

9. Methodology

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This chapter provides a summary of the survey methodology for the first wave of the English Longitudinal Study of Ageing. It includes a brief account of the sample design, the development and content of the interview and the approach to fieldwork. It presents basic information about response rates and the weighting strategy used in this report. Further detail will be available in a technical report, which will be published in 2004 and will include the key survey documents, including the wave 1 questionnaire (Taylor et al., forthcoming). In time, we plan to provide all the methodological information that data users will require on the ELSA website, at <http://www.ifs.org.uk/elsa/index.htm>. The data will be available from the UK Data Archive in 2004.

9.1 Sample design

The ELSA sample is representative of people aged 50 and over, living in private households in England. It was drawn from households that had previously responded to the Health Survey for England (HSE) so that the study could benefit from data that had already been collected. The HSE is an annual cross-sectional household survey that collects a wide range of health data and biometric measures. It is conducted by the Joint Health Surveys Unit of the Department of Epidemiology and Public Health, University College London, and the National Centre for Social Research, on behalf of the Department of Health.

Initially, the ELSA sample was selected from two survey years of the HSE (1998 and 2001) and it was then increased when a further sample was drawn from the HSE 1999 core sample (the booster sample of ethnic-minority households was set to one side). Each of the main HSE samples was designed to be representative of the English population living in private households and each was drawn in two stages. Firstly, postcode sectors were selected from the Postcode Address File, stratified by health authority and proportion of households in the non-manual socio-economic groups. Addresses were then selected systematically from each sector and a specified number of adults and children in each household were deemed eligible for interview. Eligible individuals were asked to participate in a personal interview followed by a nurse visit.

Interviewing for HSE is continuous and the sample is issued to interviewers evenly throughout the year. Although the HSE household response rate is

relatively constant from year to year (74% in 1998 and 2001, 76% in 1999), the adult individual response rate varies; it was 69% in 1998, 70% in 1999 and 67% in 2001. Further details about the HSE are available from the Technical Reports (Erens and Primatesta, 1999; Erens, Primatesta and Prior, 2001; Prior et al., 2003).

In order to select the ELSA sample, we constructed a listing of all HSE households for whom full household information was available. Households were removed from the sampling frame if there was no adult of 50 years or older in the household who had agreed to be recontacted at some time in the future. The remaining households provided the basis for the ELSA sample. Within households, there were three types of individual who were eligible to take part in the study, as illustrated in Box 9.1.

Box 9.1. Eligibility for the ELSA interview

Eligible sample members were individuals who were living within the household at the time of the HSE interview and were born on or before 29 February 1952. This date was chosen to ensure all sample members were aged 50 or over at the beginning of March 2002, i.e. in time for the start of ELSA fieldwork. In order for the individual to be eligible, the interviewer had to ascertain that the individual was living in a private residential address in England at the time of the ELSA interview. Eligible sample members who responded to the survey form the basis of the analysis in this report.

Young partners were the cohabiting spouses or partners of eligible sample members, who were living within the household at the time of the HSE interview and were born *after* 29 February 1952. In order for the individual to be eligible, the interviewer had to ascertain that he or she was still living with an eligible sample member. Young partners were given a full interview and were treated in the same way as eligible sample members. Although they are not included in the analysis presented in this report, in time their presence will make it possible to carry out an analysis of a representative sample of couples where at least one spouse is 50 or older.

New partners were the cohabiting spouses or partners of eligible sample members at the time of the first ELSA interview who had joined the household *since* the HSE interview. New partners were given a full interview and were treated in the same way as eligible sample members. Like young partners, they are not included in the analyses in this report.

For all three sample types, interviews were only conducted at households in England, and only within residential addresses. So, if an individual had moved out of England or into an institution since their HSE interview, they were treated as ineligible.

9.2 Development of the questionnaire and survey approach

ELSA benefited from a relatively long development period, with initial questionnaire design meetings taking place in late 2000. A period of wide consultation took place and involved a diverse range of academics, sponsors, members of the advisory group to the study and collaborators from ELSA's US counterpart, the Health and Retirement Study (HRS), and the Survey of Health and Retirement in Europe (SHARE).

In its formative stages, a number of ‘expert panels’ were convened to debate specific elements of the survey, and new modules of questions underwent cognitive testing. Two extensive pilots were conducted in August and November 2001. These tested the survey instruments and fieldwork approach. Some of the measures and approaches used in the study were innovative or new to the UK. Examples mentioned elsewhere in this report are the use of unfolding bracket methods to mitigate non-response problems on financial variables (see Annex 9.1) and the use of ‘percentage chance’ questions to understand people’s expectations of the future (see Chapters 3 and 4).

