2%	36% ± 2%	34% ± 2%	30% ± 2%
Property type				
House	66% ± 2%	66% ± 2%	68% ± 2%	63% ± 2%
Flat	34% ± 2%	33% ± 2%	32% ± 2%	37% ± 2%
Other	0% ± 0%	0% ± 0%	1% ± 0%	1% ± 0%
Household type				
Single adult	21% ± 2%	20% ± 2%	18% ± 2%	23% ± 2%
Small adult	21% ± 2%	19% ± 2%	20% ± 2%	21% ± 2%
Single parent	4% ± 1%	4% ± 1%	4% ± 1%	5% ± 1%
Small family	13% ± 2%	13% ± 1%	13% ± 1%	13% ± 2%
Large family	5% ± 1%	5% ± 1%	6% ± 1%	5% ± 1%
Large adult	9% ± 1%	8% ± 1%	9% ± 1%	9% ± 1%
Older smaller	13% ± 2%	15% ± 2%	14% ± 1%	13% ± 2%
Single pensioner	14% ± 2%	17% ± 2%	15% ± 1%	12% ± 1%
Household working status				
Single working adult	19% ± 2%	19% ± 2%	19% ± 2%	21% ± 2%
Non-working single	26% ± 2%	29% ± 2%	25% ± 2%	25% ± 2%
Working couple	29% ± 2%	28% ± 2%	32% ± 2%	30% ± 2%
Couple, one works	11% ± 1%	10% ± 1%	11% ± 1%	11% ± 1%
Couple, neither work	15% ± 2%	14% ± 2%	13% ± 1%	12% ± 2%
Net annual household income				
GBP 0 to GBP 10,000	8% ± 1%	9% ± 1%	8% ± 1%	8% ± 1%
GBP 10,001 to GBP 20,000	27% ± 2%	27% ± 2%	27% ± 2%	26% ± 2%
GBP 20,001 to GBP 30,000	20% ± 2%	22% ± 2%	21% ± 2%	22% ± 2%
GBP 30,001 to GBP 40,000	16% ± 2%	14% ± 2%	16% ± 1%	15% ± 2%
GBP 40,001 and above	28% ± 2%	27% ± 2%	30% ± 2%	28% ± 2%
Whether struggling financially				
Struggling financially	9% ± 1%	9% ± 1%	9% ± 1%	9% ± 1%
Satisfaction with housing				
Very/fairly satisfied	91% ± 2%	92% ± 2%	89% ± 2%	89% ± 3%

⁶¹ The household weight has been applied to this random adult question to obtain an estimate of households. Households with no completed random adult interview are excluded.

Table A3.3 HIH measures by quarter and the 95 percent confidence intervals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
HIH Banded age				
16-24	5% ± 1%	4% ± 1%	4% ± 1%	6% ± 1%
25-44	30% ± 2%	28% ± 2%	31% ± 2%	33% ± 2%
45-59	30% ± 2%	28% ± 2%	28% ± 2%	29% ± 2%
60+	36% ± 2%	40% ± 2%	37% ± 2%	32% ± 2%
HIH Gender				
Man/Boy	56% ± 2%	57% ± 2%	58% ± 2%	59% ± 2%
Woman/Girl	44% ± 2%	43% ± 2%	42% ± 2%	41% ± 2%
HIH Economic status				
Self employed	7% ± 1%	7% ± 1%	8% ± 1%	8% ± 1%
Employed full time	44% ± 2%	42% ± 2%	45% ± 2%	45% ± 2%
Employed part time	6% ± 1%	7% ± 1%	7% ± 1%	8% ± 1%
Looking after the home/family	2% ± 1%	2% ± 1%	2% ± 1%	2% ± 1%
Retired from work	29% ± 2%	32% ± 2%	28% ± 2%	24% ± 2%
Unemployed	3% ± 1%	2% ± 1%	2% ± 1%	3% ± 1%
In further/higher education	3% ± 1%	2% ± 1%	2% ± 1%	4% ± 1%
Permanently sick or disabled	5% ± 1%	5% ± 1%	5% ± 1%	5% ± 1%
Short-term illness or injury	1% ± 1%	1% ± 0%	0% ± 0%	1% ± 1%

Table A3.4 Random adult measures by quarter and the 95 percent confidence intervals

