



THE UNIVERSITY OF
MELBOURNE

HILDA User Manual – Release 3.0

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Department of Family and Community Services**



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Updates to This Manual

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14/04/05	Renumbered Appendix 1 to 1A Added Appendix 1B on data item sources
25/01/05	Added Appendix 4 on Little and Su method
13/01/05	Original version of manual for Release 3.0

Contents

USING THIS MANUAL	1
OVERVIEW OF THE HILDA SURVEY	2
THE HILDA SAMPLE AND FOLLOWING RULES: A SUMMARY	2
QUESTIONNAIRES.....	3
<i>Household Form</i>	4
<i>Household Questionnaire</i>	4
<i>Person Questionnaires</i>	4
<i>Self-Completion Questionnaire</i>	4
THE HILDA DATA	6
THE HILDA DATA USERS.....	6
ORDERING THE DATA.....	6
A REMINDER OF THE SECURITY REQUIREMENTS FOR THE DATA	7
HOW THE DATA FILES ARE PROVIDED.....	7
STRUCTURE OF THE DATA FILES	8
IDENTIFIERS.....	8
MATCHING FILES	9
CREATING LONGITUDINAL FILES	11
VARIABLE NAME CONVENTIONS.....	17
MISSING VALUE CONVENTIONS	23
<i>Numeric Variables</i>	23
<i>Text Variables</i>	23
DATA WITH NEGATIVE VALUES.....	24
CONFIDENTIALISATION.....	24
DERIVED VARIABLES.....	25
AGE AND SEX	25
HISTORY VARIABLES.....	26
SPATIAL VARIABLES.....	30
CURRENT EDUCATION VARIABLES.....	31
CURRENT MARRIAGE AND DEFACTO RELATIONSHIP VARIABLES	34
CHILDREN VARIABLES.....	34
CHILD CARE VARIABLES.....	35
EMPLOYMENT VARIABLES.....	39
CALENDAR VARIABLES.....	41
FAMILY VARIABLES.....	42
HEALTH VARIABLES	43
HOUSING VARIABLES.....	44
INCOME VARIABLES AND INCOME IMPUTATION.....	44
<i>Income, Tax and Family Benefits Model</i>	44
<i>Imputation Method</i>	48
<i>Imputed Income Variables</i>	48
WEALTH VARIABLES AND WEALTH IMPUTATION (WAVE 2 SPECIAL TOPIC).....	50
<i>Wealth Model</i>	50
<i>Imputation Method</i>	52
<i>Imputed Wealth Variables</i>	52
WEIGHTS	54
<i>Cross-Sectional Weights</i>	54
<i>Longitudinal Weights</i>	55
<i>Weights Provided on the Data Files</i>	55
<i>Advice on Using Weights</i>	56
DOCUMENTATION	59
DOCUMENTATION CHOICES.....	59
MARKED-UP QUESTIONNAIRES.....	59

VARIABLE LISTINGS.....	60
<i>Derived Variable Listing</i>	60
<i>File-Based Listing</i>	61
<i>Subject Listing</i>	61
<i>Cross-Wave Variable Listing</i>	62
FREQUENCIES	62
ON-LINE DOCUMENTATION	63
DATA QUALITY ISSUES.....	64
MISSING INCOME DATA AND THE EXTENT OF INCOME IMPUTATION	64
THE HILDA SAMPLE	67
SAMPLE DESIGN.....	67
<i>Overview</i>	67
<i>Reference Population</i>	67
<i>Sampling Units</i>	68
<i>Sample Selection</i>	69
FOLLOWING RULES	69
DATA COLLECTION	70
PILOT TESTING	70
QUESTIONNAIRE LENGTH	70
INTERVIEWERS	71
FIELDWORK PROCESS	71
<i>Data Collection Mode</i>	71
<i>Timeline</i>	72
<i>Survey Notification Material</i>	72
<i>Respondent Incentives</i>	72
<i>Call routine, Follow-Up and Refusal Aversion</i>	73
<i>Foreign Language Interviews</i>	73
<i>Interviewer Monitoring</i>	73
RESPONSE RATES	74
ATTRITION BIAS	77
DATA PROCESSING	80
<i>Data Entry</i>	80
<i>Coding Responses</i>	80
HILDA USER TRAINING.....	82
GETTING MORE INFORMATION.....	83
REFERENCES	84
APPENDIX 1A: SUMMARY OF HILDA SURVEY CONTENT, WAVES 1 – 4	86
APPENDIX 1B: HILDA SURVEY DATA ITEM SOURCES.....	94
APPENDIX 2: CHANGES TO THE DATA FROM RELEASE 2.0.....	102
CHANGES TO WAVE 2 FILES.....	102
<i>Cleaning</i>	102
<i>Corrections in calculations</i>	102
<i>New variables</i>	104
<i>Renamed variables</i>	104
<i>Deleted variables</i>	104
<i>Documentation corrections</i>	105
<i>Master File</i>	105
CHANGES TO WAVE 1 FILES.....	105
<i>Cleaning</i>	105
<i>Corrections in calculations</i>	105
<i>New variables</i>	106

<i>Deleted variables</i>	107
<i>Renamed variables</i>	107
<i>Documentation corrections</i>	108
APPENDIX 3: CHANGES TO THE DATA FROM RELEASE 1.0	109
CHANGES TO WAVE 1 FILES.....	109
<i>Cleaning</i>	109
<i>Corrections in calculations</i>	109
<i>New variables</i>	110
<i>Renamed variables</i>	110
<i>Documentation corrections</i>	110
<i>Self Completion Questionnaire</i>	111
APPENDIX 4: LITTLE AND SU METHOD	112
FORMULAE.....	112
EXAMPLE.....	113

USING THIS MANUAL

What we affectionately call the HILDA Survey is more formally named the Household, Income and Labour Dynamics in Australia Survey. This manual has been designed for the users of the HILDA data.

The manual aims to cover all of the things that you need to know to use the HILDA data – such as missing data conventions, an introduction to the derived variables, how to put the data files together, income imputation, how to find your way around the documentation, and how to deal with pesky things such as weights.

The best way to use this manual is as a reference tool. It is unlikely that you will sit down and read it cover to cover and take away everything you need to know about the data. More realistically, you will start to work with the data and will need some information about certain aspects of the data or the survey – and hopefully you will be able to find it within this manual fairly easily.

This is the first version of the manual, and as such we welcome any feedback you have. It is an evolving manual, so what you see now will be added to in the near future. If there is something that you expected to find in the manual and didn't, or if you had difficulty finding or understanding any section, please let us know (email n.watson@unimelb.edu.au).

OVERVIEW OF THE HILDA SURVEY

The HILDA Survey is a broad social and economic survey, with particular attention paid to family and household formation, income and work. As the HILDA Survey has a longitudinal design, most questions are repeated each year. Nevertheless, within each survey wave, scope exists for asking questions on topics that will not be covered every year. The main additional topics to date are as follows:

- Wave 1 – Family background and personal history variables (subsequently included in every New Person Questionnaire);
- Wave 2 – Household wealth;
- Wave 3 – Retirement and plans for retirement;
- Wave 4 – Private health insurance, and youth.

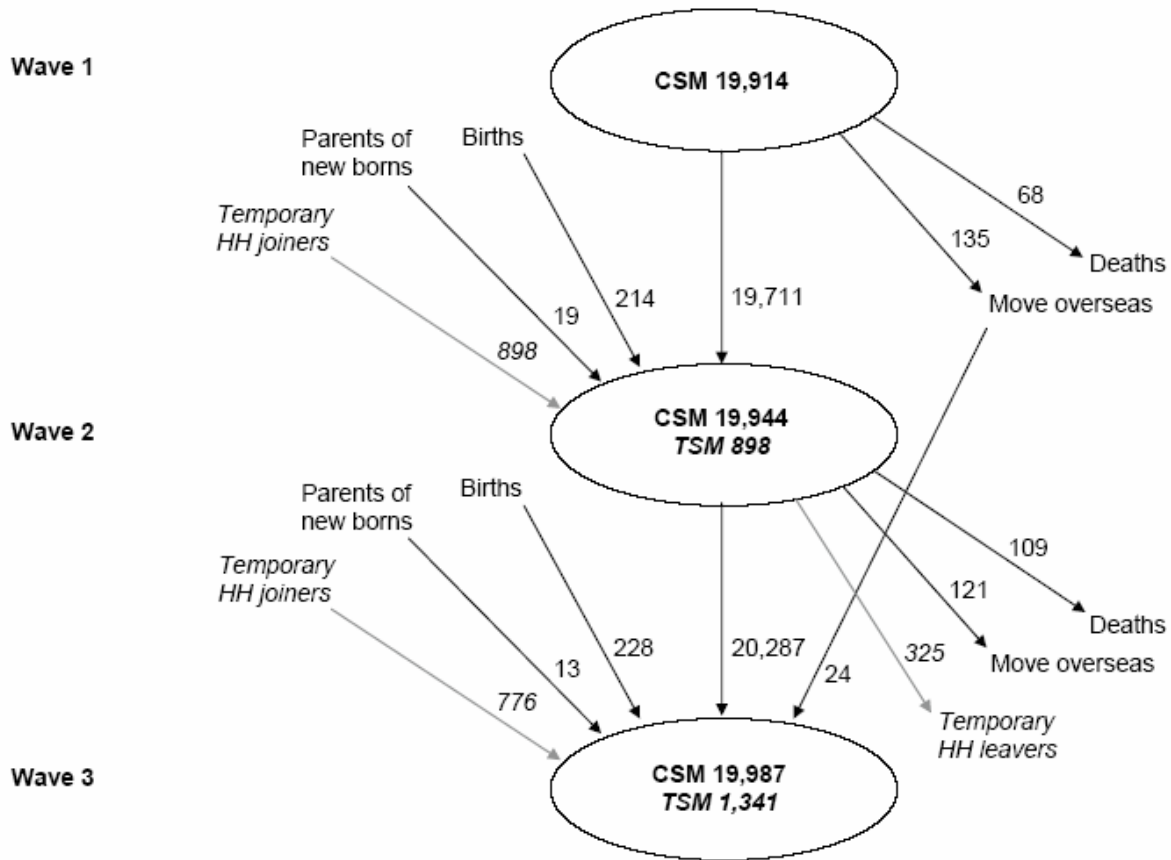
The HILDA Sample and Following Rules: A Summary

The HILDA Survey began with a large national probability sample of Australian households occupying private dwellings. All members of the households providing at least one interview in wave 1 form the basis of the panel to be pursued in each subsequent wave. The sample has been gradually extended to include any new household members resulting from changes in the composition of the original households.

Continuing Sample Members (CSMs) are defined to include all members of wave 1 households. Any children subsequently born to or adopted by CSMs are also classified as CSMs. Further, all new entrants to a household who have a child with a CSM are converted to CSM status. CSMs remain in the sample indefinitely. All other people who share a household with a CSM in wave 2 or later are considered Temporary Sample Members (TSMs). TSMs are followed for as long as they share a household with a CSM.

Figure 1 shows the evolution of the sample across the three waves. The wave 1 sample consisted of 19,914 people. A further 442 births and 54 parents of newborns who were not originally CSMs have been added to the sample in waves 2 and 3. A total of 177 deaths have been identified across the two follow-up waves and 256 people have moved overseas, though 24 returned after being away for one wave. Of the TSMs joining the sample in wave 2, a third had moved out by wave 3.

Figure 1: The Evolution of the HILDA Survey Sample



Questionnaires

In wave 1, the HILDA survey comprised four different instruments. These were:

- the Household Form (HF);
- the Household Questionnaire (HQ);
- the Person Questionnaire (PQ); and
- the Self-Completion Questionnaire (SCQ).

In subsequent waves, the PQ was replaced with two instruments: the Continuing Person Questionnaire (CPQ), for people who have been interviewed in a previous wave, and the New Person Questionnaire (NPQ), for people who have never been interviewed before.

Appendix 1a provides a guide to topics covered in the HILDA Survey across the first four waves. Appendix 1b provides a list of sources used in constructing the questions.

Household Form

The HF is designed to record basic information about the composition of the household immediately after making contact. The HF is the 'master document' used by interviewers to decide who to interview, how to treat joiners and leavers of the household, and to record call information and non-interview reasons. The date the HF is completed is provided in *_hhcomps*.

Household Questionnaire

The HQ collects information about the household rather than about individual household members per se, and is only administered to one member of the household. In practice, however, interviewers are encouraged to be flexible. If more than one household member wishes to be present at the interview this is perfectly acceptable. Further, interviewers are given the flexibility to deliver part of this interview to one household member and part to another. Indeed, this was often required, with questions on childcare needing to be asked of the primary care giver. The date the HQ is completed is provided in *_hhqivw*.

The HQ mainly covers childcare arrangements, housing, household spending and in wave 2 household wealth.

Person Questionnaires

The CPQ is administered to every member of the household aged 15 years and over who has previously completed a person questionnaire. The NPQ is administered to every member of the household aged 15 years and over who has not previously completed a person questionnaire. Parental consent is sought before interviewing persons aged under 18 years. The date the PQ is completed is provided in *_hhidate*.

The sections of the person questionnaires are shown in Table 1 together with the letter used to identify the section. These will help you locate questions on the questionnaires (for example, if you wanted to find questions on education, look in section C of the wave 1 Person Questionnaire and section A of the Continuing Person Questionnaire and New Person Questionnaire from wave 2 onwards).

Self-Completion Questionnaire

Finally, all persons completing a person questionnaire are asked to complete a Self-Completion Questionnaire which the interviewer collects at a later date, or failing that, is returned by mail.¹ This questionnaire comprises mainly attitudinal questions, many of which cover topics which respondents may feel slightly uncomfortable answering in a face-to-face interview.

Table 2 shows the sections of the SCQ together with the letter used to identify the section.

¹ The date that the SCQ is completed is not collected.

Table 1: Sections of the Person Questionnaires

<i>Topics</i>	<i>Section</i>	
	<i>Wave 2 onwards</i>	<i>Wave 1</i>
Country of birth	AA (NPQ only, except in wave 4)	A
Family background	BB (NPQ only)	B
Education	A	C
Employment status	B	D
Current employment	C	E
Persons not in paid employment	D	D, F
Annual activity calendar	E	FG
Income	F	G
Family formation	G	H
Partnering/Relationships	H	J
Living in Australia	K	K
Tracking information	T	T
Interviewer observations	Z	Z
<i>Special Topics</i>		
Wealth (wave 2 only)	J	
Retirement (wave 3 only)	L	
Private health insurance (wave 4 only)	J	
Youth issues (wave 4 only)	L	

Table 2: Sections of the Self-Completion Questionnaire

<i>Topics</i>	<i>Wave 2 onwards</i>	<i>Wave 1</i>
General health and well-being (SF-36)	A	A
Lifestyle and living situation	B	B
Personal and household finances	C	C
Attitudes and values	-	D
Job and workplace issues	D	E
Partnering	E	F
Sex and age	F	-

THE HILDA DATA

The HILDA Data Users

The HILDA Survey has already developed a sizeable community of users. There were 203 registered users of the first release and 267 registered users of Release 2.0. A breakdown of users by type and by release is provided in Table 3.

Table 3: HILDA Survey data users by type: Release 1 and Release 2

<i>Type of user</i>	<i>Release 1 (final)</i>	<i>Release 2 (final)</i>
Academic – Australia	85	109
Academic – Overseas	5	13
Students – Honours year	5	16
Students – Postgraduate	8	19
Government – Australian	87	90
Government – State/Local	7	13
Other	6	7
Total	203	267

Ordering the Data

The data can be obtained by:

- visiting the ‘data and documentation’ page on the HILDA website: www.melbourneinstitute.com/hilda/data.html;
- completing the appropriate order form AND deed of licence – to avoid lengthy delays in processing your application, make sure you have completed EVERY part that you need to (see the notes about this on the website);
- sending these completed documents to the address indicated on the order form, together with your payment of \$77 for administration costs (\$132 for overseas users);
- waiting approximately two to three weeks for the delivery of the data.

When your order form and deed of licence reaches the Melbourne Institute, you will receive an email confirmation that it has arrived. If you do not receive this, then contact Samantha Roberts (ros@unimelb.edu.au) as soon as possible to avoid delays in your application.

Due to changes in the deed of licence for Release 3.0, ALL users must sign a new deed.

Employees of the Department of Family and Community Services have different access arrangements and should contact Carole.Heyworth@facs.gov.au

A Reminder of the Security Requirements for the Data

The deed of licence stipulates numerous security requirements for the data, some of which are outlined below:

- If you change employers, you **MUST** inform the Melbourne Institute prior to doing so. The data is licenced to an individual and not to an organisation, so the data **MAY** be able to move with the individual, depending on the research to be undertaken and the new employer. You must **NOT** leave the data with your old employer if you move.
- If you change your research project you **MUST** seek permission for the new project from the Melbourne Institute.
- The HILDA CD-rom **MUST** be kept secure in a locked filing cabinet or other secure container when not in use.
- The HILDA data (and any derivatives of the HILDA data) must be stored on a password protected computer or network.
- Your password **MUST** include a mixture of upper and lowercase characters, be at least 8 characters long, and include some non-alphanumeric characters such as #, ;, *, etc.
- Any printed unit record output **MUST** stored in a locked filing cabinet or other secure container when not in use. Any printed unit record output **MUST** be shredded if no longer required.
- You cannot provide the data to any unauthorised individual (to be authorised, you must have completed the order form and have the deed of licence signed by both yourself and the FaCS delegate).
- There **MUST** be a means of limiting access to the work area where the data is kept and tamper evident barriers to access (i.e., if there were a break-in, it would be obvious from broken glass, damaged lock, etc).

How the Data Files are Provided

All data are provided in both SAS and SPSS formats. The CD-Rom also includes extensive documentation of the data, including coding frameworks, marked-up questionnaires and variable frequencies. The files and the documentation are discussed in detail in later sections.

Changes to the data files provided in earlier releases are summarised in Appendices 2 and 3.

The data files can be transferred to other statistical packages using StatTransfer, DBMS Copy, or any other data conversion package of your choice.² You may need to restrict the number of variables to be included in your transferred datasets due to the limitations on the number of variables imposed by some other packages (for example, you will need to use Stata SE if you want to include more than 2047 variables in your data files).

Structure of the Data Files

For each wave, there are four files:

- Household File – containing information from the HF and HQ.
- Enumerated Person File – listing all persons in all **responding** households and contains limited information from the HF (includes respondents, non-respondents and children).
- Responding Person File – containing all persons who provided an interview and contains CPQ/NPQ and SCQ information.
- Combined file – this is a combined file of the three files above. The household information and responding person information is matched to each enumerated person.