9.3 Structure and content of the wave 1 interview

In its final form, the wave 1 survey comprised a personal face-to-face interview and a self-completion questionnaire. A brief outline of the content of the interview is given in Box 9.2.

In households with one respondent, or where two respondents in a household were interviewed separately, each interview followed the course set out in Box 9.2. Some flexibility in the order of modules was allowed (for example, the walking-speed test could be administered at any convenient time after the health module had been completed). In households where more than one eligible respondent agreed to take part in the survey, ‘concurrent interviewing’ (where two individuals are interviewed in a single interview session) was usually allowed.¹ The concurrent interview initially followed the same linear pattern shown in Box 9.2 and offered the same degree of flexibility. However, when the start of the cognitive function module had been reached, interviewers ensured that a period of time was spent with each respondent in turn, so that this, and the remaining sections of the interview, could be completed in private.

In cases where respondents completed the full interview in a session with the interviewer alone, the self-completion questionnaire was usually left with the respondent, to be returned by post. However, in instances where two respondents completed the interview in a concurrent session, the self-completion questionnaire was completed by one respondent while the other carried out the ‘private’ section of the personal interview. The two respondents then swapped over so that the individual who had completed the private session could turn their attention to the self-completion questionnaire, and vice versa.

Where there was more than one eligible individual in the household, the interviewer asked the respondents to nominate a key informant to report on

¹Concurrent interviewing was not allowed in some instances – for example, if respondents kept their finances separate from each other and did not share information about them.

housing and to nominate a key informant within each benefit unit to report on income and assets.² These were often, but not always, the same individual.

Box 9.2. Content of the ELSA interview

Household demographics – collected basic demographic information about everyone living in the household, including sex, age and relationships to each other. It identified any individuals who had entered the household since the HSE interview, established their eligibility for interview and collected information about eligible respondents' children living outside the household.

Individual demographics – details from the respondents about their legal marital status, whether their parents were alive or dead (and, if dead, their age at and cause of death), number of living children including adopted, foster and stepchildren, number of grandchildren and great-grandchildren, number of siblings and the respondent's circumstances in childhood.

Health – covered many different dimensions: self-reported general health, long-standing illness or disability; eyesight and hearing; specific diagnoses and symptoms; pain; difficulties with activities of daily living (ADLs) and instrumental activities of daily living (IADLs); and health behaviours. Respondents aged 60 and over were asked about falls and fractures.

Social participation – covered the frequency with which respondents participated in certain social activities, whether they were limited from participating, and questions about care-giving and use of public transport.

Work and pensions – respondents' current work activities and any current or past pensions that they had. If retired and receiving a pension, details were collected about pensions and amount received.

Income and assets – collected the income that respondents received from a variety of sources over the last 12 months: wages, state pensions, private pensions, other annuity income and state benefits. It also collected the amount of financial and non-financial assets held, any income from these assets, regular transfers from non-household members and one-off payments in the last year.

Housing – information about current housing situation (including size and quality), housing-related expenses, ownership of durable goods and cars, and expenditure on food. Owners and mortgagors were asked about the value of their property, and questions were asked about mortgages, rent, etc.

Cognitive function – measured different aspects of the respondent's cognitive function, including memory, speed, mental flexibility and numeracy.

Expectations – measured people's expectations in a number of dimensions, the level of certainty respondents felt about the future, financial decision-making within households and optimal planning horizons.

Psychosocial health – measured how the respondent viewed his or her life across a variety of dimensions.

Final questions – demographic information, a stable contact address and consent to obtain health and economic data from administrative sources.

Walking speed – measured a 'timed walk'. This involved recording the time taken by the respondent to walk a distance of 8 feet (244cm) at their usual walking pace. It was completed for all individuals aged 60 and over who responded to the survey in person, where it was judged to be safe to do so.

²Where two individuals within the same benefit unit kept their finances separately, we defined two financial units within this benefit unit and data on each financial unit was collected separately.

9.4 Fieldwork

As explained earlier, the ELSA sample was drawn from households responding to the Health Survey for England. The sample was issued at a household level, and each eligible individual within the household was sent an advance letter inviting them to take part. Interviewers then visited the households and were able to explain the study and to interview willing individuals straight away, or to make appointments to call at a convenient time. Exhaustive attempts were made to encourage participation among the sample, including the measures in Box 9.3.