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Banded age				
16-24	10% ± 1%	10% ± 1%	11% ± 1%	13% ± 2%
25-44	34% ± 2%	31% ± 2%	34% ± 2%	33% ± 2%
45-59	26% ± 2%	25% ± 2%	24% ± 2%	27% ± 2%
60+	30% ± 2%	34% ± 2%	31% ± 2%	27% ± 2%
Gender				
Man/Boy	49% ± 2%	46% ± 2%	49% ± 2%	49% ± 2%
Woman/Girl	51% ± 2%	54% ± 2%	51% ± 2%	51% ± 2%
Ethnicity				
White Scottish/British	89% ± 1%	90% ± 1%	88% ± 1%	87% ± 2%
White other ⁶²	7% ± 1%	7% ± 1%	7% ± 1%	7% ± 1%
Minority ethnic groups ⁶³	4% ± 1%	3% ± 1%	5% ± 1%	5% ± 1%
Highest educational attainment				
None	15% ± 2%	16% ± 2%	16% ± 2%	15% ± 2%
Level 1 - O grade etc	19% ± 2%	17% ± 2%	17% ± 2%	16% ± 2%
Level 2 - Higher, A	16% ± 2%	16% ± 2%	17% ± 2%	18% ± 2%
Level 3 - HNC/HND	14% ± 2%	12% ± 2%	12% ± 1%	14% ± 2%
Degree or prof qual	31% ± 2%	32% ± 2%	33% ± 2%	32% ± 2%
Other qualification	5% ± 1%	6% ± 1%	5% ± 1%	5% ± 1%

⁶² 'White other' includes Irish, Gypsy/Traveller, Polish and other white ethnic groups

⁶³ 'Minority ethnic groups' includes mixed or multiple, Asian, African, Caribbean or Black, Arab or any other ethnic groups

General health				
General health bad or very bad	8% ± 1%	9% ± 1%	8% ± 1%	9% ± 1%
Disability				
Disabled	25% ± 2%	25% ± 2%	22% ± 2%	26% ± 2%
Non-disabled	75% ± 2%	75% ± 2%	77% ± 2%	73% ± 2%
Greenspace				
Within 5 mins of greenspace	66% ± 2%	66% ± 2%	66% ± 2%	65% ± 2%
Personal use of the internet				
Used internet for personal use	88% ± 2%	85% ± 2%	87% ± 2%	90% ± 2%
Culture and Heritage				
Cultural attendance	81% ± 2%	79% ± 2%	82% ± 2%	82% ± 2%
Cultural participation	74% ± 2%	75% ± 2%	76% ± 2%	75% ± 2%
Cultural engagement	90% ± 1%	90% ± 1%	90% ± 1%	91% ± 1%
Physical Activity and Sport				
Participated in sport in last 4 weeks	79% ± 2%	79% ± 2%	81% ± 2%	79% ± 2%
Discrimination and Harassment				
Experienced either discrimination or harassment	10% ± 1%	8% ± 1%	9% ± 1%	11% ± 1%
Satisfaction with local services				
Satisfied with local health services (excluding no opinion)	82% ± 2%	82% ± 2%	78% ± 2%	78% ± 2%
Satisfied with local schools (excluding no opinion)	72% ± 3%	74% ± 3%	73% ± 3%	74% ± 3%
Satisfied with public transport (excluding no opinion)	68% ± 2%	69% ± 2%	66% ± 2%	70% ± 2%
Satisfied with all three services (no opinion for up to two)	53% ± 2%	55% ± 2%	50% ± 2%	53% ± 2%
Outdoors				
One+ visits to the outdoors	58% ± 2%	55% ± 2%	57% ± 2%	55% ± 2%
Social capital				
Feels lonely some, most, almost all or all of the time ⁶⁴	19% ± 2%	22% ± 2%	22% ± 2%	22% ± 2%
Meets socially at least once a week ⁶⁵	72% ± 2%	73% ± 2%	72% ± 2%	74% ± 2%
Volunteering				
Volunteered	26% ± 2%	26% ± 2%	27% ± 2%	25% ± 2%
Provided unpaid help to improve their local environment ⁶⁶	4% ± 1%	5% ± 1%	5% ± 1%	4% ± 1%
Rating of neighbourhood				
Rating of neighbourhood as very good	56% ± 2%	57% ± 2%	58% ± 2%	56% ± 2%
Rating of neighbourhood as fairly good	37% ± 2%	38% ± 2%	36% ± 2%	38% ± 2%
Community belonging				
Very/fairly strong feeling on belonging to immediate neighbourhood	76% ± 2%	80% ± 2%	79% ± 2%	77% ± 2%
Agreement with statements about local neighbourhood				

⁶⁴ Figures for 2018 rather than 2019 for these measures (biennial questions)

⁶⁵ Figures for 2018 rather than 2019 for these measures (biennial questions)

