

# 7 Methodology

*Cara Dooley*

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# 7

## Methodology

### Summary

- At wave 1, TILDA recruited a stratified clustered sample of 8178 individuals representative of the community dwelling Irish population aged 50 years and over. Younger spouses and partners were also invited to participate, primarily to provide information regarding family and financial circumstances.
- At wave 2, TILDA invited all living wave 1 respondents to undertake an extensive face-to-face computer-assisted personal interview (CAPI). Respondents were also invited to complete a self-completion questionnaire (SCQ).
- The overall response rate to wave 2 of the study was 86%. Participants who had attended the health assessment at wave 1 and/or who had returned a self-completion questionnaire were more likely to participate in the second wave of the study
- Proxy, end-of-life and institutional interviews were introduced to the study at wave 2. In total, 155 end-of-life interviews, 80 proxy interviews and 22 institutional interviews were completed.

### 7.1 Target population at wave 2

The selection of the original wave 1 TILDA sample is described in detail elsewhere (1, 2). In March 2012, TILDA interviewers returned to each of the 6282 households that participated in the first wave of the study. Advance invite letters were sent to each of the original 8504 respondents (8175 eligible respondents and 329 younger partners) inviting them to take part in the next wave of the study. No active recruitment of new respondents was carried out; however, respondents who were eligible in wave 1 but had declined to participate were canvassed to join the study at wave 2. In addition, new spouses and partners of core respondents were invited to participate. This led to 170 new respondents at wave 2.

Each respondent completed a computer-assisted personal interview (CAPI) in their own home which included detailed questions on health, social and economic circumstances.

The questions were mainly a repeat of the questions asked in wave 1; however, wave 2 also included some new and amended questions. Where there was more than one respondent in a household, respondents were asked to nominate a financial and a family respondent. These 'types' of respondent represented members of the household who were most knowledgeable in financial and family matters and who agreed to answer questions in these domains on behalf of the household. The financial and family respondents may be the same individual.

At the end of the CAPI interview, each respondent was asked to fill in a self-completion questionnaire (SCQ) and return it by post (in a prepaid envelope) to the TILDA study. This questionnaire asked a range of potentially sensitive questions, including questions on quality of life, emotional well-being and health behaviours. Unlike wave 1 of the study, there was no health assessment at wave 2.

Apart from the standard in-person CAPI interview, three new types of interview (proxy, end-of-life and institutional) were introduced at wave 2. While every effort was made to achieve in-person interviews, those respondents who were deemed unable to participate in an interview due to a physical or cognitive impairment had a proxy interview. 80 proxy interviews were conducted in wave 2 and were found to be well received by family and carers of respondents. In addition, 155 end-of-life interviews were undertaken with relatives, friends or carers of core TILDA members who had died since participating in wave 1 of the study. TILDA participants who had moved into a residential or nursing home by wave 2 were offered an institutional interview (n=22).

## 7.2 Response Rates

Of the 8175 original wave 1 respondents, 6995 completed an interview at wave 2. The wave 2 response rate is calculated as the percentage of wave 2 CAPI interviews that were successfully obtained from the original wave 1 respondents. This gives an individual response rate of 86%. In addition, there were 170 interviews with new respondents. 150 of these new respondents met the age criteria for inclusion at wave 1 and 20 were younger partners and spouses who were now resident in the household. Response rates by age and sex are given in Table 7.1 below. While the response rates are similar for males and females, the over 75s were less likely to complete an interview at wave 2 of the study.

Table 7.1: Wave 2 response rates by age and sex

wave 2 Response rate			
%			
	Male	Female	Total
<52	94.4	87.4	88.1
52-64	87.7	87.3	87.5
65-74	85.9	87.9	86.9
75+	79.3	78.7	79
<b>Total</b>	<b>85.5</b>	<b>85.8</b>	<b>85.7</b>

### 7.3 Attrition

Table 7.2 examines how participation or attrition at wave 2 is influenced by study engagement at wave 1 and age.