In addition, one master file is provided with the files for the most recent wave. The master file contains all persons enumerated at any wave, their interview status in each wave and limited information about the individual.

Identifiers

Household and person level files within a wave can be merged by using *_hhrhid* (i.e., *ahhrhid* for wave 1, *bhhrhid* for wave 2, etc).³ Note that where we use the underscore ‘_’ in the variable name, you will need to replace it with the appropriate letter for the wave, ‘a’ for wave 1, ‘b’ for wave 2, etc.

Enumerated and responding person files within a wave can be merged by using *_hhripid*. In wave 1, the first six characters of the person identifier is the household identifier and the last two characters of the person identifier is the person number within the household. In wave 2 onwards, the first five characters are the household identifier and the next two are the person number

² A trial copy of StatTransfer Version 7 can be downloaded from www.stattransfer.com or purchased online at www.stattransfer.com/html/store.html. DBMS/Copy Version 7 can be purchased online at www.dataflux.com/product-services/products/dbms.asp.

³ Users of the unconfidentialised files can alternatively use *_hhid* to match the household and person files, and *_hhpid* to match the person files. In wave 1, the household identifier is six digits long, corresponding to area (3 digits), dwelling number (two digits) and household number (one digit). The person identifier in wave 1 is then eight digits long – the first six are the household identifier, followed by two digits for the person number. In subsequent waves, the household identifier is five digits long, and the person identifier is seven digits long.

Information from enumerated or responding person files can be linked across waves by using either:

- the cross-wave identifier *xwaveid*; or
- the master file which shows the identifiers for each person each wave.

Partners within the household are identified in *_hhprtrid* on the enumerated and responding person files using the information in the HF relationship grid. *_hhprtid* is the person number within the household (for example, if person 02's partner is person 05, the partner identifier for person 02 will contain '05' and for person 05 it will contain '02'). You will need to concatenate the household identifier with the partner identifier before you can match on partner characteristics to the person file.

Parents within the household are similarly identified in *_hhfid* (father's person number) and *_hhmid* (mother's person number).

Matching Files

Two sample programs are provided below in SAS and SPSS for matching the household and responding person files together. Example 3 provides a Stata program for matching the household, responding person and enumerated person files together.

Example 1: SAS program to match wave 3 household and responding person files

```
libname w3 'e:\release3.0\c30c';
data w3p;
  set w3.rperson_c30c;
data w3h;
  set w3.household_c30c (keep=chhrhid chifefn chifefp chifdip chifdin);
proc sort data = w3p; by chhrhid;
proc sort data = w3h; by chhrhid;
data w3p;
  merge w3p w3h;
  by chhrhid;
```

Example 2: SPSS program to match wave 3 household and responding person files

```
file handle w3p /name='e:\release3.0\c30c\Rperson c30c.sav'.
file handle w3h /name='e:\release3.0\c30c\Household c30c.sav'.
file handle w3psort /name='e:\release3.0\c30c\Rperson sorted c30c.sav'.
file handle w3hsort /name='e:\release3.0\c30c\Household sorted c30c.sav'.

get file=w3h / keep= chhrhid chifefn chifefp chifdip chifdin.
sort cases by chhrhid.
save outfile=w3hsort.
get file=w3p.
sort cases by chhrhid.
save outfile=w3psort.
match files file=w3psort / table=w3hsort / by chhrhid.
exe.
```

Example 3: Stata program to match wave 3 household, enumerated and responding person files

```
*****
* Merging Hilda Wave 3 and renaming variables
* By Sher Verick
*****
/* -----[ WAVE 3 2003 ]----- */;
** Enumerated Person File **;
use <enter variable list here>
using "C:\Eperson c30c.dta", clear;
#delimit cr
foreach var of varlist a* {      /* Adds year to end of variable name */
    rename `var' `var'2003
}
#delimit ;
renprefix c;                    /* Drops prefix from variable name */
sort hhrpid2003;                /* Sorts by hhrpid */
save "C:\myeperson_2003.dta", replace; /* Saves as separate file */

** Household File **;
use <enter variable list here>
using "C:\Household c30c.dta", clear;
#delimit cr
foreach var of varlist a* {      /* Adds year to end of variable name */
    rename `var' `var'2003
}
#delimit ;
renprefix c;                    /* Drops prefix from variable name */
sort hhrhid2003;                /* Sorts by hhrhid */
save "C:\myhousehold_2003.dta", replace;

** Person File **;
use <enter variable list here>
using "C:\Rperson c30c.dta", clear;
#delimit cr
foreach var of varlist a* {      /* Adds year to end of variable name */
    rename `var' `var'2003
}
#delimit ;
renprefix c;                    /* Drops prefix from variable name */
sort hhrpid2003;                /* Sorts by hhrpid */
save "C:\myrperson_2003.dta", replace;
```


Creating Longitudinal Files

There are a number of ways users might want to create a balanced longitudinal file:

- Wide file of responding persons – this is where we keep only people responding in all waves and put the variables for each wave next to each other.
- Wide file of enumerated persons – this is where we keep only those people who were in responding households in all waves and the variables for each wave are put next to each other.
- Long file of responding persons – this is where we keep only people responding in all waves and the information for each wave is stacked together (that is, there is a separate row of data for each wave of information for each person).
- Long file of enumerated persons – this is where we keep only those people who were in responding households in all waves and the information for each wave is stacked together (that is, there is a separate row of data for each wave of information for each person).

Most users will probably want to restrict the files to only include respondents or people from responding household. A few users may also want to add people who have died or moved out of scope (depending on the research question they are answering).

Example SAS and SPSS programs to create balanced long files of responding persons are provided in Examples 4 and 5 below. The wide files are created by matching the responding or enumerated files for each wave together using *xwaveid*.

Some users may want to create an unbalanced panel – where you take all respondents or enumerated persons available at each wave (not just those that consistently respond or are consistently in responding households). An example Stata program to create an unbalanced panel is provided in Example 6 below.

The longitudinal weights currently only support the full balanced panel of respondents and enumerated persons from wave 1 (i.e., across the three waves or across the first two). Out of scopes are treated as acceptable outcomes, so these people have weights applied as well.

Example 4: SAS program to create longitudinal files

```
/* ***** */
/* Example SAS program to create balanced responding person */
/* long longitudinal file. */
/* Created by: Simon Freidin */
/* ***** */

/* ***** */
/* Section 1: locate datasets, get balanced cases, load renaming macro */
/* ***** */
* (1.1) Location of datasets (edit to reflect your paths);
libname wave1 'e:\a\written datasets\a30\SAS a30c';
libname wave2 'e:\b\written datasets\b30\SAS b30c';
libname wave3 'e:\c\written datasets\c30\SAS c30c';
libname long 'e:\a\data\long'; * output datasets;

* Master file;
data master;
  set wave3.master_c30c (keep=xwaveid ahhrpid afstatus bhhrpid bfstatus chhrpid cfstatus);
* Wave 1 responding persons;
data w1rp;
  set wave1.Rperson_a30c;
* Wave 2 responding persons;
data w2rp;
  set wave2.Rperson_b30c;
* Wave 3 responding persons;
data w3rp;
  set wave3.Rperson_c30c;

* (1.2) Identify cases responding in all waves from the master file;
* status codes: 1=face to face interview, 2=telephone interview;
* balanced panel long n = 32331 ;
data masters (keep=xwaveid ahhrpid bhhrpid chhrpid);
  set master;
  if afstatus in (1,2) and bfstatus in (1,2) and cfstatus in (1,2);
run;

* (1.3) Macro to rename variables, dropping first character of variable name;;
* ID's are not renamed;
* Writes a sas program to 'c:\temp', alter path if no c:\temp, also alter paths in %include statements;
%macro rename (ds);
data ren;
  set &ds;
  if _n_=1;
proc transpose data=ren out=ren2;var _all_;
data ren3;
  file 'c:\temp\rencmds.sas';
  set ren2 end=eof;
  if _n_=1 then put " rename";
  if _name_ not in ("XWAVEID","AHHRHID","AHRHPID","BHHRPID","BHHRHID","CHHRPID","CHHRHID")
then do;
  _name2_=_name_ || '=' || substr(_name_,2);
  put " " _name2_;
end;
  if eof then put " ";
run;
%mend;
```

Example 4 (c'td)

```
/* ***** */
/* Section 2: create "long" responding person longitudinal file */
/* ***** */
* (2.1) Rename waves. Run macro and then include generated rename;
*   command file. Keep only those records in selected master file.;
%rename(w1rp);run;
data longrpw1;
  set w1rp;
  %include 'c:\temp\rencmds.sas';
proc sort data=masters; by xwaveid;
proc sort data=longrpw1; by xwaveid;
data longrpw1;
  merge masters (in=inrp) longrpw1;
  by xwaveid;
  if inrp;
run;

%rename(w2rp); run;
data longrpw2;
  set w2rp;
  %include 'c:\temp\rencmds.sas';
proc sort data=masters; by xwaveid;
proc sort data=longrpw2; by xwaveid;
data longrpw2;
  merge masters (in=inrp) longrpw2;
  by xwaveid;
  if inrp;
run;

%rename(w3rp); run;
data longrpw3;
  set w3rp;
  %include 'c:\temp\rencmds.sas';
proc sort data=masters; by xwaveid;
proc sort data=longrpw3; by xwaveid;
data longrpw3;
  merge masters (in=inrp) longrpw3;
  by xwaveid;
  if inrp;
run;

* (2.2) Put datasets together to create the long longitudinal responding;
*   person file, and add a year variable.;
data longrp;
  set longrpw1 (in=w1) longrpw2 (in=w2) longrpw3 (in=w3);
  * Create year;
  year=0;
  if (w1=1) then year=2001;
  if (w2=1) then year=2002;
  if (w3=1) then year=2003;

proc freq data = longrp;
  table year; run;

* (2.3) Save permanent dataset;
data long.longrp;
  set longrp;
*proc contents varnum data=long.longrp; run;
```

Example 5: SPSS program to create longitudinal files

```
/* ***** */
/* Example SPSS program to create balanced responding person */
/* long longitudinal file. */
/* Created by: Simon Freidin 11/01/05 */
/* Updated for case-sensitive SPSS 12 */
/* ***** */

/* ***** */
/* Section 1: locate datasets, get balanced cases, load renaming macro */
/* ***** */

set printback=listing.
* (1.1) Files (EDIT PATHS).
* (1.1.1) Input responding files.
file handle master /name='e:\c\written datasets\c30\SPSS c30c\Master c30c.sav'.
file handle w1rp /name='e:\a\written datasets\a30\SPSS a30c\Rperson a30c.sav'.
file handle w2rp /name='e:\b\written datasets\b30\SPSS b30c\Rperson b30c.sav'.
file handle w3rp /name='e:\c\written datasets\c30\SPSS c30c\Rperson c30c.sav'.
* (1.1.2) Output: generated renaming program, balanced master file.
file handle renprog /name='e:\a\data\long\rename.sps'.
file handle balanced /name='e:\a\data\long\balanced.sav'.
* (1.1.3) Output: intermediate longitudinal files.
file handle w1l /name='e:\a\data\long\w1l.sav'.
file handle w2l /name='e:\a\data\long\w2l.sav'.
file handle w3l /name='e:\a\data\long\w3l.sav'.
* (1.1.4) Output: final balanced long responding person file.
file handle w1w3long /name='e:\a\data\long\w1w3long.sav'.

* (1.2) Identify cases responding in all waves from the master file.
* status codes: 1=face to face interview, 2=telephone interview.
get file=master.
select if any(afstatus,1,2) and any(bfstatus,1,2) and any(cfstatus,1,2).
sort cases by xwaveid.
save outfile=balanced/keep=xwaveid ahhrpid bhhrpid chhrpid.

* (1.3) Load macro to write a program to rename variables, dropping first
* character (wave identifier) of variable name. ID's are not renamed.
define renwave (!pos=!cmdend).
get file=!1.
n of cases 1.
set printback=off /results=no.
flip.
set printback=on /results=yes.
compute x=1.
match files file=*/last=last/by x.
string out (a60).
do if $casenum=1.
write outfile=renprog/"rename variables".
end if.
/* exclude ids from renaming */
do if (index(lower(case_lbl),'waveid')>0) or
(index(lower(case_lbl),'hhrhid')>0) or
(index(lower(case_lbl),'hhraid')>0) or
(index(lower(case_lbl),'hhrpid')>0) .
compute out=concat(" ",case_lbl," = ",lower(case_lbl),").
else.
compute out=concat(" ",lower(case_lbl)," = ",substr(lower(case_lbl),2),").
end if.
write outfile=renprog/out.
```

Example 5 (c'td)

```
do if (last).
write outfile=renprog/".".
end if.
exe.
!enddefine.
/* end of macro */

/* ***** */
/* Section 2: create "long" balanced responding person longitudinal file */
/* ***** */

* (2.1) Rename each wave: run macro "renwave" and then include the generated rename program.
*   command file. Keep only those records from balanced master file.

renwave w1rp .
get file=w1rp.
include file=renprog.
sort cases by xwaveid.
match files file=balanced/in=inm1/file=*/by xwaveid.
select if (inm1).
save outfile=w1l.

renwave w2rp .
get file=w2rp.
include file=renprog.
sort cases by xwaveid.
match files file=balanced/in=inm2/file=*/by xwaveid.
select if (inm2).
save outfile=w2l.

renwave w3rp .
get file=w3rp.
include file=renprog.
sort cases by xwaveid.
match files file=balanced/in=inm3/file=*/by xwaveid.
select if (inm3).
save outfile=w3l.

* (2.3) Add datasets together to create the balanced long longitudinal
*   responding person file. Add a year variable.
add files file=w1l/in=w1/file=w2l/in=w2/file=w3l/in=w3.
if (w1=1) year=2001.
if (w2=1) year=2002.
if (w3=1) year=2003.
save outfile=w1w3long.

freq vars=year.
```

Example 6: STATA program to create long-longitudinal files

```
*****
* Merging Hilda Waves - 2001-2003 into a unbalanced panel
* By Sher Verick
*****
#delimit;
/* 1. Select required variables from enumerated,
   responding person and household files and save as separate files. */
<create combined wave 1, wave 2 and wave 3 files as per example 3 above>

/* 2. Here we merge all three files together for each year
   and then all three waves to get a panel */

/* -----[ MERGE 2001 FILES ]----- */;
use "C:\myeperson_2001.dta", clear;
merge hhrpid2001
using "C:\myrperson_2001.dta";    /* Merges EF and RF */
drop _merge;
sort hhrhid2001;
merge hhrhid2001
using "C:\myhousehold_2001.dta"; /* Merges EF and RF with HF */
drop _merge;
sort xwaveid;
save "C:\mycr_2001.dta", replace; /* Saves cross-section of combined files */
erase "C:\myeperson_2001.dta";   /* Erases saved files */
erase "C:\myrperson_2001.dta";
erase "C:\myhousehold_2001.dta";

/* -----[ MERGE 2002 FILES ]----- */;
use "C:\myeperson_2002.dta", clear;
merge hhrpid2002
using "C:\myrperson_2002.dta";    /* Merges EF and RF */
drop _merge;
sort hhrhid2002;
merge hhrhid2002
using "C:\myhousehold_2002.dta"; /* Merges EF and RF with HF */
drop _merge;
sort xwaveid;
save "C:\mycr_2002.dta", replace; /* Saves cross-section of combined files */
erase "C:\myeperson_2002.dta";   /* Erases saved files */
erase "C:\myrperson_2002.dta";
erase "C:\myhousehold_2002.dta";

/* -----[ MERGE 2003 FILES ]----- */;
use "C:\myeperson_2003.dta", clear;
merge hhrpid2003
using "C:\myrperson_2003.dta";    /* Merges EF and RF */
drop _merge;
sort hhrhid2003;
merge hhrhid2003
using "C:\myhousehold_2003.dta"; /* Merges EF and RF with HF */
drop _merge;
sort xwaveid;
save "C:\mycr_2003.dta", replace; /* Saves cross-section of combined files */
erase "C:\myeperson_2003.dta";   /* Erases saved files */
erase "C:\myrperson_2003.dta";
erase "C:\myhousehold_2003.dta";
```

Example 6 (c'td)

```
/* -----[ MERGE ALL WAVES ]----- */;
use "C:\mycr_2001.dta", clear;
merge xwaveid
using "C:\mycr_2002.dta";          /* Merges wave 1 with wave 2*/
keep if _merge==3;                /* Add if want balanced panel */
drop _merge;
sort xwaveid;
keep if _merge==3;                /* Add if want balanced panel */
merge xwaveid
using "C:\mycr_2003.dta";          /* Merges wave 1 + 2 with 3*/
drop _merge;
save "C:\mycrs_0103.dta", replace; /* Saves wide version of 3 waves */
erase "C:\mycr_2001.dta";          /* Erases saved files */
erase "C:\mycr_2002.dta";
erase "C:\mycr_2003.dta";
/* -----[ CONVERT TO PANEL ]----- */;
reshape long <enter variable list here>, i(xwaveid) j(year);
save "C:\mypanel_0103.dta", replace;
erase "C:\mycr_0103.dta";
```

Variable Name Conventions

Variable names have been limited to eight characters (so that the files can be read in older versions of SPSS and SAS). The variable name is divided into three parts and attempts to provide information on the content of the variables:

- First character – wave identifier, with ‘a’ being used for wave 1, ‘b’ for wave 2, ‘c’ for wave 3, etc.
- Second and third character – general subject area (see Table 4 for the conventions).
- Fourth to eighth character – specific subject of data item (see Table 5 for the conventions).

Excluding the first character, variable names are the same across waves if the question and response options are the same. If the question or response options have significantly changed, the variable name will also be modified. There are, however, a few variables where we have decided to vary from this convention:

- Household response status;
- Person response status;
- SCQ in-field response flag;

- Household membership; and
- New location of mover.

For these variables, it was thought more important to keep the same variable names. These variables are used for survey administration purposes by the HILDA Survey team at the Melbourne Institute. Many users will not use the detail in these variables. Table 6 shows how the response categories differ for these variables across the first three waves.