Box 9.3. Methods of encouraging response

- Each respondent was sent an advance letter, offered an incentive payment in the form of a £10 gift voucher and given an information leaflet.
- In cases where households had split, interviews were sought at the new households to ensure that all eligible individuals had a chance to respond.
- In cases where an eligible sample member had moved and the new occupant was reluctant to provide the address of their predecessor, interviewers provided a 'mover letter', which could be forwarded by the new occupant to the individual, asking them to make contact.
- A thorough strategy for tracing and contacting eligible individuals who had moved since their last interview was developed. This involved cooperation from respondents' family doctors, health authorities, the Office for National Statistics and the Department for Work and Pensions.
- In cases where an eligible individual was unable to participate in the interview due to a physical or mental impairment, an interview with a proxy informant was attempted.
- Many households where the first interview attempt had not been successful were reissued to another interviewer. The second approach was preceded by a new letter, explaining the importance of interviewing respondents in his or her age bracket. The letter offered a £20 gift voucher.
- Self-completion questionnaires that had not been returned by respondents were also chased, first by a reminder letter with a new questionnaire and then by a call from the Telephone Unit offering to complete the questionnaire with the respondent by telephone.

In some instances, individuals were found to be ineligible because of an error in recording their age at the previous contact. In addition, households that had moved out of England since their HSE interview were treated as ineligible, as were households where all potentially eligible individuals had moved into an institution or died. These eligibility rules will change in subsequent waves, as we hope to interview respondents who move into institutions and to conduct interviews with surviving spouses, partners or other relatives after members of our sample have died.

9.5 Survey response

Fieldwork for the first wave of ELSA began in March 2002 and spanned 12 months, completing in March 2003. Survey response and quality of fieldwork were carefully monitored throughout. Ultimately, the ELSA wave 1 fieldwork produced 12100 productive interviews, which can be broken down as shown in Box 9.4.

Box 9.4. Number of ELSA productive interviews

- ELSA wave 1 achieved 11392 productive interviews with eligible sample members, including 204 partial and 158 proxy responses.
- In addition, productive interviews were completed with 636 partners under 50 and with 72 new partners.
- This equates to a total sample of 12100.

In this section, we present summary information about survey response. Firstly, we describe the age–sex distribution of the issued and achieved sample. Then we isolate the primary ELSA group – eligible sample members – and set out their household response rates and the individual response rates within responding households, and the equivalent individual response rate for this group. We then consider the response rates for new and younger partners. Finally, the section considers other aspects of non-response. Box 9.5 provides the main summary points.

Box 9.5. Summary of response information

Response among eligible sample members

- The survey achieved a household response rate of 70%; approximately 96% of individuals responded within households.
- This equates to an overall individual response rate of 67%.

Response among new partners and younger partners

- The individual response rate for younger partners was 63%.
- The individual response rate for new partners was 68%.

For all groups, the main reason for non-response was refusal.

The age–sex distribution of the issued and achieved samples

The age and sex distribution of the sample that was *issued* at ELSA wave 1 is shown in Table 9.1. This combines households drawn from all three HSE years – 1998, 1999 and 2001. The table is comprised mainly of sample members (94%). The remaining 1042 individuals were issued younger partners and are shown in the first row as ‘under 50’. New partners are not shown in Table 9.1, as their presence in the household only became known *after* the sample was issued.

Table 9.1. Issued sample, by age and sex

Age band (years) at wave 1	Male	Female	Total	Male %	Female %	Total %
Under 50	220	822	1042	3	8	6
50–54	1645	1838	3483	19	18	19
55–59	1579	1690	3269	19	16	17
60–64	1255	1301	2556	15	13	14
65–69	1195	1255	2450	14	12	13
70–74	1013	1154	2167	12	11	12
75–79	779	923	1702	9	9	9
80+	802	1329	2131	9	13	11
Unknown	9	4	13	0	0	0
<i>Total</i>	<i>8497</i>	<i>10316</i>	<i>18813</i>	<i>100</i>	<i>100</i>	<i>100</i>

Table 9.2. Achieved sample, including new and younger partners, by age and sex

Age band (years) at wave 1	Male	Female	Total	Male %	Female %	Total %
Under 50	104	472	576	2	7	5
50–54	920	1156	2076	17	17	17
55–59	1030	1171	2201	19	17	18
60–64	813	883	1696	15	13	14
65–69	806	912	1718	15	13	14
70–74	680	797	1477	13	12	12
75–79	498	596	1094	9	9	9
80+	485	777	1262	9	11	10
<i>Total</i>	<i>5336</i>	<i>6764</i>	<i>12100</i>	<i>100</i>	<i>100</i>	<i>100</i>

It should be noted that the table does not include households where all potentially eligible individuals were known to have died before the fieldwork period began. This is because in instances where consent had been given at HSE, the 1998 and 1999 surveys were checked against the Office for National Statistics (ONS) register so that the ELSA survey team was given early notification of some deaths.