Table 7.2 Wave 1 study engagement by wave 2 participation and age

	No health assessment %	Health centre record %	Home assessment record %	Total	No Wave 1 SCQ %	Wave 1 SCQ %	Total	Number in sample
<b>52-64</b>								
Attriter	56	35	9	100	31	69	100	516
In Both Waves	20	74	6	100	13	87	100	3603
<b>Total</b>	<b>25</b>	<b>69</b>	<b>6</b>	<b>100</b>	<b>15</b>	<b>85</b>	<b>100</b>	<b>4119</b>
<b>65-74</b>								
Attriter	58	31	11	100	37	63	100	310
In Both Waves	21	70	9	100	10	90	100	2063
<b>Total</b>	<b>26</b>	<b>65</b>	<b>9</b>	<b>100</b>	<b>13</b>	<b>87</b>	<b>100</b>	<b>2373</b>
<b>75+</b>								
Attriter	64	16	21	100	41	59	100	354
In Both Waves	32	44	24	100	13	87	100	1329
<b>Total</b>	<b>39</b>	<b>38</b>	<b>23</b>	<b>100</b>	<b>19</b>	<b>81</b>	<b>100</b>	<b>1683</b>
<b>All</b>								
Attriter	59	28	13	100	36	64	100	1180
In Both Waves	23	67	10	100	12	88	100	6995
<b>Total</b>	<b>28</b>	<b>62</b>	<b>11</b>	<b>100</b>	<b>15</b>	<b>85</b>	<b>100</b>	<b>8175</b>

As part of the wave 1 interview, all respondents were invited to a health centre, in either Dublin or Cork, for a comprehensive health assessment. Participants who were unable or unwilling to attend a health centre were offered a modified assessment in their own home. As can be seen in Table 7.2, respondents who attrited from the study were less likely to have had a health assessment in wave 1 (59%). Of those who took part in both waves of the study, 23% had not had a health assessment in wave 1. The pattern is similar for those who returned an SCQ in wave 1.

The self-completion questionnaire was completed by 84% of the wave 2 respondents. The response rates were similar for the new respondents and those who responded to both waves of the study. No age or sex differences were observed for completion of the SCQ (see Table 7.3 below).

*Table 7.3 Self Completion Questionnaire response rates by age and sex*

<b>Self completion record present</b>			
	<b>%</b>		
	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>&lt;52</b>	75	86.1	84.8
<b>52-64</b>	82.8	86.2	84.7
<b>65-74</b>	85.9	88.9	87.5
<b>75+</b>	77.6	77.2	77.4
<b>Total</b>	82.7	85.3	84.2

### 7.3.1 Reasons for non-response

Table 7.4 summarizes reasons for non-response at wave 2. A total of 205 of the 1180 individuals who did not participate in wave 2 were deceased. An end-of-life interview was successfully completed in 155 cases (76%). Those lost to follow-up (n=166) were typically respondents who had moved outside of the island of Ireland, although occasionally the respondents had moved within Ireland and were untraceable.

*Table 7.4 Reasons for non-response*

Reason for Attrition	Number
Deceased	205
Lost to Follow-up	166
Refusal	809
<b>Total</b>	<b>1180</b>

## 7.4 Dataset

All of the results in this report are based on the TILDA dataset version 2.4.0. This dataset includes CAPI data from all 7455 TILDA wave 2 respondents (from 6266 households), of whom 7145 were aged 52 and over. These 7145 respondents form the base sample for this report. Various subsamples of this sample are used throughout the report, most notably the 6995 respondents who responded to both waves of the study. These subsamples are defined in the relevant chapters.

Data from the 310 younger respondents are incorporated where measures are taken at the level of the household or the couple. The dataset also includes the 6274 SCQ records for the wave 2 sample, 6011 for those aged 52 and over and 263 for the younger partners. The dataset will be archived in early 2014 in the Irish Social Science Data Archive at University College Dublin (UCD) (<http://www.ucd.ie/issda/data/tilda/>).

## 7.5 Analytical methods employed in this report

For estimates to be unbiased and for their uncertainty to be correctly determined, analyses used to generate the findings in this report incorporate the design of the study and the pattern of non-response (missing data). Statistical methods used to calculate the estimates presented in this report are described below.

### 7.5.1 Confidence intervals and statistical significance

The majority of the estimates in this report are the percentages (or proportions) of older people falling into various groups or averages (mean or median) of quantities.

Each estimate based on the TILDA sample is an estimate of the true value in the population. The TILDA sample is a random sample of the population of interest, so there

is some uncertainty in these estimates due to the sampling process. For this reason, the majority of the estimates in this report are provided with a 95% confidence interval reflecting this uncertainty. The confidence intervals can be interpreted as the plausible range for the true value in the target population. Smaller confidence intervals indicate more precise estimates.