Table 4: General subject area naming conventions, characters 2 and 3 (sorted by code)

Code	Broad Subject Area	Code	Broad Subject Area	Code	Broad Subject Area
AN	Ancestry	FM	Family background	NL	Not in labour force
AT	Attitudes and values	HE	Health	OA	Other assets
BA	Bank accounts	HG	Household enumeration grid	OI	Other income
BI	Business income			OP	Other property
BF	Business	HH	Household information	OR	Other relationships
BN	Benefits	HI	Household Income	PA	Parenting
CA	Calendar	HS	Housing	PJ	Previous job
CC	Child care general	HW	Household wealth	PI	Personal information
CH	Child care during school holidays	IC	Intentions to have children	PR	Partnering /relationships
CN	Non employment related childcare	IO	Interviewer observations	PW	Personal wealth
				RG	Relationship grid
CP	Child care for pre-school children	JB	Job characteristics of employed	RC	Resident children
				RT	Retirement intentions
CR	Credit cards	JO	Opinions about job	SA	Superannuation
CS	Child care during school	JS	Job search of those not employed	TC	Total children
				TI	Total income
DB	Debt	LE	Major life events	TS	Time stamps
DO	Dwelling observations	LN	Longitudinal weights	TX	Taxes
DT	Personal debt	LO	Life opinions	UJ	Job history of those not in paid employment
ED	Education	LS	Lifestyle		
EH	Employment history	MH	Moving house	W1	Wave 1 information
ES	Employment status	MO	Mutual obligations	WS	Wage and salaries
FA	Financial assets	MR	Marital relationships	XP	Household expenditure
FI	Attitudes to finances	MV	Motor vehicles		
GH	General health and well-being	NC	Non-resident children		

Table 5: Some specific subject area naming conventions, characters 4 to 8 (sorted by code)

Code	Description	Code	Description	Code	Description
A	Amount	HRS	Hours	PID	Person identifier
AGE	Age	IND	Industry	REA	Reason
C	Current	M	Main	RNT	Rent
COB	Country of birth	MG	Mortgage	SEI	Socio-Economic Indicator
DW	Dwelling	MTH	Month	SEX	Sex
ENG	Speaks English only	N	Number or net	W	Weeks
F	Frequency or financial year	NEI	Not enough information to classify	WGT	Weight
G	Gross	OCC	Occupation	YR	Year
HID	Household identifier	OTH	Other		
HH	Household				

Table 6: Variables with unchanged variable name and differing codes, response categories and codes compared

Variable and associated response category	Codes used		
	Wave 1	Wave 2	Wave 3
<i>Household Response Status (final _hhresp, initial _hhrespi, follow-up _hhrespf)¹</i>			
Full Response			
Every eligible member of current HH interviewed	62	62	62
Part Response			
Part refused	63	63	63
Part non-contact	64	64	64
Part contact made with all non-response	65	65	65
Part away for workload period	66	66	66
Part language problem	67	67	67
Part incapable/death/illness	68	68	68
Non-Response			
Refusal	69		
Refusal - PSMs still live there	N/A	69	69
Refusal - Dont know if PSMs still live there	N/A	70	70
Address occupied - no contact with a sample member	70	71	71
Contact made and all calls made	71	72	72
All residents away for workload period	72	73	73
HH does not speak English	73	74	74
HH incapable/illness	74	75	75
Refusal to ACNielsen via 1800 number	75	76	76
Terminate (no PQs)	76	77	77
HH deceased	N/A	78	78
HH moved out of scope	N/A	79	79
All PSMs moved in with another PSM	N/A	80	80
All PSMs non respondents in last 2 waves	N/A	N/A	81
Untraceable	N/A	99	99
Not issued this wave	N/A	N/A	100
Deceased at previous wave	N/A	N/A	101
Dwelling out of scope			
Dwelling vacant for workload period	77	N/A	N/A
Non-private dwelling - place of business	78	N/A	N/A
Used for temporary accommodation only	79	N/A	N/A
Institution with no private HH usually resident	80	N/A	N/A
Not a main residence (eg holiday home)	81	N/A	N/A
All people in household out of scope	82	N/A	N/A
Derelict dwelling/demolished/to be demolished	83	N/A	N/A
Dwelling under construction/unliveable renovations	84	N/A	N/A
Listing error	85	N/A	N/A

Table 6 (c'td)

<i>Description</i>	<i>Codes used</i>		
	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
<i>Person Response Status</i> (<i>_fstatus</i> , initial <i>_hgri</i> and <i>_hgri1</i> to <i>_hgri14</i> ; follow-up <i>_hgrf</i> , <i>_hgrf1</i> to <i>_hgrf14</i> ; final <i>_hgivw</i> and <i>_hgivw1</i> to <i>_hgivw14</i>) ²			
Interview in person	1	1	1
Interviewed by telephone	2	2	2
Ineligible for interview			
Less than 15 years old at 30 th of June	3	3	3
Overseas for more than 6 months		4	4
In prison		5	5
XXX no longer living with PSM	N/A	N/A	6
Not part of the household NFI	4		
Refusal			
Too busy	12	6	7
Too invasive	11	7	8
Other reasons	13	8	9
Refusal via 1800 number/email	14	9	10
Interview terminated	15	10	11
Other non-interview			
Deceased	N/A	11	12
Moved to another HF	N/A	12	13
Language problem	6	13	14
Incapable/illness/infirmary	5	14	15
Home but unable to contact	9	15	16
Away for workload period	8	16	17
Away at boarding school/university	7		
Other reasons	10		
Household non-contact	N/A	17	18
Household contact made no interviews	N/A	18	19
Household not issued to field – persistent non-respondent	N/A	N/A	20
Overseas permanently	N/A		21
Household all PSMs non-responding in last 2 waves	N/A	N/A	22
Permanently incapable from previous wave	N/A		23
Household out of scope NFI	N/A	19	
Overseas and aged < 15	N/A	20	28
Untraceable from prior waves	N/A	N/A	29
Untraceable determined this wave	N/A	99	99

Table 6 (c'td)

<i>Description</i>	<i>Codes used</i>		
	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
<i>SCQ field response status (_hgsi, _hgsi1 to _hgsi14, _hgsf, _hgsf1 to _hgsf14, _hgscq, _hgscq1 to _hgscq14)³</i>			
Picked up	1	1	1
To be sent	3	2	2
Refused	2	3	3
Not given	4	4	4
<i>Household membership (_hghhm, _hghhm1 to _hghhm14)⁴</i>			
Listed			
Resident	N/A	1	1
Absent for workload	N/A	2	2
No longer member of household	N/A	3	3
Deceased	N/A	4	4
Not listed			
Re-joiner/merger	N/A		5
New resident	N/A	5	6
Absent for workload new resident	N/A	6	7
<i>New location of mover (_hgnc1 to _hgnc14)</i>			
Overseas	N/A	1	
Within Australia – new local address	N/A	2	1
Within Australia – new non-local address	N/A	3	2
Address unknown	N/A	4	3
Deceased	N/A	5	4
Overseas permanently	N/A		5
Overseas but not permanently	N/A		6

Notes:

1. *_hhrespi* and *_hhrespf* are only on the unconfidentialised files. For initial response status *_hhrespi*, subtract 60 from all codes except 99 and 98. For followup response status *_hhrespf*, subtract 30 from all codes except 98 and 99.
2. *_hgri*, *_hgri1* to *_hgri14*, *_hgrf*, and *_hgrf1* to *_hgrf14* are only on the unconfidentialised files.
3. *_hgsi*, *_hgsi1* to *_hgsi14*, *_hgsf*, and *_hgsf1* to *_hgsf14* are only on the unconfidentialised files.
4. For *_hghhm*, the value labels are quite different, but the meaning of many of the codes are the same. Wave 3 value labels are listed in this table.

Missing Value Conventions

Global codes are used throughout the dataset to identify missing data. These codes are not restated for each variable in the coding framework.

Numeric Variables

All missing numeric data are coded into the following set of negative values.

<i>Code</i>	<i>Description</i>
-1	Not asked: question skipped due to answer to a preceding question
-2	Not applicable
-3	Don't know
-4	Refused or not answered
-5	Invalid multiple response (SCQ only)
-6	Value implausible (as determined after intensive checking)
-7	Unable to determine value
-8	No self completion questionnaire returned and matched to individual record
-9	Non-responding household
-10	Non-responding person (Combined File only)

Text Variables

Text variables with missing values will typically contain the following text (the specific text used is somewhat inconsistent from variable to variable and this will be reviewed in future releases of the data).

<i>Text</i>	<i>Description</i>
[blank]	Missing information (no reason specified)
-1	Not asked
99	Not given (new person)
Not asked	Not asked
-2	Not applicable
-3	Don't know
-4	Refused
-7	Unable to determine value
-9	Non-responding household
Refusal	Non-responding household

Data With Negative Values

Data items that can be validly negative, such as business income, total household income, etc, are provided as two variables:

- the variable for positive amounts; and
- the variable for negative amounts.

If the overall value is not missing and is positive, then the negative variable will be zero and the positive variable will hold the actual value. If the overall value is not missing and is negative, then the positive variable will be zero and the negative variable will hold the absolute value of the amount. For example, if we have a person with a business income loss of \$20,000 in the last financial year, then the positive variable of business income will be zero and the negative variable will be \$20,000.

Missing data information will be provided in both variables following the negative conventions described above.

Therefore, after handling the missing data, you can create your own variable by subtracting the negative variable from the positive variable. For example, you might set the missing values of business income to system missing and then create a new business income variable as follows:

```
cbifp-cbifn.
```

Confidentialisation

The HILDA datasets released have been confidentialised to reduce the risk that individual sample members can be identified. This has involved:

- withholding some variables (such as postcode);
- aggregating some variables (for example, occupation has been provided at the two digit level while it is collected at the four digit level); and
- top-coding some variables (such as age, income and wealth variables).

From release 3 onwards, top-coding substitutes an average value for all the cases which are equal to or exceed a given threshold. The substituted value is calculated as the weighted average of the cases subject to top-coding. As a result, the weighted means of the top-coded variable will be the same as the original variable. (In previous releases, the cut-off value was used which failed to preserve the weighted means.)

DERIVED VARIABLES

Derived variables are created from the data in the following circumstances.

- When questions are asked in an easy-to-answer form which requires recombination to a common metric.
- When some 'other, specify' answers are coded (notably sources of other income).
- When a complex combination of data occurs (for example, family type).
- When open-ended answers are converted to standard codeframes (industry; occupation; post-school qualifications).
- When missing data are imputed.
- When external data are matched to derive applicable measures (for example, weighting; socio-economic indicators for areas; remoteness area).

Derived variables are created at both the household and person levels. Most derived variables are available in each wave. A short description of how the variable was derived is supplied in the coding framework and in this user manual.

All derived variables have the prefix 'DV:' in the variable label. Missing values have the same codes as collected data. Derived variables are not annotated on the marked up questionnaires, but are included in the various coding frameworks.

Age and Sex

For each person interviewed, two ages have been provided:

- *_hgage* which is the age at last birthday as of 30 June immediately preceding the fieldwork for that wave (for wave 1, *ahgage* is the respondents age at 30 June 2001); and
- *_hhiage* which is the age at last birthday as of the date of interview for that wave (the interview dates for each wave spread over 6 to 8 months).

For non-interviewed people in responding households, *_hgage* has also been provided on the enumerated file.

On the household file, the age of each person as of the 30th of June is provided in the variables *_hgage1* to *_hgage14*, where *_hgage1* is for person 01, etc.

In the confidentialised datasets, age is top-coded at 90 years.

Note that if the respondent provides a correction to the date of birth printed on the Household Form each wave, this correction is applied back through the previous waves.

As a result the above calculated ages may change from one release to another (hopefully not by much!).

Similarly, if the respondent provides a correction to the sex printed on the Household Form each wave, this correction is applied back through the previous waves.

History Variables

History variables contain data accumulated across successive waves. Some history variables contain background information that does not change and is only asked in the first interview (e.g. country of birth). Others contain accumulated statuses (e.g., number of qualifications; current marriage duration). The variables are provided in the responding person file each wave from wave 2 onwards, and show the status at the completion of that wave.

History variables have the prefix 'History:' in the variable label. History variables are not annotated on the marked up questionnaires, but are included in the various coding frameworks. Table 7 provides a list of the history variables included on the datasets. Notes about the construction of the variables are included in the coding framework (and are not duplicated here).

Table 7: History Variables

Variable	Description
Ancestry	
_ANCOB	History: Country of Birth
_ANBCOB	History: DV: Country of Birth - brief
_ANYOA	History: Year first came to Australia to live
_ANENGF	History: Is English the first language you learned to speak as a child
_ANATSI	History: Aboriginal or torres strait islander origin
Family background	
_FMLWOP	History: Were you living with both your own mother and father around the time you were 14 years old
_FMNPREA	History: Why were you not living with both your parents at age 14
_FMPDIV	History: Did your mother and father ever get divorced or separate
_FMPJOIN	History: Did your mother and father ever get back together again
_FMAGEPS	History: How old were you at the time your parents separated
_FMAGELH	History: How old were you when you first moved out of home as a young person
_FMHSIB	History: Ever had any siblings
_FMNSIB	History: How many siblings
_FMELDST	History: Were you the oldest child
_FMFCOB	History: Fathers country of birth

Table 7 (c'td)

Variable	Description
_FMMCOB	History: Mothers country of birth
_FMFEMP	History: Was father in paid employment when you were 14
_FNFOCC ¹	History: Fathers occupation - 4 digit ASCO
_FMFOCC2	History: DV: Fathers occupation - 2 digit ASCO
_FMFI88 ¹	History: ISCO-88: fathers occupation
_FMFI82	History: ISCO-88 2-digit: fathers occupation
_FMFOCCS	History: ANU4 occupational status scale: fathers occupation
_FMFUEMP	History: Was father unemployed for six months
_FMMEMP	History: Was mother in paid employment when you were 14
_FMMOCC ¹	History: Mothers occupation - 4 digit ASCO
_FMMOCC2	History: DV: Mothers occupation - 2 digit ASCO
_FMMI88 ¹	History: ISCO-88: mothers occupation
_FMMI82	History: ISCO-88 2-digit: mothers occupation
_FMMOCCS	History: ANU4 occupational status scale: mothers occupation

Education

_EDAGELS	History: Age left school
_EDHISTS	History: Highest level of school completed
_EDTYPES	History: Type of school attended/attending
_EDCLY	History: country of last school year
_EDQENR	History: Ever enrolled in a course of study to obtain a qualification
_EDCOQ	History: Country completed highest qualification in
_EDQ100	History: ASCED 100 Postgraduate - Number of qualifications
_EDQ110	History: ASCED 110 Doctoral degree - Number of qualifications
_EDQ120	History: ASCED 120 Master degree - Number of qualifications
_EDQ200	History: ASCED 200 Grad Dip and Grad Cert - Number of qualifications
_EDQ221	History: ASCED 221 Graduate certificate - Number of qualifications
_EDQ211	History: ASCED 211 Graduate diploma - Number of qualifications
_EDQ310	History: ASCED 310 Bachelor degree - Number of qualifications
_EDQ311	History: ASCED 311 Bachelor (Honours) degree - Number of qualifications
_EDQ312	History: ASCED 312 Bachelor (Pass) degree - Number of qualifications
_EDQ400	History: ASCED 400 Advanced diploma and diploma - Number of qualifications
_EDQ413	History: ASCED 413 Associate degree - Number of qualifications
_EDQ421	History: ASCED 421 Diploma - Number of qualifications
_EDQ411	History: ASCED 411 Advanced diploma - Number of qualifications
_EDQ500	History: ASCED 500 Certificate - dont know level - Number of qualifications
_EDQ524	History: ASCED 524 Certificate level I - Number of qualifications

Table 7 (c'td)

Variable	Description
_EDQ521	History: ASCED 521 Certificate level II - Number of qualifications
_EDQ514	History: ASCED 514 Certificate level III - Number of qualifications
_EDQ511	History: ASCED 511 Certificate level IV - Number of qualifications
_EDQ600	History: ASCED 600 Secondary education - Number of qualifications
_EDQ611	History: ASCED 611 Year 12 - Number of qualifications
_EDQUNK	History: Unknown - not enough information - Number of qualifications
_EDHIGH	History: DV: Highest education level achieved

Marriage and Defacto Relationships

_MRN	History: How many times have you been legally married
_MRPMTM	History: Month - present or most recent marriage
_MRPYR	History: Year - present or most recent marriage
_MR1YR	History: Year - First marriage if married more than once
_MR2YR	History: Year - Second marriage if married more than twice
_MR3YR	History: Year - Third marriage if married more than 3 times
_MR4YR	History: Year - Fourth marriage if married more than 4 times
_MRPLV	History: Live together before marriage - Present or most recent marriage
_MR1LV	History: Live together before marriage - First marriage if married more than once
_MR2LV	History: Live together before marriage - Second marriage if married more than twice
_MR3LV	History: Live together before marriage - Third marriage if married more than 3 times
_MR4LV	History: Live together before marriage - Fourth marriage if married more than 4 times
_MRPEND	History: How did the marriage end - present or most recent marriage
_MR1END	History: How did the marriage end - First marriage if married more than once
_MR2END	History: How did the marriage end - Second marriage if married more than twice
_MR3END	History: How did the marriage end - Third marriage if married more than 3 times
_MR4END	History: How did the marriage end - Fourth marriage if married more than 4 times
_MRPWIDW	History: Year widowed - Present or most recent marriage
_MR1WIDW	History: Year widowed - First marriage if married more than once
_MR2WIDW	History: Year widowed - Second marriage if married more than twice
_MR3WIDW	History: Year widowed - Third marriage if married more than 3 times
_MR4WIDW	History: Year widowed - Fourth marriage if married more than 4 times
_MRPSEP	History: Year separated - Present or most recent marriage
_MR1SEP	History: Year separated - First marriage if married more than once
_MR2SEP	History: Year separated - Second marriage if married more than twice
_MR3SEP	History: Year separated - Third marriage if married more than 3 times
_MR4SEP	History: Year separated - Fourth marriage if married more than 4 times
_MRPDIV	History: Year divorced - Present or most recent marriage

Table 7 (c'td)

Variable	Description
_MR1DIV	History: Year divorced - First marriage if married more than once
_MR2DIV	History: Year divorced - Second marriage if married more than twice
_MR3DIV	History: Year divorced - Third marriage if married more than 3 times
_MR4DIV	History: Year divorced - Fourth marriage if married more than 4 times
_ORDFPST	History: Ever lived with someone for at least one month without marrying
_ORDFN	History: Number of times lived in a defacto relationship
_MRPLVT	History: Years living together before present marriage
_MR1LVT	History: Years living together before first marriage
_MR2LVT	History: Years living together before second marriage
_MR3LVT	History: Years living together before third marriage
_MR4LVT	History: Years living together before fourth marriage
_ORCDUR	History: Current defacto duration - years
_MRC DUR	History: Current marriage duration - years
_MRWDUR	History: Current widow duration - years
_MRS DUR	History: Current separated or divorced from date of separation - years
Children	
_TCHAD ²	History: Total children ever had
_TCDIED ²	History: Total children since died
Employment	
_RTAGE	History: Age retired/intends to retire
_EHTSE	History: DV: Time since FT education (years)
_EHTJB	History: Time in paid work - years
_EHTUJ	History: Time unemployed and looking for work - years
_EHTO	History: Time not working and not looking for work - years

1. Variables are only on unconfidentialised files.

2. For these variables, 'children' refers to the respondent's natural and adopted children.

Spatial Variables

The wave 1 households were selected within 1996 Census Collection Districts (CDs).⁴ Therefore, in wave 1 we are able to build up from CD level to the following geographic regions:

- Statistical Local Area (SLA);
- Local Government Area (LGA);
- Statistical Sub-Division (SSD);
- Statistical Division (SD); and
- Major Statistical Region (MSR).