Respondents to the wave 1 interview were defined as individuals who gave a full or partial interview either in person or by proxy. The age–sex distribution of the *achieved* sample is shown in Table 9.2. As well as eligible sample members and younger partners, this table also includes new partners (unlike

Table 9.1). Because of this, and because the information provided here is based on respondents' age at the time of the ELSA interview, rather than at a fixed date (as in Table 9.1), these two tables are not directly comparable.

Household response and individual response within households

This section considers response for all productive respondents – regardless of whether they are recorded as having a full, partial or proxy response. However, it only considers the core group – the eligible sample members. Response rates for new partners and younger partners are reported later.

There are two ways of looking at response rates for the ELSA sample. Firstly, because the sample is derived from a sample of households, response can be considered to take place in two stages; the household response rate can be calculated and subsequently the individual response rate within responding households can be. This approach is reported in this section. Secondly, as ELSA is ultimately treated as a sample of individuals for the purpose of most analyses, the individual response rate can be calculated. This second approach is presented in the next section.

Table 9.3. Household response rate: sample members

	Frequency	% of issued	% of eligible
Total issued (households)	11642	100	
Ineligible	282	2	
Total eligible	11360	98	100
Respond	7935		70
Non-respond	3425		30
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<i>Non-respondents</i>	3425		30
No contact	138		1
Refuse	2498		22
Moved – unable to trace	419		4
Other	370		3

A responding household is defined as one where at least one eligible person was interviewed. Table 9.3 shows that a small percentage of households in the issued sample were reclassified as not containing any eligible individuals (2%). A household response rate of 70% was achieved. The majority of non-responding households refused to participate (22% of the eligible sample of households), while a smaller proportion could not be traced (4%) or were not interviewed for other reasons, such as being too sick during the interview period and there being no suitable proxy informant (3%).

Table 9.4 shows that only a small percentage of individuals within the 7935 responding households were reclassified as ineligible (3%). Of the remaining sample of individuals within responding households, a response rate of 96% was achieved. Non-response within households was almost always because of

refusal to take part (rather than, for instance, because of being too sick or disabled).

Tables 9.3 and 9.4 show that most of the non-response is occurring at the household level. The individual response rate within responding households is very high. This shows that where there were at least two eligible sample members in the household, their response was strongly dependent on each other. Around two-fifths of the issued sample were in households containing one sample member only. The remaining three-fifths were in households containing two eligible respondents (either two eligible sample members or an eligible sample member plus a new or younger partner). In a small proportion of households, there were more than two eligible respondents.

Table 9.4. Individual response rate within responding households: sample members

	Frequency	% of issued in responding households	% of eligible in responding households
Total issued (individuals)	12121	100	
Ineligible	312	3	
Total eligible	11809	97	100
Respond	11392		96
Non-respond	417		4
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<i>Non-respondents</i>	417		4
No contact	34		0
Refuse	340		3
Moved – unable to trace	0		0
Other	43		0

The level of non-response is just over 30%. The small numbers of movers who were not traced and of non-contacts hint at the thorough procedures implemented during fieldwork to cover all of the sample, which were mentioned earlier.

Further components of the non-response include language difficulties, respondents being ill or away during the survey period, and respondents being physically or mentally incapable or incompetent. However, the main component of the non-response is refusals. It is widely accepted that this suggests that there is potential for the responding sample to be a biased subgroup. Non-response weights were produced to account for this potential bias, and are described in Section 9.7.

Individual response rate

As explained in the previous section, an alternative way of looking at the ELSA response rate is to calculate response for individuals, regardless of the behaviour of the households within which they live. Since most analysts will

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treat ELSA as a sample of individuals, the overall individual response rate is one of the key measures that will be reported in future analysis.