The formal interpretation of the 95% confidence interval is that in repeated sampling 95% of the confidence intervals calculated will include the true population parameter.

### 7.5.2 Design of the survey

The original design of TILDA used a RANSAM sampling plan and is described in detail in the TILDA design report (1). This used stratified sampling to select the 640 clusters used for recruitment to TILDA. This stratification ensured an efficient and population representative sample, by stratifying 3155 clusters by socio-economic status and geography (1). This stratification is incorporated into the estimation procedures in this report, and helps explain variability among individuals and can improve the precision of estimators.

The geographic clustering increased the efficiency of the data collection process, resulting in a lower fieldwork cost per interview. However, clustering also reduces the effective contribution of each individual taking part, since there is likely to be some correlation in the responses of individuals from the same cluster, due to their similar geographic and socio-economic backgrounds. The effect of this is to reduce the precision of estimates, reflected by wider confidence intervals. The confidence intervals included in this report incorporate the effects of stratification and clustering on precision.

### 7.5.3 Weighting

Response rates to both wave 1 and wave 2 of the study are non-random, that is, the response rates to both waves of the study vary over certain subgroups of the population. This systematic difference in how certain sections of population respond to the survey can introduce bias into our estimates. For this reason, the analysis in this report is weighted to reduce the bias due to this systematic difference. This weighting ensures that subgroups in the sample are included proportionally, in the calculation of the estimates, to the number in that subgroup present in the population of Ireland.

Cross-sectionally, the dataset contains two main weights; a CAPI weight and an SCQ

weight. Weights applied to the main (CAPI) sample were estimated by comparing the proportion of individuals in the sample across age, sex and highest level of education attained, with the proportion in the population with the same characteristics. The proportion in the population was estimated using the Quarterly National Household Survey (QNHS 2012).

The SCQ weight is then calculated by dividing the CAPI weight by the probability of the respondent filling in and returning the SCQ in wave 2. This probability is calculated using a logistic regression model. Factors in the model which were shown to affect the return of the SCQ included marital and employment status, mental health and whether the respondent lived in an urban or rural area.

Attrition (or longitudinal) weights were also calculated for longitudinal analysis of the data. These weights corrected for the systematic difference in attrition rates over subgroups and reduced the bias caused by this difference in attrition rates. These weights are calculated based on the reciprocal of the probability of a wave 1 respondent taking part in wave 2. This probability is calculated using a logistic regression model. Factors in the model which were shown to affect attrition included measures of cognitive and behavioural health, marital status and several health measures.

The analyses for many sections of this report were based on subsamples of the overall TILDA sample. For these sections, a separate weight was calculated for each subsample. In the obesity chapter, for example, the analysis is based on a subsample of respondents who completed the wave 2 CAPI interview and the wave 1 health assessment (BMI measure).

A report explaining all of the TILDA weights used in this report will be available mid-2014 with the public dataset (Irish Social Science Data Archive) and thereafter on the TILDA website.

#### **7.5.4 Software**

All analysis presented in this report was conducted using Stata 12.0.

### **7.6 Limitations of this report and future analysis**

The report has described the health, well-being and economic circumstances of over 52s in Ireland. These analyses are preliminary and of a descriptive nature. Future analysis of

the dataset, will allow for more complex statistical modelling, which will provide more in depth explorations that are outside the scope of this report.

Although the TILDA sample is representative of community dwelling adults aged over 52 in Ireland, it is not, as yet, fully representative of those who have moved to an institutional setting. TILDA initially recruited only those who were community dwelling; however, respondents who moved to an institutional setting were interviewed at wave 2 and will be interviewed at all subsequent waves of TILDA. As of wave 2, only 22 respondents had participated in an institutional interview. As the study continues, this number will increase, allowing for greater analysis of this important subsample of the older population.

TILDA has now collected two waves of data, presenting the first opportunity for longitudinal investigation of research questions. This is the first report to document longitudinal changes in the TILDA population. However, changes presented in this report are over just two years and for many measures and questions this is not nearly long enough to observe any substantive or robust change. As the number of data waves increases, this change will be measured more precisely and change over time will be better quantified. As the study matures, causal relationships can increasingly be examined and our understanding of the ageing process greatly enhanced.

## References

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