From wave 2 onwards, however, we only know the household's postcode, so we use a postcode-to-SLA concordance. At SLA-level, the concordance is not overly accurate as postcode boundaries and SLA boundaries do not match. Nevertheless, the assigned SLA codes can then be used to build up to the larger areas (such as SSD, SD and MSR) with reasonable accuracy. Also, as the SLA and LGA boundaries do not match, we use another concordance to assign the LGAs from the assigned SLAs – at the LGA level, this is not likely to be overly accurate, but the LGAs can be used to build up to larger areas.

The confidentialised HILDA files do not include geographical descriptors for CD, postcode, SLA, LGA, SSD and SD. These files only include State and MSR. The unconfidentialised files include all geographical descriptors mentioned above.

Aside from the area identifiers, several other spatial variables are included on the file such as:

- Remoteness area – this is derived based on the assigned SLA;
- Socio-Economic Indexes for Areas (SEIFA) – deciles are assigned for four types of SEIFA scores based on the assigned SLA;
- The distance moved from the last wave – this is calculated from the centre of the postcode in the previous wave to the centre of the new postcode, so the people who move within their postcode will have a zero distance recorded.

⁴ Detailed information about the 2001 CDs required for the sample selection process was not available at that time.

Table 8: Derived spatial variables

Variable	Description
_HHSLA ¹	DV: Statistical Local Area
_HHSLA9 ¹	DV: 9 Digit Statistical Local Area
_HHLGA ¹	DV: Local Government Area
_HHSSD ¹	DV: Statistical Subdivision
_HHSD ¹	DV: Statistical Division
_HHMSR	DV: Major Statistical Region
_HHRA	DV: Remoteness area
_HHDA ¹	DV: SEIFA 2001 Index of relative socio-economic disadvantage
_HHAD ¹	DV: SEIFA 2001 Index of relative socio-economic advantage/disadvantage
_HHEC ¹	DV: SEIFA 2001 Index of economic resources
_HHED ¹	DV: SEIFA 2001 Index of education and occupation
_HHDA10	DV: SEIFA 2001 Decile of Index of relative socio-economic disadvantage
_HHAD10	DV: SEIFA 2001 Decile of Index of relative socio-economic advantage/disadvantage
_HHEC10	DV: SEIFA 2001 Decile of Index of economic resources
_HHED10	DV: SEIFA 2001 Decile of Index of education and occupation
_HHMOVE	HF Household moved address since previous wave
_HHMOVEK	DV: Distance moved since last wave (kilometers), available from wave 2 onwards
_HHMOVEM	DV: Distance moved since last wave (miles), available from wave 2 onwards
AHHCDCMP ¹	DV: Census 1996-2001 Collection Districts Comparability
AHHCD011 ¹	DV: Corresponding 2001 Collection District (1) from 1996 Census Collection District
AHHCD012 ¹	DV: Corresponding 2001 Collection District (2) from 1996 Census Collection District
AHHCD013 ¹	DV: Corresponding 2001 Collection District (3) from 1996 Census Collection District
AHHCD014 ¹	DV: Corresponding 2001 Collection District (4) from 1996 Census Collection District
AHHCD015 ¹	DV: Corresponding 2001 Collection District (5) from 1996 Census Collection District
AHHARIA ¹	DV: ARIA score

1. Variables are only on unconfidentialised files

Current Education Variables

The education questions have been used to derive variables based on the Australian Standard Classification of Education (ASCED). There are a series of variables at the 3-digit ASCED level which contain information about:

- the number of qualifications completed (for new respondents only);
- which qualifications the respondent is currently studying for; and
- which qualifications have been obtained since the last interview (for continuing respondents only).

Where a qualification cannot be categorised to the detailed level (for example, 211 Graduate Diploma or 221 Graduate Certificate), the broader category has been used (for example, 200 Graduate Diploma and Graduate Certificate).

Unless you are specifically interested in what qualifications the respondent has completed since the last interview, you should use the history variables described earlier (which combines the answers provided in the current and previous wave interviews).

Note that a flag has been created to identify full time students (*_edfts*).

Table 9: Derived current education variables

Variable	Description
_EDQ100N	DV: ASCED 100 Postgraduate - Number of qualifications
_EDQ110N	DV: ASCED 110 Doctoral degree - Number of qualifications
_EDQ120N	DV: ASCED 120 Master degree - Number of qualifications
_EDQ200N	DV: ASCED 200 Grad Dip and Grad Cert - Number of qualifications
_EDQ211N	DV: ASCED 211 Graduate Diploma - Number of qualifications
_EDQ221N	DV: ASCED 221 Graduate certificate - Number of qualifications
_EDQ310N	DV: ASCED 310 Bachelor degree - Number of qualifications
_EDQ311N	DV: ASCED 311 Bachelor (Honours) Degree - Number of qualifications
_EDQ312N	DV: ASCED 312 Bachelor (Pass) Degree - Number of qualifications
_EDQ400N	DV: ASCED 400 Advanced Diploma and Diploma - Number of qualifications
_EDQ411N	DV: ASCED 411 Advanced Diploma - Number of qualifications
_EDQ421N	DV: ASCED 421 Diploma - Number of qualifications
_EDQ413N	DV: ASCED 413 Associate Degree - Number of qualifications
_EDQ500N	DV: ASCED 500 Certificate level - Number of qualifications
_EDQ511N	DV: ASCED 511 Certificate IV - Number of qualifications
_EDQ514N	DV: ASCED 514 Certificate III - Number of qualifications
_EDQ521N	DV: ASCED 521 Certificate II - Number of qualifications
_EDQ524N	DV: ASCED 524 Certificate I - Number of qualifications
_EDQ600N	DV: ASCED 600 Secondary education - Number of qualifications
_EDQ611N	DV: ASCED 611 Year 12 - Number of qualifications
_EDQUNKN	DV: ASCED Unknown - Not enough information - Number of qualifications
_EDCQ100	DV: ASCED 100 Postgraduate - Currently studying
_EDCQ110	DV: ASCED 110 Doctoral degree - Currently studying
_EDCQ120	DV: ASCED 120 Master degree - Currently studying
_EDCQ200	DV: ASCED 200 Grad Dip and Grad Cert - Currently studying
_EDCQ211	DV: ASCED 211 Graduate Diploma - Currently studying
_EDCQ221	DV: ASCED 221 Graduate certificate - Currently studying
_EDCQ310	DV: ASCED 310 Bachelor degree - Currently studying
_EDCQ311	DV: ASCED 311 Bachelor (Honours) Degree - Currently studying

Table 9 (c'td)

Variable	Description
_EDCQ312	DV: ASCED 312 Bachelor (Pass) Degree - Currently studying
_EDCQ400	DV: ASCED 400 Advanced Diploma and Diploma - Currently studying
_EDCQ411	DV: ASCED 411 Advanced Diploma - Currently studying
_EDCQ413	DV: ASCED 413 Associate Degree - Currently studying
_EDCQ421	DV: ASCED 421 Diploma - Currently studying
_EDCQ500	DV: ASCED 500 Certificate level - Currently studying
_EDCQ511	DV: ASCED 511 Certificate IV - Currently studying
_EDCQ514	DV: ASCED 514 Certificate III - Currently studying
_EDCQ521	DV: ASCED 521 Certificate II - Currently studying
_EDCQ524	DV: ASCED 524 Certificate I - Currently studying
_EDCQ600	DV: ASCED 600 Secondary education - Currently studying
_EDCQ611	DV: ASCED 611 Year 12 - Currently studying
_EDCQUNK	DV: ASCED Unknown - Not enough information - Currently studying
_EDRQ100	DV: ASCED 100 Postgraduate - Recent qualifications
_EDRQ110	DV: ASCED 110 Doctoral degree - Recent qualifications
_EDRQ120	DV: ASCED 120 Master degree - Recent qualifications
_EDRQ200	DV: ASCED 200 Grad Dip and Grad Cert - Recent qualifications
_EDRQ211	DV: ASCED 211 Graduate Diploma - Recent qualifications
_EDRQ221	DV: ASCED 221 Graduate certificate - Recent qualifications
_EDRQ310	DV: ASCED 310 Bachelor degree - Recent qualifications
_EDRQ311	DV: ASCED 311 Bachelor (Honours) Degree - Recent qualifications
_EDRQ312	DV: ASCED 312 Bachelor (Pass) Degree - Recent qualifications
_EDRQ400	DV: ASCED 400 Advanced Diploma and Diploma - Recent qualifications
_EDRQ411	DV: ASCED 411 Advanced Diploma - Recent qualifications
_EDRQ413	DV: ASCED 413 Associate Degree - Recent qualifications
_EDRQ421	DV: ASCED 421 Diploma - Recent qualifications
_EDRQ500	DV: ASCED 500 Certificate level - Recent qualifications
_EDRQ511	DV: ASCED 511 Certificate IV - Recent qualifications
_EDRQ514	DV: ASCED 514 Certificate III - Recent qualifications
_EDRQ521	DV: ASCED 521 Certificate II - Recent qualifications
_EDRQ524	DV: ASCED 524 Certificate I - Recent qualifications
_EDRQUNK	DV: ASCED Unknown - Not enough information - Recent qualifications
_EDFTS	DV: Full-time student

Current Marriage and Defacto Relationship Variables

The relationship section of the person questionnaires involve relatively complicated skips (especially from wave 2 onwards), so several partnering variables have been derived as set out in Table 10.

Table 10: Derived current marriage and defacto relationship variables

Variable	Description
_MRCURR	DV: Marital status from person questionnaire
_ORDRLT	DV: NPQ: Years living together, most recent defacto
AORDFLT	DV: Years living together, first defacto

Children Variables

Table 11 shows the various variables that have been created from the family formation section of the person questionnaires, including:

- the count of the number of the respondent's own resident and non-resident children (natural or adopted) of various ages, and the age of the respondent's own youngest child;
- the conversion into a common scale for the number of days or nights a child spends with their (other) parent; and
- the total child maintenance paid or received.

Table 11: Derived children variables

Variable	Description
_TCN04	DV: Count of own non-resident children aged 0-4 yrs (G3)
_TCN514	DV: Count of own non-resident children aged 5-14 yrs (G3)
_TCN1524	DV: Count of own non-resident children aged 15-24 yrs (G3)
_TCN25	DV: Count of own non-resident children aged 25+ yrs (G3)
_TCR04	DV: Count of own resident children aged 0-4 yrs (G15)
_TCR514	DV: Count of own resident children aged 5-14 yrs (G15)
_TCR1524	DV: Count of own resident children aged 15-24 yrs (G15)
_TCR25	DV: Count of own resident children aged 25+ yrs (G15)
_TCYNG	DV: Age youngest own child (excl. foster/step). Weighted topcode at 90
_NCNGT	DV: Overnight stays of non-resident child (Days per annum)
_NCDAY	DV: Day visits of non-resident child (Days per annum)
_NCEFSPY	DV: Non-resident child maintenance annual - paid - all children (\$)
_NCEFSRY	DV: Non-resident child maintenance received - annual - all children (\$)

Table 11 (c'td)

Variable	Description
_NCYNG	DV: Age youngest non-resident own child. Weighted topcode at 90
_RCNGT	DV: Resident child's overnight stays with other parent (Days per annum)
_RCDAY	DV: Resident child's day visits with other parent (Days per annum)
_RCEFSY	DV: Resident child maintenance annual - paid - all children (\$)
_RCEFSRY	DV: Resident child maintenance received - annual - all children (\$)
_RCYNG	DV: Age youngest resident own child (excl. foster/step).
ANCEFSY ¹	DV: Child maintenance paid - annual - all children (\$)
ARCEFSY ¹	DV: Child maintenance received - annual - all children (\$)

1. In wave 1, the question only asked how much child maintenance they paid for non-resident children and how much they received for resident children. From wave 2 onwards, the questions were reworded to 'pay or receive' for both resident and non-resident children.

Child Care Variables

The variables from the child care grids in the Household Questionnaire are used to make a number of summary variables (which are shown in Table 12). The children referred to in this section of the HQ are those living in the household aged under 15. The summary variables provide a measure of:

- whether a particular type of child care is used;
- how many hours of each care type is used (summed across the relevant children);
- the total cost of child care across all care types (for wave 1 only as the summary variable is collected directly from respondents in later waves).

'School-aged' children are those who are of an age to attend school (that is, from aged 4 or 5, depending on the State, to 15). 'Pre-school' children are those aged 0 to 3 or 4, depending on the State, that have **not yet started school** (not just those who aged 3 or 4 who are attending pre-school). The shorter name for those children not yet at school was used in the questionnaire for space reasons and the interviewers were briefed about this issue. The variable labels relating to the children not yet at school will be revised in the next release to avoid any confusion.

Table 12: Derived child care variables

Variable	Description
_CSU_ME	DV: Q7 Childcare used: Me or my partner. Any school-age child
_CSU_BS	DV: Q7 Childcare used: The childs brother or sister. Any school-age child
_CSU_SF	DV: Q7 Childcare used: Child looks after self. Any school-age child
_CSU_WP	DV: Q7 Childcare used: Child comes to my workplace. Any school-age child
_CSU_OS	DV: Q7 Childcare used: Out of hours pw care at childs school. Any school-age child
_CSU_OE	DV: Q7 Childcare used: Out of hours pw care elsewhere. Any school-age child
_CSU_RU	DV: Q7 Childcare used: A relative who lives with us. Any school-age child
_CSU_RE	DV: Q7 Childcare used: A relative who lives elsewhere. Any school-age child
_CSU_FO	DV: Q7 Childcare used: A friend or neighbour coming to our home. Any school-age child
_CSU_FT	DV: Q7 Childcare used: A friend or neighbour in their home. Any school-age child
_CSU_PS	DV: Q7 Childcare used: A paid sitter or nanny. Any school-age child
_CSU_FD	DV: Q7 Childcare used: Family day care. Any school-age child
_CSU_O1	DV: Q7 Childcare used: Other 1 (Specify). Any school-age child
_CSU_O2	DV: Q7 Childcare used: Other 2 (Specify). Any school-age child
_CSU_OP	DV: Q7 Childcare used: Other parent not living in household/expartner. Any school-age child
_CSU_BR	DV: Q7 Childcare used: Not applicable. Boarding school. Any school-age child
_CSU_NA	DV: Q7 Childcare used: Not Answered. Any school-age child
_CSH_BS	DV: Q7 Total hours pw: The childs brother or sister. All school-age children
_CSH_SF	DV: Q7 Total hours pw: Child looks after self. All school-age children
_CSH_WP	DV: Q7 Total hours pw: Child comes to my workplace. All school-age children
_CSH_OS	DV: Q7 Total hours pw: Out of hours care at childs school. All school-age children
_CSH_OE	DV: Q7 Total hours pw: Out of hours care elsewhere. All school-age children
_CSH_RU	DV: Q7 Total hours pw: A relative who lives with us. All school-age children
_CSH_RE	DV: Q7 Total hours pw: A relative who lives elsewhere. All school-age children
_CSH_FO	DV: Q7 Total hours pw: A friend or neighbour coming to our home. All school-age children
_CSH_FT	DV: Q7 Total hours pw: A friend or neighbour in their home. All school-age children
_CSH_PS	DV: Q7 Total hours pw: A paid sitter or nanny. All school-age children
_CSH_FD	DV: Q7 Total hours pw: Family day care. All school-age children
_CSH_O1	DV: Q7 Total hours pw: Other specify 1. All school-age children
_CSH_O2	DV: Q7 Total hours pw: Other specify 2. All school-age children
_CSCTC	DV: Childcare total cost (\$) for all school age children during term, across all types of care
_CHU_ME	DV: Q8 Childcare used: Me or my partner. Any school-age child
_CHU_BS	DV: Q8 Childcare used: The childs brother or sister. Any school-age child
_CHU_SF	DV: Q8 Childcare used: Child looks after self. Any school-age child

Table 12 (c'td)

Variable	Description
_CHU_WP	DV: Q8 Childcare used: Child comes to my workplace. Any school-age child
_CHU_VS	DV: Q8 Childcare used: Vacation care at childs school. Any school-age child
_CHU_VE	DV: Q8 Childcare used: Vacation care elsewhere. Any school-age child
_CHU_RU	DV: Q8 Childcare used: A relative who lives with us. Any school-age child
_CHU_RE	DV: Q8 Childcare used: A relative who lives elsewhere. Any school-age child
_CHU_FO	DV: Q8 Childcare used: A friend or neighbour coming to our home. Any school-age child
_CHU_FT	DV: Q8 Childcare used: A friend or neighbour in their home. Any school-age child
_CHU_PS	DV: Q8 Childcare used: A paid sitter or nanny. Any school-age child
_CHU_FD	DV: Q8 Childcare used: Family day care. Any school-age child
_CHU_O1	DV: Q8 Childcare used: Other 1 (Specify). Any school-age child
_CHU_O2	DV: Q8 Childcare used: Other 2 (Specify). Any school-age child
_CHU_OP	DV: Q8 Childcare used: Other parent not living in household/expartner. Any school-age child
_CHU_NA	DV: Q8 Childcare used: Not Answered. Any school-age child
_CHH_BS	DV: Q8 Total hours pw: The childs brother or sister. All school-age children
_CHH_SF	DV: Q8 Total hours pw: Child looks after self. All school-age children
_CHH_WP	DV: Q8 Total hours pw: Child comes to my workplace. All school-age children
_CHH_VS	DV: Q8 Total hours pw: Vacation care at childs school. All school-age children
_CHH_VE	DV: Q8 Total hours pw: Vacation care elsewhere. All school-age children
_CHH_RU	DV: Q8 Total hours pw: A relative who lives with us. All school-age children
_CHH_RE	DV: Q8 Total hours pw: A relative who lives elsewhere. All school-age children
_CHH_FO	DV: Q8 Total hours pw: A friend or neighbour coming to our home. All school-age children
_CHH_FT	DV: Q8 Total hours pw: A friend or neighbour in their home. All school-age children
_CHH_PS	DV: Q8 Total hours pw: A paid sitter or nanny. All school-age children
_CHH_FD	DV: Q8 Total hours pw: Family day care. All school-age children
_CHH_O1	DV: Q8 Total hours pw: Other specify 1. All school-age children
_CHH_O2	DV: Q8 Total hours pw: Other specify 2. All school-age children
_CHCTC	DV: Childcare total cost (\$) for all school age children during school holidays, across all types of care
_CPU_ME	DV: Q10 Childcare used: Me or my partner. Any pre-school child
_CPU_BS	DV: Q10 Childcare used: The childs brother or sister. Any pre-school child
_CPU_RU	DV: Q10 Childcare used: A relative who lives with us. Any pre-school child
_CPU_RE	DV: Q10 Childcare used: A relative who lives elsewhere. Any pre-school child
_CPU_FO	DV: Q10 Childcare used: A friend or neighbour coming to our home. Any pre-school child
_CPU_FT	DV: Q10 Childcare used: A friend or neighbour in their home. Any pre-school child