Table 9.5 shows that a small percentage of the issued sample (4%) were reclassified as ineligible, mainly because they had moved into an institution, had moved outside of England or had died. These cases were set aside *before* the individual response rates were calculated. In total, a response rate of 67% was achieved.³

Table 9.5. Individual response rate: sample members

	Frequency	% of issued	% of eligible
Total issued (individuals)	17744	100	
Ineligible	648	4	
Total eligible	17096	96	100
Respond	11392		67
Non-respond	5704		33
<i>Non-respondents</i>	5704		33
No contact	221		1
Refuse	4359		25
Moved – unable to trace	537		3
Other	587		3

A small proportion of non-productive interviews were the result of movers remaining untraced (3% of the eligible sample of individuals). However, the majority of the non-respondents were refusers (25%).

Response rates for new and younger partners

In the previous two sections, response rates were calculated for the overall sample, excluding younger partners and new partners. In this section, we consider the response rates of these two small but important groups. Since all households at which interviews were conducted contained a responding sample member by virtue of the eligibility rules, only the individual response rates are given here.

Whilst the younger partners are not considered to be part of the main sample, their response rate as a separate subgroup is of interest. We found that the percentage of younger partners reclassified as ineligible was similar to that of sample members. However, a slightly lower response rate, of 63%, was achieved. This could be because although younger partners were treated in the same way as sample members, they may have felt that they were not the focus of the study about ‘ageing’. The components of non-response among younger

³The response rate for the issued sample (that is the sample members and younger partners presented in Table 9.1) was 66%. This is very similar to the 67% response rate for sample members only.

partners were similar to those for sample members; however, the sample size is too small to compare their distributions of reasons for non-response.

Although at this stage our understanding of the response rate among new partners is conjecture, it is possible that this is an older population who find the survey has greater salience for them and are more enthusiastic about supporting the sample member in taking part in the survey.

New partners were just as likely to respond to the survey as eligible sample members (with a response rate of 68% compared with 67% for eligible sample members) but younger partners had a slightly lower response rate (63%).

Other aspects of non-response

In the ELSA interview, not all modules required responses at an individual level. The household demographics and housing modules were asked at a household level, whilst the income & assets module was asked at a financial-unit level. The modules asked at an individual level were split into those that could be asked concurrently (individual demographics, health, work & pensions, social participation) and those that were private blocks (cognitive functioning, psychosocial health, expectations, final questions).

In addition to the overall level of response, an analysis of the level of response to key sections within the survey questionnaire was conducted. Table 9.6 gives the response rates at the appropriate level (household, financial unit or individual) for the three key sections. It shows that the levels of response for the housing and income & assets sections were very high (99.7% and 99.0% respectively). The level of response for the self-completion (at 92.0%⁴) was very good in survey terms, but for the purpose of analysis was sufficiently low to warrant further investigation. The conclusion was, however, that it was not necessary to include any weighting to account for non-response for the purpose of this report. This matter is discussed further in Section 9.7.

In addition to non-response to sections of the interview, item non-response is also important. Whilst full analysis of this is necessary, it is worth highlighting that a strategy was implemented to overcome non-response to items within the economic sections of the questionnaire, involving the use of unfolding brackets. This strategy is described fully in Annex 9.1.

Table 9.6. Response rates to key sections

Section	Total eligible	Level	Respond (%)	Non-respond (%)
Housing	6256	Household	99.7	0.3
Income & assets	6952	Financial unit	99.0	1.0
Self-completion	11234	Individual	92.0	8.0

⁴Proxy respondents were excluded from the calculation of the self-completion response rate because they were not invited to respond to this section.

9.6 The treatment of proxy and partial interviews

As mentioned earlier, proxy interviews were conducted in certain circumstances, and future analyses are likely to make good use of the data obtained in this way. However, information from 158 proxy interviews with eligible sample members has been excluded from this report (in addition to the 17 proxies already excluded because they were new or younger partners). This is because many of the questions asked of individual respondents should not be asked of proxy informants. Although only a small group of cases have been dropped, it is important to be aware of the characteristics of these respondents and to check for any issues that might arise from this decision.

At this stage in the study, the proxy group is very small, though it is expected to grow in future waves as our sample ages. Nevertheless, comparison of the characteristics of proxies with those of individual respondents shows that there are considerable differences between the two, as would be expected due to the rules employed to qualify for a proxy interview. Relative to those completing a full interview in person, proxy respondents are more likely to be old, more likely to have a long-standing illness and less likely to be in paid work or to be self-employed.