⁶⁶ Figures for 2018 rather than 2019 for these measures (biennial questions)

If I was alone and needed help, I could rely on someone in this neighbourhood to help me	85% ± 2%	87% ± 2%	86% ± 1%	83% ± 2%
If my home was empty, I could count on someone in this neighbourhood to keep an eye on my home	85% ± 2%	86% ± 2%	86% ± 1%	82% ± 2%
I feel I could turn to someone in this neighbourhood for advice or support	79% ± 2%	80% ± 2%	79% ± 2%	76% ± 2%
In an emergency, I would offer to help people in my neighbourhood who might not be able to cope well	90% ± 1%	91% ± 1%	90% ± 1%	88% ± 2%
This is a neighbourhood where people are kind to each other	83% ± 2%	84% ± 2%	84% ± 2%	81% ± 2%
This is a neighbourhood where most people can be trusted	78% ± 2%	80% ± 2%	79% ± 2%	76% ± 2%
There are welcoming places and opportunities to meet new people	52% ± 2%	53% ± 2%	51% ± 2%	50% ± 2%
There are places where people can meet up and socialize	57% ± 2%	57% ± 2%	58% ± 2%	56% ± 2%
This is a neighbourhood where people from different backgrounds get on well together	69% ± 2%	71% ± 2%	70% ± 2%	66% ± 2%
This is a neighbourhood where local people take action to help improve the neighbourhood	57% ± 2%	58% ± 2%	59% ± 2%	54% ± 2%
I can influence decisions affecting my local area	19% ± 2%	17% ± 2%	18% ± 2%	17% ± 2%

For most measures, the 95 percent confidence intervals for the estimates for each quarter overlapped. However, for some measures this was not the case.

Table A3.1 shows that the weighted proportion of households from remote rural areas that were interviewed in quarters 1 and 4 was lower than in quarters 2 and 3. This is likely due to the fact that, historically, addresses have been batched so that interviews in remote rural areas, which can be difficult to access in winter, are more likely to be conducted at another time of the year.

Tables A3.2 and A3.4 show that for some household and random measures, there is higher representation in quarter 4 for some groups compared to at other times of the year – young adults; adults from minority ethnic groups⁶⁷; private rented sector households; households where the randomly selected adult has lived at the address for less than a year; flats; single adult households; and households where the highest income householder is in further/higher education. This is likely due to the fact that these households and individuals are less likely to participate in the survey. Interviewers have to work harder to convince these households/individuals to take part, it is less likely that the interviews will take place at first issue, and this results in these groups being over-represented in the later part of the year.

Table A3.4 also shows that there are other random adults measures for which there is some evidence of seasonal effects, with no overlap of the 95 percent confidence intervals for at least one quarter compared to another. In quarter 4, personal use of

⁶⁷ 'Minority ethnic groups' includes mixed or multiple, Asian, African, Caribbean or Black, Arab or any other ethnic groups

the internet is higher, and agreement with statements on neighbourhood strengths is generally weaker, than at other times of the year. This is unlikely to reflect genuine seasonal effects, and is more likely due to the over-representation of households/individuals who are hard to reach in quarter 4. Generally, these individuals are more likely to be younger and will, therefore, be more likely to use the internet for personal use, and be less positive about the strengths of their local neighbourhood.

For measures where we may have expected genuine seasonal effects (e.g. participation in physical activity and sport in the last 4 weeks), Table A3.4 shows that there is no evidence of seasonal effects. This could be, in part, due to genuine seasonal variations being offset by the over-representation of hard to reach individuals (who are more likely to be young and to participate in physical activity and sport) in quarter 4.

In conclusion, there is some evidence of seasonal effects in the SHS. However, these are unlikely to represent genuine seasonal effects, and are more likely to be due to (i) the batching of the sample to facilitate the fieldwork and (ii) the over-representation of hard to reach groups in the later part of the year. There is no reason to expect that seasonality would be a major factor in the differences between the 2020 survey and previous years. Any genuine seasonal effects are likely to be small in comparison to the other reasons for the differences, e.g. non-response bias and mode effects.

It would be interesting to conduct this analysis on only first issue responses and control for rurality. This is beyond the scope of this report but might be better placed to identify genuine seasonal effects in the SHS.