Table 12 (c'td)

Variable	Description
_CPU_PS	DV: Q10 Childcare used: A paid sitter or nanny. Any pre-school child
_CPU_FD	DV: Q10 Childcare used: Family day care. Any pre-school child
_CPU_WD	DV: Q10 Childcare used: Long day care centre at workplace. Any pre-school child
_CPU_PD	DV: Q10 Childcare used: Private or community long day care centre. Any pre-school child
_CPU_KP	DV: Q10 Childcare used: Kindergarten/pre-school. Any pre-school child
_CPU_O1	DV: Q10 Childcare used: Other 1 (Specify). Any pre-school child
_CPU_O2	DV: Q10 Childcare used: Other 2 (Specify). Any pre-school child
_CPU_OP	DV: Q10 Childcare used: Other parent not living in household/expartner. Any pre-school child
_CPU_NA	DV: Q10 Childcare used: Not Answered. Any pre-school child
_CPH_BS	DV: Q10 Total hours pw: The child's brother or sister. All pre-school children
_CPH_RU	DV: Q10 Total hours pw: A relative who lives with us. All pre-school children
_CPH_RE	DV: Q10 Total hours pw: A relative who lives elsewhere. All pre-school children
_CPH_FO	DV: Q10 Total hours pw: A friend or neighbour coming to our home. All pre-school children
_CPH_FT	DV: Q10 Total hours pw: A friend or neighbour in their home. All pre-school children
_CPH_PS	DV: Q10 Total hours pw: A paid sitter or nanny. All pre-school children
_CPH_FD	DV: Q10 Total hours pw: Family day care. All pre-school children
_CPH_WD	DV: Q10 Total hours pw: Long day care centre at workplace. All pre-school children
_CPH_PD	DV: Q10 Total hours pw: Private or community long day care centre. All pre-school children
_CPH_KP	DV: Q10 Total hours pw: Kindergarten / preschool. All pre-school children
_CPH_O1	DV: Q10 Total hours pw: Other specify 1. All pre-school children
_CPH_O2	DV: Q10 Total hours pw: Other specify 2. All pre-school children
_CPCTC	DV: Childcare total cost (\$) for all preschool children across all types of care
ACSC_WP	DV: Q7 Total cost pw: Child comes to my workplace. All school-age children
ACSC_OS	DV: Q7 Total cost pw: Out of hours care at child's school. All school-age children
ACSC_OE	DV: Q7 Total cost pw: Out of hours care elsewhere. All school-age children
ACSC_RU	DV: Q7 Total cost pw: A relative who lives with us. All school-age children
ACSC_RE	DV: Q7 Total cost pw: A relative who lives elsewhere. All school-age children
ACSC_FO	DV: Q7 Total cost pw: A friend or neighbour coming to our home. All school-age children
ACSC_FT	DV: Q7 Total cost pw: A friend or neighbour in their home. All school-age children
ACSC_PS	DV: Q7 Total cost pw: A paid sitter or nanny. All school-age children
ACSC_FD	DV: Q7 Total cost pw: Family day care. All school-age children
ACSC_O1	DV: Q7 Total cost pw: Other specify 1. All school-age children
ACSC_O2	DV: Q7 Total cost pw: Other specify 2. All school-age children

Table 12 (c'td)

Variable	Description
ACHC_WP	DV: Q8 Total cost pw: Child comes to my workplace. All school-age children
ACHC_VS	DV: Q8 Total cost pw: Vacation care at childs school. All school-age children
ACHC_VE	DV: Q8 Total cost pw: Vacation care elsewhere. All school-age children
ACHC_RU	DV: Q8 Total cost pw: A relative who lives with us. All school-age children
ACHC_RE	DV: Q8 Total cost pw: A relative who lives elsewhere. All school-age children
ACHC_FO	DV: Q8 Total cost pw: A friend or neighbour coming to our home. All school-age children
ACHC_FT	DV: Q8 Total cost pw: A friend or neighbour in their home. All school-age children
ACHC_PS	DV: Q8 Total cost pw: A paid sitter or nanny. All school-age children
ACHC_FD	DV: Q8 Total cost pw: Family day care. All school-age children
ACHC_O1	DV: Q8 Total cost pw: Other specify 1. All school-age children
ACHC_O2	DV: Q8 Total cost pw: Other specify 2. All school-age children
ACPC_RU	DV: Q10 Total cost pw: A relative who lives with us. All pre-school children
ACPC_RE	DV: Q10 Total cost pw: A relative who lives elsewhere. All pre-school children
ACPC_FO	DV: Q10 Total cost pw: A friend or neighbour coming to our home. All pre-school children
ACPC_FT	DV: Q10 Total cost pw: A friend or neighbour in their home. All pre-school children
ACPC_PS	DV: Q10 Total cost pw: A paid sitter or nanny. All pre-school children
ACPC_FD	DV: Q10 Total cost pw: Family day care. All pre-school children
ACPC_WD	DV: Q10 Total cost pw: Long day care centre at workplace. All pre-school children
ACPC_PD	DV: Q10 Total cost pw: Private or community long day care centre. All pre-school children
ACPC_KP	DV: Q10 Total cost pw: Kindergarten / preschool. All pre-school children
ACPC_O1	DV: Q10 Total cost pw: Other specify 1. All pre-school children
ACPC_O2	DV: Q10 Total cost pw: Other specify 2. All pre-school children

Employment Variables

The employment related derived variables are listed in Table 13. The occupation variables are coded to 4-digit Australian Standard Classification of Occupation (ASCO) which is then used to produce:

- the 2-digit ASCO codes;
- ANU4 occupational status scale (which ranges from 0 to 100); and
- the 2-digit International Standard Classification of Occupation-88 (ISCO-88) codes.

The industry variables are coded to 4-digit Australian and New Zealand Standard Classification of Industry (ANZSIC) which is then used to produce:

- the 2-digit ANZSIC codes; and
- the 2-digit International Standard Industry Classification codes.

The 4-digit ASCO, ISCO and ANZSIC codes are available on the unconfidentialised files only.

The history variables should first be consulted if you are attempting to piece together information about previous employment spells as some of the work may already be done for you.

Table 13: Derived employment variables

Variable	Description
_ESDTL	DV: Labour force status – detail
_ESBRD	DV: Labour force status – broad
_JBHRUC	DV: Combined hrs per week usually worked in all jobs
_JBMHRUC	DV: Combined hrs per week usually worked in main job
_JBHRQF	DV: Data Quality Flag: hours of work main job vs all jobs
_JBTPRHR	DV: Hours would like to work
_JBMOCC2	DV: Occupation 2-digit ASCO
_JBMOCCS	DV: ANU4 occupational status scale, main job
_JBMI82	DV: ISCO-88 2-digit, Occupation main job
_JBMIND2	DV: C14 Current job industry. 2-digit ANZSIC
_JBMII2	DV: ISIC 3.1 Main job: International industry classification 2-digit
_ES	DV: Employment status in main job if currently employed
_JBMUABS	DV: ABS definition C19 Trade union membership
_JBCASAB	DV: Casual worker (ABS definition: no paid holiday leave, no paid sick leave)
_JBOCCT	DV: Tenure in current occupation (years)
_JBEMPT	DV: Tenure with current employer (years)
_JST	DV: Weeks unemployed, missing if no exact duration
_UJLJOC2	DV: Unemployed: Occupation last job. 2-digit ASCO
_UJLJOCS	DV: ANU4 occupational status scale, last job, not currently in paid work
_UJLJI82	DV: ISCO-88 2-digit, Occupation last job, not currently in paid work
_UJLJIN2	DV: NPQ:D25 Unemployed last job industry. 2-digit ANZSIC
_UJLJII2	DV: ISIC 3.1 Unemployed, previous job (NPQ): International industry classification 2-digit
_UJLHRUC	DV: Combined hours per week worked in last job
_UJLJWS	DV: Pay in last job per annum (\$)
_UJLJT	DV: Tenure with last employer (years)
_MOLT	DV: Months since did activity required by Centrelink/NP

Table 13 (c'td)

Variable	Description
_PJOCC2	DV: CPQ:C46 Occupation in previous job 2-digit ASCO
_PJOCCS	DV: ANU4 occupational status scale, CPQ: C46 in previous job if job changed
_PJOI82	DV: ISCO-88 2-digit, CPQ: Occupation previous job if job changed
_PJOTOC2	DV: CPQ:D30 Occupation in previous job 2-digit ASCO
_PJOTOCs	DV: ANU4 occupational status scale, CPQ: D30 in previous job if unemployed
_PJOTI82	DV: ISCO-88 2-digit, CPQ: Occupation previous job if unemployed
_PJOTIN2	DV: CPQ:D27 Unemployed previous job industry. 2-digit ANZSIC
_PJOTII2	DV: ISIC 3.1 Unemployed, previous job: International industry classification 2-digit
_PJOIND2	DV: CPQ:C43 Previous job industry. 2-digit ANZSIC
_PJOII2	DV: ISIC 3.1 Previous job: International industry classification 2-digit
AJBPERM	DV: Permanently unable to work
AUJLJIN2	DV: Unemployed: last job industry. 2-digit ANZSIC

Calendar Variables

The calendar contains over 1000 variables. Before you trawl through these variables and create your own summary variables, check if one of the derived calendar variables in Table 14 may help you. These derived variables typically relate to the financial year, while the calendar may stretch from 14 to 18 months, depending on the interview date.

Table 14: Derived calendar variables

Variable	Description
_CAPEFT	DV: Per cent time spent in ft education in last financial year
_CAPEPT	DV: Per cent time spent in pt education in last financial year
_CAPJ	DV: Per cent time spent in jobs in last financial year
_CAPUNE	DV: Per cent time spent unemployed in last financial year
_CAPNLF	DV: Per cent time spent not in the labour force in last financial year
_CAFNJ	DV: Number of jobs in last financial year
_CANTP	DV: Number of time periods answered in calendar

Family Variables

The relationship grid on the Household Form collects the relationship of everyone in the household to everyone else. This information is then used to assign people to family groups, identify what relationship they hold within the family, identify what type of family they belong to, and then identify what type of household they belong to.

The core relationships needed to make a family are a couple relationship or a parent-child relationship. There are several key points to note about how the families are defined:

- A couple relationship takes precedence over a parent-child relationship. For example, in a household with mum, dad, son and son's defacto, the son's couple relationship takes precedence over his child-parent relationship. This household would be a multi-family household, with mum and dad as a couple in one family and the son and his defacto in another family.
- The most recent generation has precedence over an older generation. For example in a household with mum, daughter and (daughter's) grandmother, the mum and daughter form the core of the household and the grandmother is considered an other relative.
- Children aged under 15 living in a household without natural, adopted, step or foster parents are attached to their closest relative. If they are without relatives, then they are attached to the person thought most likely to form a parent-child relationship with that child.

For the family variables, children are defined as natural, adopted, step or foster children. Children are split into three classifications: children under 15, dependent students (who are aged 15-24, not employed full-time, are studying full-time, are living with at least one parent, and are without a partner or child of their own); and non-dependent children.⁵

The family and household labels used identify the most dependent type of children in the family without identifying the other types of children in the family. For example, a family with a couple, one child under 15 and two non-dependent children would be classified as a 'couple with children under 15'.

The income units are derived from the family units and separate out the non-dependant children and other relatives from rest of the family.

A number of other variables are listed with the variables based on the relationship grid in Table 15, including identifiers for various people in the household and counts of the number of people in certain age groups. The partner, father and mother identifiers were discussed in a preceding section on identifiers.

⁵ Note that this definition of a dependent student is different to the full-time student identifier provided on the Responding Person File.

Table 15: Derived family variables

Variable	Description
_HHTYPE	DV: Household type
_HHRIH	DV: Relationship in household
_HHFAM ¹	DV: Family number
_HHFTY ¹	DV: Family type
_HHINCU ^{1,2}	DV: Income unit
_HHPRTID	DV: Partner person number
_HHFID	DV: Father person number (text)
_HHMID	DV: Mother person number (text)
_HHYNG	DV: Age of youngest person in household. Weighted topcode at 90
_HHOLD	DV: Age of oldest person in household. Weighted topcode at 90
_HH0_4	DV: Number of persons aged 0-4 years at June 30
_HH5_9	DV: Number of persons aged 5-9 years at June 30
_HH10_14	DV: Number of persons aged 10-14 years at June 30
_HHADULT	DV: Number of persons aged 15+ years at June 30
_HHIVWS	DV: Number of completed interviews in household
_HHSM	DV: Type of sample member
_HGINT	DV: Interviewed flag

1. On the Household File, these variables are listed for each person, that is _hhrih01 to _hhrih14, _hhfam01 to _hhfam14, _hhfty01 to _hhfty14, and _hhiu01 to _hhiu14.
2. On the Household File, the income unit is inconsistently named _hhiu (this should be corrected in future releases).

Health Variables

Each wave the SF-36 Health Survey instrument is included within the Self-Completion Questionnaire. The SF-36 Health Survey is an internationally recognised diagnostic tool for assessing functional health status and well-being. It comprises 36 items which provide multi-item scales measuring each of eight distinct health concepts. Following the scoring rules outlined in Ware et al. (2000), each of these eight scales has been transformed into a standardised 0-100 index. The individual scores for each of these indices have been provided as derived variables in the data set. The variable names are listed in Table 16.

Table 16: Derived health variables

Variable	Description
_GHPF	DV: SF-36 physical functioning – transformed
_GHRP	DV: SF-36 role-physical – transformed
_GHBP	DV: SF-36 bodily pain – transformed
_GHGH	DV: SF-36 general health – transformed
_GHVT	DV: SF-36 vitality – transformed
_GHSF	DV: SF-36 social functioning – transformed

Table 16 (c'td)

Variable	Description
_GHRE	DV: SF-36 role-emotional – transformed
_GHMH	DV: SF-36 mental health – transformed
_GHRHT	DV: SF-36 reported health transitions - raw

Housing Variables

Table 17 lists a couple of derived housing variables provided on the datasets. The associated questions in the Household Questionnaire allow numerous ways in which the respondent could have answered (for example, per month, per fortnight, per week, etc).

Table 17: Derived housing variables

Variable	Description
_HSRNT	DV: Rent usual repayments \$ per month
_HSMG	DV: Mortgage usual repayments \$ per month
_HSSL	DV: Second mortgage usual repayments \$ per month

Income Variables and Income Imputation

Income, Tax and Family Benefits Model

Figure 2 shows how the numerous income questions in the Person Questionnaire are combined together to form seven financial year income components and one windfall income component. The Child Care Benefit and Family Tax Benefit are calculated on the interim income to produce a total financial year income.

The derived variables in the boxes with broken lines have only been provided after the income imputation has been performed. This is because the programs to calculate the Child Care Benefit and Family Tax Benefit are reasonably complicated and are best run only once when the total income for all people in the household are known.

A sophisticated tax model has been implemented and estimated tax and disposable income variables have been provided. When aggregated, these variables compare favourably with the national aggregates.

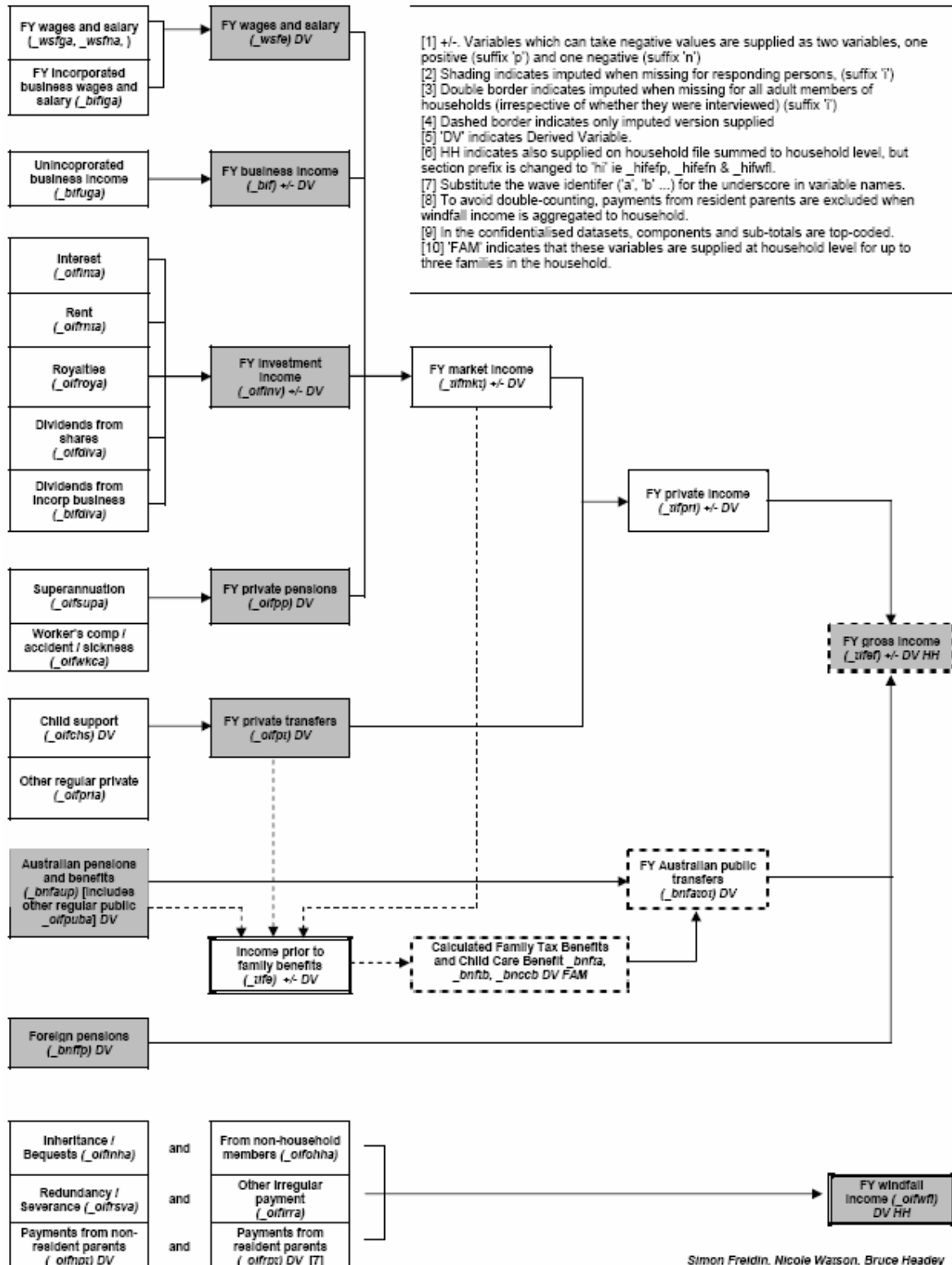
Current wages and salaries and current benefits are asked about separately from the financial year questions.