Table 9.7. Proxy respondent sample, including new and younger partners, by age and sex

Age band (years) at wave 1	Male	Female	Total	Male %	Female %	Total %
Under 50	5	6	11	6	7	6
50–54	11	6	17	13	7	10
55–59	13	7	20	15	8	11
60–64	13	8	21	15	9	12
65–69	10	6	16	12	7	9
70–74	13	6	19	15	7	11
75–79	5	11	16	6	12	9
80+	15	40	55	18	44	31
<i>Total</i>	<i>85</i>	<i>90</i>	<i>175</i>	<i>100</i>	<i>100</i>	<i>100</i>

Because there are so few proxy interviews at this stage in the life of the study, there is very little potential for their exclusion to affect the estimates provided in this report. A tabulation of several health and economics variables, with and without proxies, confirmed that the effects were small, even amongst the oldest old where proxies form a larger proportion of the population.

A further subgroup of individuals only responded partially. The implication of this for the tables included in this report is that there are varying base figures,

indicative of the positioning of the items in the questionnaire as a whole and the number of partial interviews accrued at that point.

9.7 Weighting strategy

The main aim of the weighting is to try to reduce any bias from non-response and to be confident that the respondent sample is representative of the population. In this case, the equal probability sample design of the HSE samples, and the fact that the ELSA sample selected all eligible adults from the HSE, eliminate any need for weights to account for selection probabilities. However, non-response at HSE, refusals to be reinterviewed post-HSE and non-response at ELSA wave 1 all have the potential to make the ELSA respondent sample unrepresentative of the population.

A thorough analysis of non-response was conducted to examine the different stages of drop-out and the extent of the drop-out at each stage. Two stages were identified where this was found to be significant enough to justify calculating a non-response weight to account for differences between respondents and non-respondents. These were:

- in households that did not contain an age-eligible individual who agreed to be reinterviewed beyond HSE; and
- household-level non-response at ELSA wave 1.

Previous analysis of non-response at HSE provided clear guidance about how to model response using logistic regression. Factors influencing response were derived from information collected at HSE to use in the model.

A further round of weighting was needed to post-stratify the responding sample to the population of interest. The population has been defined as adults of 50 years and over in England, living in private households in 2001, as represented by the Census 2001. This weighting attempts to account for any bias caused by households non-responding to HSE (because ELSA is sampled from the responding HSE households only). A technique called ‘calibration weighting’ was used to adjust the non-response-weighted respondent age–sex distribution to the Census 2001 non-institutionalised distribution and was carried out by the Office for National Statistics using CALMAR. The technique derives a household-level and an individual-level weight. The individual-level weight is identical for all individuals living in the same household. The rationale behind calibration weighting is that it attaches an estimated probability of response to each household that ‘explains’ the discrepancy between the survey age–sex distribution and the population age–sex distribution.⁵ A key advantage of the approach is that, because the household and individual-within-household weights are identical, in the

⁵In principle, if we had population estimates for age and sex by household composition (for example, the number of households with two adults – one man aged 70 and one woman aged 68), then we could calculate a *direct* estimate of the probability of a household responding in terms of its age–sex composition. However, because we do not have data to this level of detail, calibration weighting is a means of modelling the probabilities across household compositions whilst controlling for the marginal age–sex distribution.

absence of substantial within-household non-response, estimates about individuals derived from the household-level dataset will match estimates derived from the individual-level dataset.

The application of the weights has very little impact on the estimates. Nevertheless, they are of value and it is hoped that this approach has laid the foundations of a long-term strategy for longitudinal weights.

As mentioned earlier, non-response within the self-completion section was also modelled to establish whether extra weighting was needed. Initial analyses suggested that no further weighting was necessary for general data use. Users concentrating on analysis of data from this section might benefit from investigating this further.

Weights have been calculated for sample members only, because they are the sample of interest. All other individuals that were interviewed (younger partners and new partners) have a weight of zero.

9.8 Next steps

Longitudinal studies are cumulative; work on early waves continues as the next survey is being developed and plans for future waves are being discussed.

The wave 1 technical report will be published in 2004 (Taylor et al., forthcoming) and data will be deposited in the UK Data Archive, with further information available on the ELSA website (<http://www.ifs.org.uk/elsa/index.htm>). We intend to carry out further methodological work – for example, assessing the effectiveness of concurrent interviewing and the use of dependent interviewing.