Appendix 4: Additional tables

Table A4.1 Unadjusted response rates by Local Authority by wave

	2018	2019	2020 f2f	2020 Push2TV - Opt-in	2020 Push2TV Telephone	2020 Push2TV – all
Aberdeen City	49.3%	46.4%	47.9%	13.8%	40.6%	20.0%
Aberdeenshire	59.8%	58.6%	50.0%	13.6%	41.5%	22.3%
Angus	53.9%	53.2%	47.8%	18.4%	41.2%	24.6%
Argyll and Bute	54.8%	52.5%	53.9%	16.3%	50.0%	25.8%
Clackmannanshire	49.7%	59.7%	71.4%	13.1%	30.6%	18.1%
Dumfries and Galloway	59.6%	64.3%	79.2%	14.6%	38.7%	21.2%
Dundee City	70.5%	59.4%	71.0%	12.4%	29.0%	15.2%
East Ayrshire	52.4%	56.4%	51.5%	10.6%	36.6%	17.4%
East Dunbartonshire	64.4%	59.0%	47.7%	19.4%	31.9%	22.1%
East Lothian	60.4%	68.9%	76.5%	19.7%	38.0%	25.3%
East Renfrewshire	57.0%	56.7%	52.0%	14.0%	30.4%	17.6%
Edinburgh, City of	56.0%	58.5%	57.8%	17.1%	32.8%	19.5%
Eilean Siar	71.9%	72.6%	78.7%	16.8%	56.2%	27.0%
Falkirk	45.2%	50.9%	47.4%	10.8%	34.4%	15.9%
Fife	66.4%	57.7%	66.0%	12.7%	38.2%	19.9%
Glasgow City	48.7%	49.2%	50.3%	12.5%	25.5%	14.1%
Highland	54.6%	53.2%	50.4%	17.0%	42.1%	23.8%
Inverclyde	54.9%	56.8%	46.4%	9.8%	25.0%	13.1%
Midlothian	55.3%	63.7%	54.6%	20.4%	37.3%	25.0%
Moray	53.5%	59.4%	53.5%	15.7%	44.8%	24.6%
North Ayrshire	55.6%	49.9%	56.4%	12.5%	35.9%	18.7%
North Lanarkshire	59.1%	59.0%	52.9%	11.6%	30.5%	15.8%
Orkney Islands	68.1%	70.3%	55.9%	18.4%	58.8%	30.9%
Perth and Kinross	54.3%	55.4%	59.3%	22.4%	35.7%	25.3%
Renfrewshire	57.1%	55.0%	32.6%	15.6%	26.2%	17.2%
Scottish Borders	62.4%	61.8%	67.2%	17.6%	39.2%	23.6%
Shetland Islands	62.8%	64.9%	62.8%	17.8%	54.3%	26.8%
South Ayrshire	53.7%	58.6%	55.8%	9.9%	35.4%	16.6%
South Lanarkshire	50.9%	55.7%	55.0%	11.3%	33.7%	16.6%
Stirling	64.3%	63.8%	53.1%	16.2%	43.8%	22.5%
West Dunbartonshire	57.7%	57.0%	51.4%	12.8%	29.3%	15.8%
West Lothian	51.1%	63.2%	58.8%	10.5%	29.7%	16.8%
Total	56.3%	57.2%	55.3%	14.5%	37.1%	19.7%

Table A4.2 Comparison of push-to-telephone video sample by mode of interview: selected geographic and household variables (weighted)

	Video link	Telephone	All Push2tv
Urban/Rural			
Large Urban	41.1%	33.4%	34.8%
Other Urban	30.7%	35.6%	34.7%
Accessible Small Towns	6.7%	9.0%	8.5%
Remote Small Towns	1.4%	2.6%	2.3%
Accessible Rural	15.7%	13.0%	13.5%
Remote Rural	4.4%	6.5%	6.1%
Total	100.0%	100.0%	100.0%
SIMD quintiles			
Most deprived	13.9%	21.4%	20.0%
2nd	15.7%	19.0%	18.4%
Middle quintile	19.6%	19.0%	19.1%
4th	29.1%	21.7%	23.1%
Least deprived	21.7%	18.9%	19.5%
Total	100.0%	100.0%	100.0%
Tenure			
Owner-occupied	77.0%	70.7%	71.8%
Social Rented	5.8%	17.8%	15.5%
Private Rented	15.6%	10.7%	11.6%
Other	1.6%	0.8%	1.0%
Total	100.0%	100.0%	100.0%
Household type			
Single adult	18.4%	15.1%	15.7%
Small adult	24.0%	14.7%	16.5%
Single parent	2.0%	4.4%	3.9%
Small family	20.7%	12.6%	14.1%
Large family	12.3%	5.6%	6.9%
Large adult	9.1%	12.6%	11.9%
Older smaller	10.0%	19.9%	18.0%
Single pensioner	3.5%	15.1%	13.0%
Total	100.0%	100.0%	100.0%
Household working status			
Single working adult	18.0%	16.2%	16.5%
Non-working single	10.6%	25.2%	22.5%
Working couple	50.7%	29.8%	33.7%
Couple, one works	11.4%	12.6%	12.4%
Couple, neither work	9.2%	16.2%	14.9%
Total	100.0%	100.0%	100.0%
House/flat			
House	60.4%	69.6%	67.8%
Flat	39.5%	30.4%	32.1%
Other	0.1%	0.1%	0.1%
Total	100.0%	100.0%	100.0%