A list of (unimputed) derived income variables are provided in Table 18. There are several issues to take note of in this table:

- Wages and salaries were asked of respondents for their main job, then for all their other jobs combined. The suffix 'g' and 'e' refer to gross and estimated gross incomes – where the respondent didn't know their gross income, their after tax income was asked for and this was translated back into an estimated gross income. The 'e' variables will have fewer cases with missing wages and salaries than the 'g' variables, as the 'e' variables include all the known 'g' values.
- The variable labels indicate the point at which the top-coding has occurred. The actual value replacing the top-coded value will be the weighted mean of the top-coded units.
- Child support is calculated from the questions asked about the children in the family formation grid, rather than from the single category listed in the 'other income' question in the income section. This is because it is more likely the respondent would provide a more accurate response to the detailed questions rather than the broad 'catch all' question.
- The components feeding into the 'windfall' income are those thought irregular (such as inheritances, redundancies, payments from parents).
- In wave 2, we calculated current weekly payments for workers compensation, accident or sickness insurance. These questions were only asked in wave 2 (in F10a-e in the PQ).
- In wave 1, respondents were asked how different their current wage and salary income was from one year ago. This has been provided in dollar terms in *awsly*.

The imputation method and derived variables are discussed in the following sections.

Figure 2: Financial Year Income Model



- [1] +/- Variables which can take negative values are supplied as two variables, one positive (suffix 'p') and one negative (suffix 'n')
- [2] Shading indicates imputed when missing for responding persons. (suffix 'I')
- [3] Double border indicates imputed when missing for all adult members of households (irrespective of whether they were interviewed) (suffix 'I')
- [4] Dashed border indicates only imputed version supplied
- [5] 'DV' indicates Derived Variable.
- [6] HH indicates also supplied on household file summed to household level, but section prefix is changed to 'hi' ie `_hifefp`, `_hifefn` & `_hifwfl`.
- [7] Substitute the wave identifier ('a', 'b' ...) for the underscore in variable names.
- [8] To avoid double-counting, payments from resident parents are excluded when windfall income is aggregated to household.
- [9] In the confidentialised datasets, components and sub-totals are top-coded.
- [10] 'FAM' indicates that these variables are supplied at household level for up to three families in the household.

Simon Freidm, Nicole Watson, Bruce Headey

Table 18: Derived income variables

Variable	Description
_WSCMG	DV: Main job, current gross wages per annum (\$). Weighted topcode at 250000
_WSCME	DV: Main job, current gross wages per annum (\$). Weighted topcode at 250000
_WSCOG	DV: Other jobs, current gross wages per annum (\$). Weighted topcode at 50000
_WSCOE	DV: Other jobs, current gross wages per annum (\$). Weighted topcode at 50000
_WSCG	DV: All jobs, current gross wages per annum (\$). Weighted topcode at 250000
_WSCE	DV: All jobs, current gross wages per annum (\$). Weighted topcode at 250000
_BNCAUP	DV: Current Australian pensions & benefits per week (\$)
_WSFG	DV: Financial year gross wages & salary (\$). Weighted topcode at 300000
_WSFE	DV: Financial year gross wages & salary (includes estimated). Weighted topcode at 300000
_BIFP	DV: Financial year business income (\$). Positive values. Weighted topcode at 350000
_BIFN	DV: Financial year business income (\$). Negative values
_OIFINVP	DV: Financial year investments (\$). Positive values. Weighted topcode at 400000
_OIFINVN	DV: Financial year investments (\$). Negative values
_OIFPP	DV: Financial year private pensions (\$)
_TIFMKTP	DV: Financial year market (factor) income (\$) Positive values. Weighted topcode at 400000
_TIFMKTN	DV: Financial year market (factor) income (\$) Negative values
_OIFCHS	DV: Financial year other income - child support (\$)
_OIFPRI	DV: F33a Sources of payments - other regular private
_OIFPRIA	DV: F33b Estimated value - other regular private (\$)
_OIFPT	DV: Financial year private transfers (\$)
_TIFPRIP	DV: Financial year private income (\$). Positive values. Weighted topcode at 400000
_TIFPRIN	DV: Financial year private income (\$). Negative values
_BNFAUP	DV: Financial year Australian pensions and benefits (\$) [includes other regular public]
_OIFPUB	DV: F33a Sources of payments received - Other regular public
_OIFPUBA	DV: F33b Estimated value - Other regular public (\$)
_BNFFP	DV: Financial year foreign pensions (\$)
_OIFIRR	DV: F33a Sources of payments received - Other irregular payment
_OIFIRRA	DV: F33b Estimated value - Other irregular (\$)
_OIFNPT	DV: Financial year other income, non-resident parent transfers (\$)
_OIFRPT	DV: Financial year other income, resident parent transfers (\$) (inc pocket money)
_OIFWFL	DV: Financial year windfall income (\$)
BWSCWC	DV: Gross Workers compensation, accident or sickness insurance per week (\$)
BWSCWCA	DV: Net Workers compensation, accident or sickness insurance per week (\$)
AWSLY	DV: Gross weekly current wages & salary (from all jobs) one year ago (\$)

Imputation Method

The income imputation provided in Release 2.0 was deficient in a number of ways as outlined in Watson (2004a). The income imputation methodology has been revised for Release 3.0 (the wealth imputation for wave 2 will not be revised until the income imputation is bedded-down and when the wealth module is run for the second time).

The income imputation now uses a method developed by Little and Su (1989) as the primary method. This longitudinal imputation method incorporates trend and individual level information into the imputed amounts by using a multiplicative model based on row (person) and column (wave) effects. The model is of the form:

$$\text{imputation} = (\text{row effect}) \times (\text{column effect}) \times (\text{residual}).$$

Ideally, the record with missing information (called the recipient) should be imputed using information from a record with complete information (called the donor) that has similar characteristics for the variable of interest. The Little and Su methodology, therefore, was extended to take into account the characteristics of the donors and recipients. Donors and recipients are matched within imputation classes which have similar characteristics. The imputation classes used were age groups defined by the following ranges: 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65+.⁶ The formulae for the Little and Su method are provided in Appendix 4, together with a worked example.

For some cases, for example new entrants interviewed in wave 3 who did not respond to some income questions, the imputation method used was the nearest neighbour regression method adopted in Release 2.0.

Work is still ongoing to improve the imputation methodology. We plan to review various other imputation techniques against those tested so far and expect to complete a technical paper on this imputation review by the end of 2005. Further revisions to the imputation methodology are expected.

Imputed Income Variables

All income imputation was undertaken at the derived variable level, leaving the original data unchanged. In the main, both the pre-imputed and post-imputed variables are available in the datasets, along with an imputation flag, so that it is easy to choose between using the pre-imputed data or the post-imputed data.

For respondents with item non-response (that is, where some questions during their interview were not answered), the income components have been imputed and the totals are the sum of the relevant components. These components and totals are available on the responding person file. However, for non-respondents within responding households just the income totals have been imputed. These totals for non-responding persons are available on the enumerated person file (along with the totals for responding persons).

⁶ Age groups were used to create the imputation classes because it is a simple characteristic and it is known for almost all donors and recipients. For a few cases, age was missing and was therefore imputed from a family of similar relationship structure to the missing case.

Therefore, for income, only imputed totals are available at the household level on the household file.

An overview of the pre- and post-imputed income variables is provided in Table 19. We have deviated from the general style of presenting the derived variables in this manual in the hope that it is clearer from the following table how the post-imputed variables and flags relate to the pre-imputed variables.

Table 19: Imputed income variables

	<i>Pre-imputed</i>	<i>Post-imputed</i>	<i>Flag</i>
Responding person file			
Current income			
Wages and salaries	_wsce	_wscei	_wscef
Benefits	_bncaup	_bncaupi	_bncaupf
Financial year income^a			
Wages and salaries	_wsfe	_wsfei	_wsfef
Australian govt pensions	_bnfaup	_bnfaupi	_bnfaupf
Foreign govt pensions	_bnffp	_bnffpi	_bnffpf
Business income	_bifn, _bifp	_bifin, _bifip	_biff
Investments	_oifinvn, _oifinvp	_oifinin, _oifinip	_oifinf
Private pensions	_oifpp	_oifppi	_oifppf
Private transfers	_oifpt	_oifpti	_oifptf
Total FY income ^c	Not provided	_tifefn, _tifefp	_tifeff
Windfall income	_oifwfl	_oifwfli	_oifwflf
Enumerated person file			
Total FY income ^b	Not provided	_tifefn, _tifefp	_tifeff
Windfall income	Not provided	_oifwfli	_oifwflf
Household file			
Total FY income ^c	Not provided	_hifefn, _hifefp	_hifeff
Windfall income	Not provided	_hifwfl	_hifwflf

Notes:

- Several sub-totals also provided on dataset (by summing imputed components): Australian pensions (_bnfatot including child care benefit and family tax benefit, use flag _bnfaupf), market income (_tifmktn, _tifmktp, with flag _tifmktf), private income (_tifprin, _tifprip, with flag _tifprif), and income prior to FTB and CCB (pre-imputation: _tifep, _tifep; post-imputation: _tifeip, tifein; and imputation flag __tifeif).
- The following variables use total person financial year income (_tifefn, _tifefp) in their calculations: income tax (_txinc), medicare (_txmed), total taxes (_txtot). Use _tifeff as imputation flag for these variables. Also disposable income is provided (_tifdin, _tifdip) with flag _tifdif.
- The following variables sum imputed person level information to household level: household financial year gross income (_hifep, _hifefn, with flag _hifeff), family tax benefit (_bnftaf1 to _bnftaf3 for part a and _bnftbf1 to _bnftbf3 for part b for families 1 to 3, use flag _hifeff), child care benefit (_bnccbf1 to _bnccbf3 for families 1 to 3), household total taxes (_hiftax, use flag _hifeff), household disposable income (_hifdin, _hifdip, with flag _hifdif), and household windfall income (_hifwfl, with flag _hifwflf).

Wealth Variables and Wealth Imputation (Wave 2 Special Topic)

Wealth Model

In wave 2 a special wealth module was incorporated into the questionnaires. The Household Questionnaire contained the majority of the wealth questions and we endeavoured to ask these of the person knowing the most about the household finances. These questions covered the following topics:

- Cash and equity investments, trust funds, life insurance;
- Home and other property assets and debts;
- Business assets and debts;
- Children's bank accounts;⁷
- Collectables and vehicles.

Also, each respondent was asked some questions about their personal wealth in the Person Questionnaire, including:

- Bank accounts and credit card debt;
- Superannuation;
- HECS and other personal debts.

Figure 3 shows how the wealth components are combined together to form the total household wealth. The boxes with the broken lines highlight the variables that come from the Person Questionnaires. As the imputation for non-respondents was only conducted at the total assets and debts level, the household-level components in the broken boxes are just the sum of **responding** persons only. Please be aware of this when using these variables.

⁷ That is, bank accounts of people in the household aged under 15.

Figure 3: Wealth Model Diagram, Wave 2 Household-level

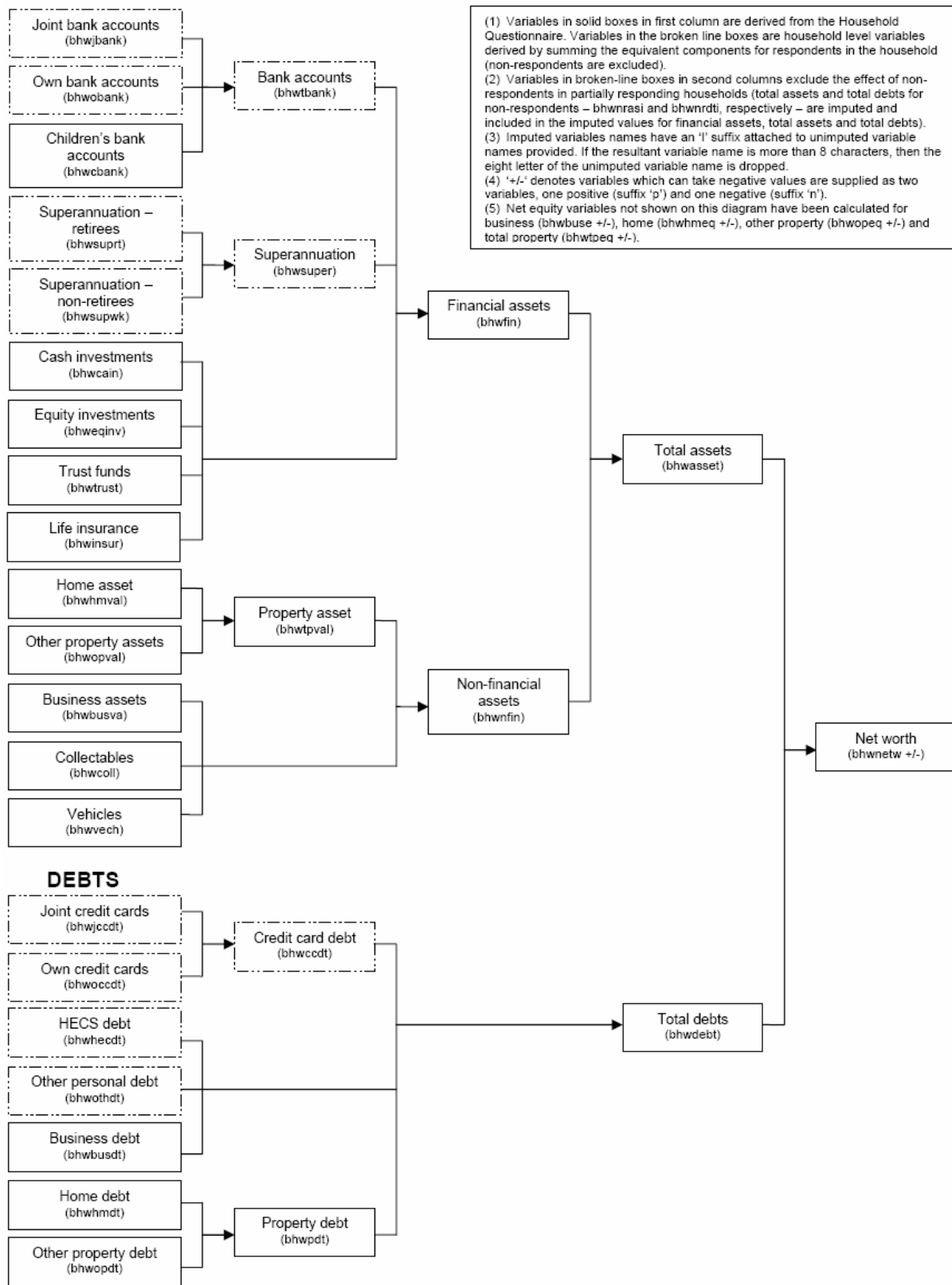


Table 20 shows the household-level and person-level wealth variables that are not shown in Figure 3.

Table 20: Derived wealth variables, person-level

Variable	Description
BHWHMHL	DV: Household wealth: Home: Home loans (\$)
BHWHMOL	DV: Household wealth: Home: Other loans (\$)
BHWHMEQL	DV: Household wealth: Home: Equity loan (\$)
BPWOBANK	DV: Own bank accounts (\$)
BPWJBANK	DV: Joint bank accounts (\$)R
BPWSUPR	DV: superannuation, retirees (\$)
BPWSUPWK	DV: superannuation, not retired (\$)
BPWOCDDT	DV: Own credit card debt (\$)
BPWJCDDT	DV: Joint credit card debt (\$)
BPWHECDT	DV: HECS debt (\$)
BPWOTHDT	DV: Other Debt: Car loan/Loans/Hire purchase/overdraft (\$)

Imputation Method

The wealth imputation is unchanged from Release 2.0. The wealth imputation uses a nearest neighbour regression method. The reported value of a donor with the nearest predicted value from a regression model to the recipient's is used to replace the missing value. Where we knew the recipient's wealth component was non-zero (for example, a screener question identified them as having the particular wealth component), only a non-zero donor was permitted. For further details of the imputation method, see Watson (2004a).

As we only have one wave of wealth data, we are unable to use the Little and Su method currently being used for the income imputation.

Imputed Wealth Variables

Table 21 outlines the imputed wealth variables included on the wave 2 files.

Note that in addition to total household assets and debts, several sub-totals and totals are also provided on the household file (by summing imputed components). These are:

- business equity,
- investment equity,
- home equity,
- other property equity,
- total property equity,
- total credit card debt,
- total superannuation,
- total bank accounts,

- total property debt,
- total property value,
- household financial assets,
- household non-financial assets,
- net worth, and
- total assets and debts of non-respondents in responding households.

These subtotals (except for household financial assets) exclude wealth imputations on non-responding persons, for whom only totals for debt and asset were imputed.