We plan to interview respondents at two-yearly intervals so are now preparing to start wave 2 fieldwork in Spring 2004. This second survey will involve the addition of a nurse interview and changes to the interview content so that new topics can be covered and change since wave 1 can be measured. During this period, we also hope to introduce strategies to follow individuals into institutions and to interview relatives or carers of ELSA respondents who have died since the wave 1 interview. The same rigorous approach to methodology is being applied.

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Annex 9.1

Imputation of missing financial information

Each financial variable in ELSA is collected by initially requesting an exact answer and then following up with a series of what are commonly referred to as ‘unfolding brackets’. Unfolding brackets operate by asking respondents who are unable or refuse to give an exact answer a series of follow-up questions designed to elicit a minimum and a maximum number defining a range or ‘closed band’ within which the value lies. In a small number of cases, individuals are able to provide a minimum value but not a maximum, and these individuals, along with those who are in the highest bracket, end up in a band that does not have a maximum, which we refer to as an ‘open band’. The unfolding bracket questions are randomly ordered for each respondent such that any possible anchoring effects from the procedure are averaged across the distribution, and the bracket values are selected on the basis of the density of the underlying financial variable.

Unfolding brackets significantly reduce the number of observations for which we have no information on any one source of income or wealth. Nevertheless, some cases remain, which means that for each financial variable we have a varying quality of data: continuous, closed-band, open-band or missing.⁶ We impute a value for each variable in all cases where we have banded or missing information.

The imputation procedure that we use is the conditional hot-deck, and we use broad age band (50 to state pension age, state pension age to 75 and 75+), benefit-unit type (couple or single) and (for singles only) gender as conditioning variables. For each missing or banded case, imputation involves choosing a random observation from all observations with matching characteristics in each of these dimensions and, where we have banded information, with income or wealth within the same range. The level of wealth or income from the observation that is picked at random is then assigned to the missing or banded case.⁷

Tables 9A.1 and 9A.2 report the percentages of cases that fall into each of the categories of data quality. The missing cases are split into cases where there is no information at all on that variable (‘missing completely’) and cases where

⁶Banded information can also arise when only one member of a couple responds to the survey. The wealth and income data are imputed at the benefit-unit level (a single person or a couple, plus any dependent children that they have), so we need to know information on income and wealth of both members of the couple. We deal with this by generating banded information for the couple, using the wealth of the responding member as the minimum of an open-band classification for the couple.

⁷Benefit units are defined from individuals within the same household using their age and marital status. A benefit unit is a single adult or couple plus any dependent children. A couple is defined as two adults that are married or living as married. An adult is defined as an individual who is aged 19+ or aged 16–18 and married. Any children are included in the benefit unit with the appropriate adult parent. (Note that financial units in ELSA are equivalent to benefit units with the exception that couples with separate finances are classified as two financial units.)

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we know that the individual has some income or wealth of the relevant type but where there is no information on how much they have ('missing, >0'). Most variables require imputation in less than 5% of cases. Noticeable exceptions are income from savings and money held in savings or current accounts. The importance of the unfolding bracket follow-ups is apparent from the low numbers of observations that are 'missing completely' in the wealth variables and the income from investment variables.

Table 9A.1. Income variable data types

Income type	Continuou s	Closed band	Open band	Missing, > 0	Missing completely
Take-home pay	93.8	1.0	1.9	1.2	2.0
Net profit	94.0	1.7	0.5	0.7	3.0
Self-employment	96.5	0.1	0.1	0.1	3.2
Odd jobs	95.9	0.5	0.2	0.2	3.2
Private pension	93.6	2.8	0.3	2.9	0.4
Savings income	64.2	20.7	1.6	10.9	2.5
ISA income	86.5	3.6	0.4	6.8	2.7
TESSA income	90.4	3.3	0.1	3.5	2.7
Premium bonds income	96.1	0.1	0.1	1.1	2.7
National Savings income	94.1	1.4	0.2	1.6	2.6
PEP income	92.4	1.6	0.2	3.1	2.7
Shares income	87.4	4.4	0.5	5.0	2.6
Trusts income	94.1	0.9	0.1	2.2	2.7
Bonds income	94.3	0.9	0.1	2.0	2.7
Other savings income	95.4	0.7	0.1	1.2	2.7
Rental income	97.9	0.1	0.0	0.2	1.6
Farm income	98.1	0.1	0.0	0.2	1.6
State pension income (h)	96.6	0.8	0.2	1.4	1.1
State pension income (s)	97.5	0.4	0.0	0.9	1.1
Annuity income (h)	98.2	0.1	0.0	0.2	1.5
Annuity income (s)	98.5	0.0	0.0	0.1	1.4
Incapacity benefit (h)	98.5	0.0	0.0	0.3	1.1
Incapacity benefit (s)	99.1	0.1	0.0	0.1	0.8
Severe disablement allowance (h)	98.8	0.0	0.0	0.1	1.1
Severe disablement allowance (s)	99.2	0.0	0.0	0.0	0.8