	Video link	Telephone	All Push2tv
Banded age of HiH			
16-24	5.1%	1.8%	2.4%
25-44	44.6%	27.9%	31.0%
45-59	33.1%	28.8%	29.6%
60+	17.3%	41.5%	36.9%
Total	100.0%	100.0%	100.0%
Gender of the Highest Income Householder			
Male	59.5%	57.7%	58.0%
Female	40.0%	42.3%	41.8%
In another way	0.5%	0.0%	0.1%
Total	100.0%	100.0%	100.0%
HiH Economic activity summary			
Working	78.2%	56.2%	60.4%
Retired	12.8%	33.2%	29.3%
Other	9.0%	10.6%	10.3%
Total	100.0%	100.0%	100.0%
Local Authority			
Aberdeen City	3.7%	4.5%	4.3%
Aberdeenshire	4.7%	4.5%	4.5%
Angus	1.1%	2.4%	2.2%
Argyll and Bute	0.8%	1.9%	1.7%
Clackmannanshire	0.5%	1.1%	1.0%
Dumfries and Galloway	1.9%	3.0%	2.8%
Dundee City	2.7%	2.8%	2.8%
East Ayrshire	1.6%	2.4%	2.2%
East Dunbartonshire	2.0%	1.8%	1.9%
East Lothian	1.1%	2.1%	1.9%
East Renfrewshire	1.5%	1.6%	1.6%
Edinburgh, City of	15.5%	8.2%	9.5%
Eilean Siar	0.4%	0.5%	0.5%
Falkirk	4.1%	2.6%	2.9%
Fife	7.7%	6.6%	6.8%
Glasgow City	14.7%	11.1%	11.8%
Highland	2.6%	4.8%	4.4%
Inverclyde	1.0%	1.6%	1.5%
Midlothian	1.5%	1.6%	1.6%
Moray	1.1%	1.9%	1.7%
North Ayrshire	1.6%	2.8%	2.6%
North Lanarkshire	4.8%	6.4%	6.1%
Orkney Islands	0.2%	0.5%	0.4%
Perth and Kinross	4.7%	2.3%	2.8%
Renfrewshire	2.7%	3.7%	3.5%
Scottish Borders	1.7%	2.3%	2.2%
Shetland Islands	0.3%	0.4%	0.4%
South Ayrshire	0.9%	2.4%	2.1%
South Lanarkshire	4.1%	6.4%	5.9%

	Video link	Telephone	All Push2tv
Stirling	1.8%	1.5%	1.6%
West Dunbartonshire	2.2%	1.6%	1.7%
West Lothian	4.9%	2.8%	3.2%
Total	100.0%	100.0%	100.0%
	489	2,542	3,033

Table A4.3 Comparison of push-to-telephone video sample by mode of interview: selected geographic and household variables (weighted)

	Video link	Telephone	All push2tv
Banded age of RA			
16-24	17.4%	11.3%	12.5%
25-44	39.0%	29.7%	31.5%
45-59	28.7%	22.9%	24.0%
60+	14.8%	36.1%	32.1%
Total	100.0%	100.0%	100.0%
Gender of random adult			
Man/Boy	48.8%	48.4%	48.5%
Woman/Girl	50.8%	51.5%	51.4%
In another way	0.4%	0.1%	0.1%
Total	100.0%	100.0%	100.0%
Highest educational qualification			
No qualifications	2.3%	12.9%	10.9%
Level 1 - O grade or equivalent	7.7%	15.1%	13.7%
Level 2 - Higher, A Level or equivalent	19.9%	18.5%	18.8%
Level 3 - HNC/HND or equivalent	12.7%	12.8%	12.8%
Degree or professional qualification	56.0%	36.2%	40.0%
Other qualification	1.4%	3.6%	3.2%
Total	100.0%	100.0%	100.0%
General health			
Not bad or very bad	97.2%	93.8%	94.4%
Bad or very bad	2.8%	6.2%	5.6%
Total	100.0%	100.0%	100.0%
	431	2,357	2,788



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