Table 21: Imputed wealth variables

	<i>Pre-imputed</i>	<i>Post-imputed</i>	<i>Flag</i>
Responding person file			
Assets			
Joint bank accounts	bpwjbank	bpwjbani	bpwjbanf
Own bank accounts	bpwobank	bpwobani	bpwobanf
Superannuation – retirees	bpwsupr	bpwsupri	bpwsuprf
Superannuation – non-retirees	bpwsupwk	bpwsupwi	bpwsupwf
Debts			
HECS debt	bpwhecdt	bpwhecdi	bpwhecdf
Joint credit cards	bpwjccdt	bpwjccdi	bpwjccdf
Own credit cards	bpwoccdt	bpwoccdi	bpwoccdf
Other personal debt	bpwothdt	bpwothdi	bpwothdf
Enumerated person file			
Total person assets	Not provided	bpwassei	bpwassef
Total person debts	Not provided	bpwdebt	bpwdebt
Household file			
Assets			
Joint bank accounts ¹	bhwjbank	bhwjbani	bhwjbanf
Own bank accounts ¹	bhwobank	bhwobani	bhwobanf
Children's bank accounts	bhwcbank	bhwcbani	bhwcbanf
Superannuation – retirees ¹	bhwsupr	bhwsupri	bhwsuprf
Superannuation – non-retirees ¹	bhwsuhwk	bhwsuhwi	bhwsuhwf
Business assets	bhwbusva	bhwbusvi	bhwbusvf
Cash investment	bhwcaain	bhwcaaini	bhwcaainf
Equity investment	bhweqinv	bhweqini	bhweqinf
Collectables	bhwcoll	bhwcolli	bhwcollf
Home asset	bhwlmval	bhwlmvai	bhwlmvaf
Other property assets	bhwopval	bhwopvai	bhwopvaf
Life insurance	bhwinsur	bhwinsui	bhwinsuf
Trust funds	bhwtrust	bhwtrusi	bhwtrusf
Vehicles value	bhwvech	bhwvechi	bhwvechf
Total household assets	bhwasset	bhwassei	bhwassef

Table 21 (c'td)

	<i>Pre-imputed</i>	<i>Post-imputed</i>	<i>Flag</i>
Debts			
HECS debt ¹	bhwhecdt	bhwhecdi	bhwhecdf
Joint credit cards ¹	bhwjccdt	bhwjccdi	bhwjccdf
Own credit cards ¹	bhwoccdt	bhwoccdi	bhwoccdf
Other personal debt ¹	bhwothdt	bhwothdi	bhwothdf
Business debt	bhwbusdt	bhwbusdi	bhwbusdf
Home debt	bhwhmdt	bhwhmdti	bhwhmdtf
Other property debt	bhwopdt	bhwopdti	bhwopdtf
Total household debts	bhwdebt	bhwdebt	bhwdebt

1. Care should be taken when using these variables at the household level. These household variables are calculated as the sum of the equivalent wealth component for responding persons only. If non-responding adults exist in these household, no attempt to apportion their imputed total assets and debts to the person level components has been made, resulting in an underestimate of these components at the household level.

Weights

Cross-Sectional Weights

Wave 1

In wave 1, we essentially had a complex cross-sectional survey. The initial (or design) weights are derived from the probability of selecting the households into the sample. These household weights are initially adjusted according to information collected about all selected households (both responding and non-responding) and further adjusted so that weighted household estimates from the HILDA Survey match several known household-level benchmarks.

The person-level weights are based on the household-level weights, with adjustments made based on information collected about all the people listed in the responding households. These weights are also adjusted to ensure that the weighted person estimates match several known person-level benchmarks.

Users interested in further details of the wave 1 weighting process (including the specific benchmarks used) are directed to Watson and Fry (2002).

Wave 2 onwards

From wave 2 onwards, the 'selection' of the sample is dependent on the wave 1 responding sample and the household and individual attrition between waves 1 and 2. The cross-sectional weights for wave 2 and 3 opportunistically include temporary members into the sample (i.e., those people who are part of the sample only because they currently live with a continuing sample member). The underlying probability of selection for these households is amended to account for the various pathways from wave 1 into the relevant wave household. Following this, non-response adjustments are made which require within-

sample modelling of non-response probabilities and benchmarking to known population estimates at both the household and person level.

The wave 2 weighting process (including the specific benchmarks used) is detailed in Watson (2004b) and the wave 3 process followed the same methodology.

Longitudinal Weights

By comparison, the construction of the longitudinal weights is more straightforward and only include an adjustment for attrition and benchmarking back to wave 1 characteristics. Further details are provided in Watson (2004).

Weights Provided on the Data Files

Table 22 provides a list of the weights provided on the data files together with a description of those weights. We have adopted the convention of adding the longitudinal weights only to the most recent wave undertaken to which they relate.

Some changes are expected to these weights with each new release. There are three reasons for this. Firstly, corrections may be made to age and sex variables when these are confirmed with individuals in subsequent wave interviews. Secondly, the benchmarks are updated from time to time. Thirdly, duplicate or excluded people in the sample may be identified after the release (very occasionally).

Table 22: Weights

<i>File</i>	<i>Weights</i>	<i>Description</i>
Household File	_hhwth	The household weight is the cross-section population weight for all households responding in the relevant wave. Note the sum of these household weights for wave 3 is approximately 7.7 million.
	_hhwthS	This is the cross-section household population weight rescaled to the sum of the sample size for the relevant wave (i.e. for wave 3, 7096 responding households). Use this weight when the statistical package requires the weights to sum to the sample size.
	_hhwte01 to _hhwte14	The enumerated person weights are provided on both the household file and the enumerated person file. See description below.
Enumerated Person File	_hhwte	The enumerated person weight is the cross-section population weight for all people who are usual residents of the responding households in the relevant wave (this includes children, non-respondents and respondents). The sum of these enumerated person weights for wave 3 is 19.6 million.
	blnwte	This longitudinal enumerated person weight is the longitudinal population weight for all people who were enumerated (i.e. in responding households) in both waves 1 and 2. This weight applies to children, non-respondents, intermittent respondents, and full respondents in responding households.
	clnwte	This longitudinal enumerated person weight is the longitudinal population weight for all people who were enumerated (i.e. in responding households) in each of waves 1, 2 and 3. This weight applies to children, non-respondents, intermittent respondents, and full respondents in responding households.

Table 22 (c'td)

<i>File</i>	<i>Weights</i>	<i>Description</i>
Responding Person File	_hhwtrp	The responding person weight is the cross-section population weight for all people who responded in the relevant wave (i.e. they provided a personal interview). The sum of these responding person weights for wave 3 is 15.7 million.
	_hhwtrps	This is the cross-sectional responding person population weight rescaled to sum to the number of responding persons in the relevant wave (i.e. 12,728 in wave 3). Use this weight when the statistical package requires the sum of the weights to be the sample size.
	blnwtr	This longitudinal responding person weight is the longitudinal population weight for all people responding (i.e. provided an interview) in both of waves 1 and 2.
	clnwtr	This longitudinal responding person weight is the longitudinal population weight for all people responding (i.e. provided an interview) in each of waves 1, 2 and 3.

Advice on Using Weights

Which Weight to Use

For some users, the array of weights on the dataset may seem confusing. This section provides examples of when it would be appropriate to use the different types of weights.

If you want to make inferences about the Australian population from frequencies or cross-tabulations of the HILDA sample then you will need to use weights. If you are only using information collected during the wave 3 interviews (either at the household level or person level) then you would use the wave 3 cross-section weights. Similarly, if you are only using wave 2 information, then you would use the wave 2 cross-section weights, and so on. If you want to infer how people have changed between waves 1 and 3, then you would use the longitudinal weights for all three waves.

The following five examples show how the various weights may be used to answer questions about the population:

- What proportion of households rent in 2003? We would use the cross-section household weight for wave 3 and obtain a weighted estimate of proportion of households that were renting as at the time of interview.
- How many people live in poor households in 2002? We are interested in the number of individuals with a certain household characteristic, such as having low equivalised household incomes. We would use the cross-section enumerated person weight for wave 2 and count the number of enumerated people in households with poorest 10 per cent of equivalised household incomes. (We do not need to restrict our attention to responding persons only as total household incomes are available for all households after the imputation)

process. We also want to include children in this analysis and not just limit our analysis to those aged 15 year or older.)

- What is the average salary of professionals in 2003? This is a question that can only be answered from the responding person file using the cross-section responding person weight for wave 3. We would identify those reportedly working in professional occupations and take the weighted average of their wages and salaries.
- How many people have moved out of the poorest 10 per cent of households between 2001 and 2003? We might define the 'poorest' 10 per cent of households as having the lowest equivalised household incomes in each wave. We could then calculate how many people move out of the poorest decile between waves 1 and 3 by summing the longitudinal enumerated person weight (*clnwte*) for those people.
- What proportion of people have changed their employment status between 2001 and 2003? This question can only be answered by considering the responding persons in both waves. We would use the longitudinal responding person weight (*clnwtr*) and construct a weighted cross-tabulation of the employment status of respondents in wave 1 against the employment status of respondents in wave 3.

It has been assumed that when using the longitudinal weights, researchers will be using a balanced two or three wave panel from wave 1. If you wanted to just consider the movements between waves 2 and 3, then you could restrict the sample to the balanced three wave panel and use the longitudinal weight provided. This will mean that some people who responded in waves 2 and 3 but not wave 1 will be excluded, so the estimates will be a little less efficient than if we constructed weights for your specific circumstances.

When constructing regression models, the researcher needs to be aware of the sample design and non-response issues underlying the data and will need to take account of this in some way.

Calculating Standard Errors

The statistical packages SAS and, until recently, SPSS, do not make it easy to appropriately treat complex survey data when constructing standard errors and confidence intervals. The HILDA survey has a complex survey design. It is:

- clustered – 488 areas were originally selected from which households were chosen and people are clustered within households;
- stratified – the 488 areas were selected from a frame of areas stratified by State and part of State; and
- unequally weighted – the households and individuals have unequal weights due to some irregularities in the selection of the sample in wave 1 and the non-random non-response in wave 1 and the non-random attrition in waves 2 and 3.

Some options available for the calculation of appropriate standard errors and confidence intervals include:

- Standard Error Tables – Based on the wave 1 data, approximate standard errors have been constructed for a range of estimates (see Horn, 2004). Similar tables for wave 2 and 3 have not as yet been produced.
- Use the recently released complex survey commands in SPSS (available in version 12).
- Use of ‘svy’ commands in Stata – The HILDA data can be readily transferred to the Stata package (using StatTransfer) which has a set of survey commands that deal with complex survey designs. Using the ‘svyset’ commands, the clustering, stratification and weights can be assigned. Various statistical procedures are available within the suite of ‘svy’ commands including means, proportions, tabulations, linear regression, logistic regression, probit models and a number of other commands.
- Use of GREGWT macro in SAS – Some users within FaCS, ABS and other organisations may have access to the GREGWT macro that can be used to construct various population estimates. The macro uses the jackknife method to estimate standard errors. For this procedure, replicate groups for the original sample are needed.

To assist you in the calculation of appropriate standard errors, the wave 1 area, replicate group, and stratification variables have been included on the master file. These are listed in Table 23. Any new entrants to the household are assigned to the same sample design information as the permanent sample member.

Table 23: Sample design variables

Variable	Description	Design element
AHHRAID	DV: randomised area id	Cluster
AHHMSR	DV: Major Statistical Region	Stratification
AHHREPGP	DV: Replicate group	Replicate group

Also, a few users may be interested in the sample design weight in wave 1 before any benchmark or non-response adjustments have been made. This is available on the household file as *ahhwtdsn*.

DOCUMENTATION

Documentation Choices

Before you get lost in the array of documentation, it is worth pausing to consider how you work and what documentation is available to you. You will not need to look at all pieces of documentation that have been prepared in order to use the datasets efficiently.

There are four main pathways through the documentation:

- Marked-up questionnaires and the derived variable coding framework for each wave – you would use these if you were familiar with the questionnaires and wanted to know what extra variables have been included;
- File-based coding framework for each wave– you would use this if you were roughly aware of what variables were in what files and were interested in a range of different topics;
- Subject-level coding framework for each wave – you would use this if you were interested in a couple of different topics;
- Cross-wave variable listing – you would use this if you were frequently using variables across the various waves, and were happy to find out the codes used as you use the variables.

You should also consider which files you want to print out and which you are happy to look at electronically. We have found that the marked-up questionnaires are best printed. The rest are best looked at on screen where there are search functions available.⁸

While frequencies of the variables have been provided, it is expected that you might only refer to these files for some simple queries with the variable name in mind (for example, how many employed people do we have in the sample, or what are the codes used for question R3).

Also, as you may have already seen, the previous chapter of this manual provides an overview of the topics covered in the questionnaires and the derived variables created.

These tools are described in more detail below.

Marked-Up Questionnaires

Beside each question in the questionnaires, the associated variable name has been added. Derived variables are not included, only the variables that relate directly to the question asked. See Figure 4 for an example.

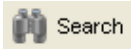
⁸ In Adobe Acrobat, you would begin a search by clicking on the button that looks like this:  Search .

Figure 4: Example of the marked-up questionnaires

G9b About how many nights each week, fortnight or month does this child usually stay overnight with you?

*If respondent refers to weeks rather than nights, record number of full weeks instead of nights.
If overnight contact is sparse, interviewer to get estimate for 3, 6 or 12 month period.*

Zero overnight stays in a year997

Else: Record number of nights OR Record number of full weeks

<input style="width: 100px; height: 30px;" type="text"/> Per week 1 Fortnight 2 4 weeks 3 3 months 4 6 months 5 Year 6	<input style="width: 100px; height: 30px;" type="text"/> per ... Fortnight 2 4 weeks 3 3 months 4 6 months 5 Year 6
--	---

CNCNGTH	G9b Non-resident child overnight stays - answered nights or weeks
CNCNGTN	G9b nights
CNCNGTNP	G9b Non-resident child overnight stays - nights - period
CNCNGTW	G9b full weeks
CNCNGTWP	G9b Non-resident child overnight stays - weeks - period

Variable Listings

Derived Variable Listing

The derived variable listing contains all the extra variables created from those collected in the questionnaires. This listing shows the following:

- on which file the variable can be found;
- the variable name;
- the label describing the variable;
- what values the variable can take; and
- to which population the variable relates.

Figure 5 shows the derived variable associated with the variables listed on the questionnaire in Figure 4.

Figure 5: Example of the derived variable listing

File	Variable	Data Item	Categories	Population
CHILDREN - NON RESIDENT: DERIVED VARIABLES				
RP	CNCNGT	DV: Overnight stays of non-resident child (Days per annum)	[Days]	Respondents with non-resident children

Conversion from days per week, fortnight etc to days per annum. If answered in weeks, converted to days per annum

File-Based Listing

For each file provided (except for the Combined File), there is a file-based variable listing. This listing contains:

- the questionnaire and question number;
- the variable name and label describing the variable;
- the values that each variable can take;
- the population to which the variable relates; and
- for derived variables, a brief explanation of how the variable was derived.

In this listing, the derived variables are interspersed with the variables directly from the questionnaires.

Figure 6: Example of the file-based listing

Qn	Variable	Data Item	Categories	Population
PQ G9b	CNCNGTH	Non-resident child overnight stays - answered nights or weeks	0 Zero day visits in a year 1 Nights 2 Weeks	Parents with resident children aged 24 or less who have a non resident parent
PQ G9b	CNCNGTN	nights	0 Zero day visits in a year [Nights]	Parents with resident children aged 24 or less who have a non resident parent

Subject Listing

The subject listing is similar to the file-based listing, but includes the variables of all files together in one listing. There is an index at the beginning and the broad subject name is at the top of each page to help you navigate through the 250 page document.

Figure 7: Example of the subject listing

Children - Non Resident

File	Qn	Variable	Data Item	Categories	Population
RP	PQ G9b	CNCNGTH	Non-resident child overnight stays - answered nights or weeks	0 Zero day visits in a year 1 Nights 2 Weeks	Parents with resident children aged 24 or less who have a non resident parent
RP	PQ G9b	CNCNGTN	nights	0 Zero day visits in a year [Nights]	Parents with resident children aged 24 or less who have a non resident parent

Cross-Wave Variable Listing

The cross-wave variable listing is probably the most useful tool of all the documentation options. It provides information on the file where the variable can be found, the label and in which wave the variable has been asked. For the particular example provided in Figure 8, we can see that these questions have changed from section H in wave 1 to section G in later waves, and that the question numbering has changed slightly between waves 2 and 3.

Figure 8: Example of the cross-wave variable listing

File	Variable	Label	Wave 1	Wave 2	Wave 3
RP	_NCGTH	Non-resident child overnight stays - answered nights or weeks	PQ H9	PQ G9	PQ G9b
RP	_NCGTN	nights	PQ H9	PQ G9	PQ G9b
RP	_NCGTNP	Non-resident child overnight stays - nights - period	PQ H9	PQ G9	PQ G9b
RP	_NCGTW	full weeks	PQ H9	PQ G9	PQ G9b
RP	_NCGTWP	Non-resident child overnight stays - weeks - period	PQ H9	PQ G9	PQ G9b

Frequencies

The frequencies are a simple listing of the categories for each question and the number of cases falling into each category. Figure 9 provides an example of the listing.

Figure 9: Example of the frequencies

cncngtnp G9b Non-resident child overnight stays - nights - period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 week	60	.5	20.5	20.5
	2 Fortnight	118	.9	40.3	60.8
	3 4 weeks	51	.4	17.4	78.2
	4 3 months	18	.1	6.1	84.3
	5 6 months	1	.0	.3	84.6
	6 Year	45	.4	15.4	100.0
	Total	293	2.3	100.0	
Missing	-1 Not asked	12435	97.7		
Total		12728	100.0		

4

On-line Documentation

What you are now reading is a new development for Release 3.0. In this manual we are aiming to provide all of the information that users will need to know to work confidently with the data, or at least direct you to where you can find further information. We would appreciate any feedback you may have.

DATA QUALITY ISSUES

The majority of this section has not been completed. We intend to include the following topics in future updates of this manual:

- sample representativeness;
- missing data; and
- known problems in the data.

In the interim see the wave 1 and 2 data quality technical papers (Watson and Wooden, 2002a; Watson and Wooden, 2004a).

Some information on amount of missing income data and the extent of the income imputation is provided below.

Missing Income Data and the Extent of Income Imputation

The number and proportion of cases with missing income data in wave 3 are provided in Table 24 along with the figures from waves 1 and 2. For most income variables, the proportion of missing income falls each wave. The reason for the decline in the proportion of missing income may be because respondents are becoming more comfortable with the survey. The variables with the highest proportion of missing cases are still business income, investments and private transfers.

Table 25 shows how much of the mean income was imputed, for each wave and income component. For respondents with item non-response, 6.1 percent of total financial year income was imputed in wave 3, compared to 7.4 percent in wave 2 and 8.0 percent in wave 1. Including the imputed income totals for non-respondents within responding households (but excluding children), the percentage of total financial year income imputed for enumerated persons is 14.6 percent in wave 3.

This shows that while approximately one in eight responding persons are missing some component of financial year income, only one sixteenth of the mean income comes from imputed values and the remainder is from reported values. At the household level, one in four households are missing some component of financial year income and one seventh of the mean income is from imputed values.