Continues

Table 9A.1 contd. Income variable data types

Income type	Continuou s	Closed band	Open band	Missing, > 0	Missing completely
Statutory sick pay (h)	98.9	0.0	0.0	0.0	1.1
Statutory sick pay (s)	99.2	0.0	0.0	0.1	0.8
Attendance allowance (h)	98.5	0.1	0.0	0.3	1.1
Attendance allowance (s)	99.1	0.0	0.0	0.1	0.8
Disability living allowance (h)	98.4	0.1	0.0	0.5	1.1
Disability living allowance (s)	99.0	0.1	0.0	0.2	0.8
Industrial injuries allowance (h)	98.9	0.0	0.0	0.0	1.1
Industrial injuries allowance (s)	99.2	0.0	0.0	0.0	0.8
War pension (h)	98.8	0.0	0.0	0.1	1.1
War pension (s)	99.2	0.0	0.0	0.0	0.8
Invalid care allowance (h)	98.9	0.0	0.0	0.0	1.1
Invalid care allowance (s)	99.2	0.0	0.0	0.0	0.8
Disabled person's tax credit (h)	98.9	0.0	0.0	0.0	1.1
Disabled person's tax credit (s)	99.2	0.0	0.0	0.0	0.8
Income support (h)	98.2	0.2	0.0	0.5	1.1
Income support (s)	99.1	0.0	0.0	0.1	0.7
Working families' tax credit (h)	98.9	0.0	0.0	0.0	1.1
Working families' tax credit (s)	99.3	0.0	0.0	0.0	0.7
Jobseeker's allowance (h)	98.9	0.0	0.0	0.0	1.1
Jobseeker's allowance (s)	99.3	0.0	0.0	0.0	0.7
Guardian's allowance (h)	98.9	0.0	0.0	0.0	1.1
Guardian's allowance (s)	99.3	0.0	0.0	0.0	0.7
Widow's pension (h)	98.6	0.1	0.0	0.2	1.1
Widow's pension (s)	99.3	0.0	0.0	0.0	0.7
Child benefit (h)	98.8	0.0	0.0	0.0	1.1
Child benefit (s)	99.1	0.0	0.0	0.1	0.7
Other income (h)	98.6	0.0	0.0	0.0	1.4
Other income (s)	98.7	0.0	0.0	0.0	1.3

Note: h = household; s = spouse.

Table 9A.2. Wealth variable data types

Income type	Continuous	Closed band	Open band	Missing, > 0	Missing completely
Savings or current accounts	79.4	9.6	1.6	7.0	2.5
ISAs	86.9	4.5	0.7	3.1	4.9
TESSAs	94.2	1.1	0.1	1.9	2.7
Premium bonds	94.7	0.7	0.3	1.7	2.6
National Savings	95.7	0.6	0.2	0.9	2.6
PEPs	91.8	2.8	0.2	2.6	2.6
Shares	87.7	5.1	0.7	3.9	2.6
Trusts	93.6	1.7	0.2	1.8	2.7
Bonds	94.2	1.3	0.2	1.6	2.7
Other savings	95.9	0.5	0.1	0.8	2.7
Life insurance (savings component)	91.9	2.7	0.2	1.2	4.1
Joint assets	98.5	0.3	0.4	0.4	0.4
Property	96.7	0.9	0.4	0.5	1.6
Farms etc.	97.9	0.2	0.1	0.2	1.6
Other physical assets	96.2	1.1	0.3	0.7	1.6
Primary business wealth	95.1	0.9	0.3	0.6	3.0
Other business wealth	93.2	0.6	0.2	0.3	5.6
Credit-card debt	97.1	0.7	0.1	0.4	1.7
Private debt	98.3	0.0	0.0	0.0	1.6
Other debt	97.1	0.7	0.2	0.4	1.6
House value	94.5	3.5	0.5	1.4	0.0
Housing debt	94.9	3.1	1.5	0.3	0.2