Table 24: Number and proportion of cases with missing income data, waves 1, 2 & 3

<i>Variable</i>	<i>Wave 1</i>		<i>Wave 2</i>		<i>Wave 3</i>	
	<i>Number of missing cases</i>	<i>Prop'n of cases, %</i>	<i>Number of missing cases</i>	<i>Prop'n of cases, %</i>	<i>Number of missing cases</i>	<i>Prop'n of cases, %</i>
RESPONDING PERSONS (non-zero cases only)						
Current income						
Wages and salaries	462	6.0	310	4.2	275	3.8
Benefits	136	3.2	80	2.1	74	1.9
Financial year income						
Wages and salaries	666	7.9	550	6.9	434	5.7
Aust govt pensions	67	1.5	52	1.2	54	1.3
Foreign govt pensions	1	0.5	3	1.4	0	0.0
Business income	404	29.1	366	28.6	354	25.4
Investments						
Interest	661	19.5	596	18.6	424	13.9
Dividends and royalties	584	14.6	521	14.5	402	11.8
Rent	240	20.3	189	15.3	181	14.3
Private pensions	59	6.2	41	4.6	29	3.2
Private transfers	28	7.1	89	23.1	72	19.9
Total FY income	2054	15.6	1817	14.7	1462	12.1
Windfall income						
Windfall	32	4.1	31	2.9	39	3.3
ENUMERATED PERSONS (zero and non-zero adult cases)						
Total FY income	3212	21.2	2795	19.9	2337	17.2
Windfall income	1190	7.9	1009	7.2	914	6.7
HOUSEHOLDS (zero and non-zero cases)						
Total FY income	2243	29.2	2009	27.7	1700	24.0
Windfall income	838	10.9	723	10.0	662	9.3

Table 25: Proportion of mean income imputed, waves 1, 2 & 3

<i>Variable</i>	<i>Wave 1</i>		<i>Wave 2</i>		<i>Wave 3</i>	
	<i>Mean</i>	<i>Prop'n of mean imputed, %</i>	<i>Mean</i>	<i>Prop'n of mean imputed, %</i>	<i>Mean</i>	<i>Prop'n of mean imputed, %</i>
RESPONDING PERSONS						
Current income (per week)						
Wages and salaries	400	5.2	411	3.9	426	3.5
Benefits	49	2.8	51	2.1	53	1.2
Financial year income						
Wages and salaries	21,049	5.8	21,748	4.8	22,603	3.9
Aust govt pensions	2,181	1.4	2,498	1.0	2,589	1.3
Foreign govt pensions	61	0.0	83	0.9	68	0.0
Business income	1,618	30.8	1,905	28.1	1,712	31.8
Investments	1,582	23.1	1,633	25.8	1,695	18.3
Private pensions	1,119	7.0	1,534	5.7	1,540	3.0
Private transfers	132	10.9	160	37.7	154	16.4
Total FY income	27,742	8.0	29,561	7.4	30,362	6.1
Windfall income						
Windfall	310	3.1	1,415	1.2	1,670	3.1
ENUMERATED PERSONS (excluding children)						
Total FY income	27,807	16.1	29,714	16.0	30,220	14.6
Windfall income	314	12.4	1,549	18.5	1,625	9.1
HOUSEHOLDS						
Total FY income	57,775	16.1	60,932	16.0	62,629	14.9
Windfall income	457	12.4	2,196	18.2	2,537	9.1

THE HILDA SAMPLE

Sample Design

Overview

In line with leading panel studies conducted in other countries, the sampling unit is the household, and members of those households will be traced over an indefinite life. The wave 1 sample is then automatically extended over time by following rules that add to the sample:

- any children born to or adopted by members of the selected households; and
- new household members resulting from changes in the composition of the original households.⁹

These following rules, in combination with the initial sample that is intended to be representative of all Australian households, provide a mechanism for ensuring that the panel retains its cross-sectional representativeness over time.

While all members of the selected households are defined as members of the sample, individual interviews are only conducted with those aged 15 years and over. Some limited information about people under 15, however, is collected from an appropriate adult member of the household.¹⁰

Reference Population

The reference population for wave 1 was all members of private dwellings in Australia, with the following exceptions:

- certain diplomatic personnel of overseas governments, customarily excluded from censuses and surveys;
- overseas residents in Australia (that is, persons who had stayed or intended to stay in Australia less than one year);
- members of non-Australian defence forces (and their dependents) stationed in Australia;

⁹ See the section on Following Rules for more information about who is temporarily and permanently added to the sample.

¹⁰ This approach is consistent with the British Household Panel Study (BHPS), with the difference that in the BHPS only people aged 16 years and over are interviewed. The lower age chosen for the HILDA Survey simply reflects our desire to conform to Australian Bureau of Statistics (ABS) standards adopted in its Labour Force Survey.

- residents of institutions (such as hospitals and other health care institutions, military and police installations, correctional and penal institutions, convents and monasteries) and other non-private dwellings (such as hotels and motels); and
- people living in remote and sparsely populated areas.

Further, to ensure that all members of the in-scope population have the same probability of selection, dwellings that were not primary places of residence (for example, holiday homes) were also excluded.

These coverage rules are broadly in line with those adopted by the Australian Bureau of Statistics (ABS) in the monthly Labour Force Survey supplements.¹¹ There are, however, two major differences. First, unlike the ABS, individuals at boarding schools, halls of residence and university colleges were included in the reference population for wave 1. Second, and again in contrast to ABS practice, military personnel who reside in private dwellings are part of the reference population for wave 1.

Note that while all members of the selected households are defined as members of the sample, individual interviews were only conducted with those aged 15 years and over.

Sampling Units

The sampling unit is the household defined, following the ABS, as ‘a group of people who usually reside and eat together’¹². The ABS clarifies how this definition is operationalised. Specifically, a household is either:

- a one-person household, that is, a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multi-person household; or
- a multi-person household, that is, a group of two or more persons, living within the same dwelling, who make common provision for food or other essentials for living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated persons, or a combination of both.

In general, persons who live in more than one household were only treated as members of the household where they spent most of their time. People who lived in another private dwelling for more than 50 per cent of the time were not treated as part of the household. Visitors to the household were also not treated as part of the household. Finally, people who usually lived in the household but were temporarily absent for work, school or other purposes were treated as part of the household, and this meant that a small proportion of interviews were conducted in locations other than at the household address.

Note again that we varied from the ABS practice in how we treat children attending boarding schools and halls of residence while studying. Specifically, while these dwellings are out of scope in wave 1, such individuals were treated as members of sampled households provided they spent at least part of the year in the sampled dwelling.

¹¹ ABS, Labour Statistics: Concepts, Sources and Methods (ABS Cat. No. 6102.0), ABS, Canberra, 2001.

¹² ABS, Statistical Concepts Library (ABS Cat. No. 1361.30.001), ABS, Canberra, 2000.

Sample Selection

The households were selected using a multi-staged approach. First, a sample of 488 Census Collection Districts (CDs) were selected from across Australia (each of which consists of approximately 200 to 250 households). Second, within each of these CDs, a sample of 22 to 34 dwellings was selected, depending on the expected response and occupancy rates of the area. The selections were made after all dwellings within each of the CDs were fully listed. Finally, within each dwelling, up to three households were selected to be part of the sample.

Watson and Wooden (2002b) provides further details of the sampling methodology.

Following Rules

The fully and partially responding households in wave 1 form the basis of the indefinite life panel. Members of these households are followed over time and the sample is extended to include:

- any children born to or adopted by members of the selected households; and
- new household members resulting from changes in the composition of the original households.

Continuing Sample Members (CSMs) include all members of wave 1 households (including children). Any children born to or adopted by CSMs are also classified as CSMs. Further, all new entrants to a household who have a child with a CSM are converted to CSM status. CSMs remain in the sample indefinitely. All other people who share a household with a CSM in wave 2 or later are considered Temporary Sample Members (TSMs).

Where the household has moved, split or moved and split, the interviewers and office staff track the CSMs. The CSMs (along with their new household) are then interviewed, where applicable, at their new address or by phone.¹³ TSMs that split from a household and are no longer part of a household with a CSM are not followed. However, if the TSM is converted to a CSM, then they are followed for interview as any CSM would be.

¹³ Note that if a child CSM moves without any other adult CSMs, they are followed to their new household and the eligible members of that household are then interviewed.

DATA COLLECTION

The data collection task was subcontracted to ACNielsen, a private market research company with a strong background in undertaking survey research in the area of social policy. The majority of the data were collected through face-to-face interviews.

Pilot Testing

The questionnaires are developed over the 9-month period prior to the main fieldwork for each wave. This pilot testing involves:

- Skirmish with a small number of participants (10-15) conducted in an office environment.
- Dress Rehearsal with a sample of Sydney and rural NSW households (approximately 180).

In waves 1 and 2, a Pre-Test was also conducted in between the Skirmish and Dress Rehearsal with 30 Sydney households. From wave 3 onwards, the Pre-Test sample has been rolled into the Dress Rehearsal sample.

Questionnaire Length

Table 26 provides the average time taken to complete each of the questionnaires each wave.

Table 26: Average time taken to complete questionnaires, waves 1 to 3

<i>Questionnaire</i>	<i>Time taken to complete (minutes)</i>		
	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
Household Form (responding households)	Approx 4 (not timed)	Approx 5 (not timed)	Approx 5 (not timed)
Household Questionnaire	6.2	10.0	6.6
Person Questionnaire	34.4	-	-
Continuing Person Questionnaire	-	30.5	30.1
New Person Questionnaire	-	36.2	34.2
Self-Completion Questionnaire	Approx 20 (not timed)	Approx 20 (not timed)	Approx 20 (not timed)

Interviewers

The number of interviewers used for each wave of the fieldwork is given in Table 27, together with the percentage of interviewers that were new to the HILDA Survey.

All interviewers and supervisors attended a two-day briefing session prior to each wave. From wave 2 onwards, the new interviewers received an extra day of training. All interviewers are provided with a manual covering the details of the questionnaires and fieldwork procedures.

Table 27: Number of interviewers and percentage of new interviewers each wave

	Wave 1	Wave 2	Wave 3
Number of interviewers used	139	142	128
Percentage of new interviewers	-	37%	25%

Fieldwork Process

Data Collection Mode

The vast majority of the data were collected through face-to-face interviews. While telephone interviews and assisted interviews were conducted to ensure a high response rate, they are only used as a last resort. Table 28 provides the proportion of people interviewed by telephone in all three waves. Due to the fact that some households moved outside of the 488 areas originally selected across Australia in wave 1 and the desire to interview as many people as possible, more telephone interviews are necessary in later waves. The overall incidence of telephone interviews has increased from 0.3 in wave 1, to 3.1 per cent in wave 2 and 4.8 per cent in wave 3.

Table 28: Proportion of respondents interviewed by telephone

<i>Sample Member Type</i>	<i>% phone interviews</i>		
	Wave 1	Wave 2	Wave 3
Previous respondents	-	2.7	4.4
Previous non-respondents	-	7.7	10.6
Previous child, now turned 15	-	3.2	4.9
New entrants (TSM)	-	7.5	8.6
All wave respondents	0.3	3.0	4.8

Timeline

The interviews are conducted annually with the interviewer briefing occurring in mid-August each year. In wave 1, all but a few interviews were completed by December 2001. From wave 2 onwards, the fieldwork has been extended by several months into the following year to focus on tracking and interviewing hard-to-find cases. Table 28 provides details of the fieldwork dates.

Table 28: Proportion of respondents interviewed by telephone

<i>Fieldwork period</i>	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
Beginning of fieldwork	24 August 2001	21 August 2002	21 August 2003
End of fieldwork	23 January 2002	19 March 2004	4 March 2004
Percentage of fieldwork post December	0.4%	2.3%	1.8%

Survey Notification Material

In wave 1, the selected households were sent a primary approach letter and a brochure approximately one week prior to when the interviewer was scheduled to make contact with the household. This pre-interview material marketed the survey to respondents as a study about 'Living in Australia' and, among other things, emphasised that participation was voluntary and provided a means for sample members to opt out of the survey prior to an interviewer calling.

From wave 2 onwards, a primary approach letter and newsletter were sent to the last known address of the households approximately one month prior to when the interviewer was scheduled to make contact with the household. The newsletter provides respondents with some results from the previous wave. In addition to the posted pre-interview material, households with people who had not been part of the household in the previous wave were given a New Entrants Brochure. This brochure provided more information about the purpose of the study, why they had been asked to participate, and a method to opt out of the study if they chose to. A follow-up newsletter has also been introduced from wave 3 onwards.

A copy of the primary approach letters, brochures and newsletters are available from the HILDA website: <http://www.melbourneinstitute.com/hilda/respondent.html>.

Respondent Incentives

To encourage response, a \$50 cash incentive was offered to households where all eligible household members completed the Person Questionnaire. If this did not occur, a \$20 payment was offered to households if at least one interview was obtained. The availability of this incentive was made clear in both primary approach letter and the brochure/newsletter.

Call routine, Follow-Up and Refusal Aversion

In wave 1, the fieldwork was conducted in two stages. The first stage involved the interviewer working in an area over a three-week period. They visited each selected household according to the specified call-back pattern.¹⁴ This achieved approximately 65 per cent of the interviews from each area. The remainder of each workload was then consolidated into intensive follow-up workloads and reassigned to the most experienced interviewers. They again visited each of these households according to the specified call-back pattern. These interviewers obtained the remaining 35 per cent of the interviews from each area.

From wave 2 onwards, a tracking component is incorporated into the fieldwork, splitting it into three distinct stages.¹⁵ All households were issued into the field for the first stage, and where all the interviews had not been completed, they were reissued into the field in the next stage.¹⁶ If a household could not be found at either one of these stages, they were put into tracking and once found were issued back into the current stage if found quickly or more generally into a later stage. The third stage was used to finalise households that had to be traced and could not be immediately issued back into the field and also to contact some households where it was deemed beneficial to contact them in the third stage (for example, a household member may have been away from the household at earlier contacts or they may have been temporarily unwell or busy).

Foreign Language Interviews

Language difficulties between the interviewer and the potential respondent were most often resolved by another member of the household acting as an interpreter. However, a small number of interviews each wave are conducted with a professional interpreter present during the interview.

Interviewer Monitoring

Several methods were used to ensure the fieldwork quality was consistent and maintained throughout the fieldwork collection period. These methods focused on the training, experience, in-field checking and monitoring of the interviewers.¹⁷

¹⁴ Six or more calls were made to all selected households until a final household outcome was achieved. These calls were made over a minimum of a five-day period, with typically three calls on weekdays and at least three calls on weekends.

¹⁵ For details on the tracking procedures adopted, see Watson and Wooden (2004b).

¹⁶ When initially making contact with a household, the interviewer had up to six calls to make contact and a further six calls to undertake all of the interviews once contact had been made. If a household had to be put into tracking and was found, the initial call allocation to make contact with the household was carried over to the next stage of the fieldwork. When following up a household, the interviewer had a total of five calls to finalise the household.

¹⁷ See Watson and Wooden (2002b) for details of these monitoring methods.

Response Rates

A summary of the outcomes of the wave 1 fieldwork is provided in Tables 29 and 30. Table 29 reveals that from the 11,693 households identified as in-scope, interviews were completed with all eligible members of 6872 households and with at least one eligible member of a further 810 households. The household response rate was, therefore, 66 per cent. Wooden, Freidin and Watson (2002) provide some comparisons of this response rate to other similar studies and conclude there are good reasons to be extremely satisfied with the rate of response obtained.

The wave 1 person-level outcomes are provided in Table 30. Within the 7682 households interviewed, there were 19,914 people, resulting in an average of 2.6 persons per household. Of these people 4787 were under 15 years of age on the preceding 30 June and hence were ineligible for an interview in wave 1. This provided a sample of 15,127 eligible persons, 13,969 of whom completed the Person Questionnaire. Furthermore, of this group 13,055 (93 per cent) completed and returned a Self-Completion Questionnaire which could be successfully matched to the Person Questionnaire.

Tables 31 and 32 show the household outcomes for waves 2 and 3 respectively. Table 31 reports that an additional 712 households were created from household splits in wave 2, resulting in a total of 8395 households. Of these, 69 households moved out of scope and interviews were obtained from 7245 households, resulting in a household response rate of 87.0 per cent.

As reported in Table 32, an additional 463 households were created from household splits between waves 2 and 3, resulting in a total of 8834 households. Of these, 156 households moved out of scope and interviews were obtained from 7096 households, resulting in a household response rate of 81.8 per cent.

It is also constructive to consider the wave 3 outcomes in two groups – those that responded in wave 2 and those that didn't. All but 441 households from wave 2 were reissued into wave 3, whereas only responding wave 1 households were reissued into wave 2. The wave 3 household response rate for those households responding in wave 2 was 90.6 per cent, which compares favourably to the wave 2 household response rate of 87.0 per cent.

In Tables 33 and 34 we report a summary of the person-level response in waves 2 and 3. Of the 13,969 people interviewed in wave 1, 11,993 were re-interviewed in wave 2 and 11,190 were re-interviewed in wave 3. The number interviewed in all three waves is 10,777.

A common measure of the re-interviewing success is the attrition rate, calculated as the proportion of respondents in the previous wave that did not provide an interview in the current wave, excluding those that are out of scope (that is, those that have died or moved overseas). The attrition rate for waves 2 and 3 were 13.2 per cent and 9.6 per cent respectively.

By comparison, the British Household Panel Study (BHPS) achieved attrition rates in waves 2 and 3 of 12.4 per cent and 7.8 per cent respectively (after excluding proxy

interviews). While the attrition rates recorded in the HILDA Survey are higher, we nevertheless believe they compare favourably given the comparative waves of the BHPS were conducted 10 years earlier and it has been generally accepted that response rates to surveys have been falling. Indeed, the wave 2 and 3 attrition rates for the recent BHPS Welsh sub-sample were 15.0 per cent and 9.6 per cent respectively and those for the recent BHPS Scottish sub-sample were 12.2 per cent and 8.1 per cent respectively (and these figures include proxy interviews which are not permitted in the HILDA Survey).

Table 29: Wave 1 Household Outcomes

<i>Sample outcome</i>	<i>Number</i>	<i>Per cent</i>
Addresses issued	12,252	
<i>Less out-of-scope (vacant, non-residential, foreign)</i>	804	
<i>Plus multi-households additional to sample</i>	245	
<i>Total households</i>	<i>11,693</i>	<i>100.0</i>
Refusals to interviewer	2,670	22.8
Refusals to fieldwork company (via 1800 number or email)	431	3.7
Non-response with contact	469	4.0
Non-contact	441	3.8
Fully responding households	6,872	58.8
Partially responding households	810	6.9

Table 30: Wave 1 Person Outcomes

<i>Sample outcome</i>	<i>Number</i>	<i>Per cent</i>
Enumerated persons	19,914	
Ineligible children (under 15)	4,787	
Eligible adults	15,127	100.0
Refusals to interviewer	597	3.9
Refusals to fieldwork company (via 1800 number or email)	31	0.2
Non-response with contact	218	1.4
Non-contact	312	2.1
Responding individuals	13,969	92.3

Table 31: Wave 2 Household Outcomes

<i>Sample Outcome</i>	<i>Number</i>	<i>Per cent</i>
Households issued	7,682	
<i>Plus split households</i>	712	
<i>Less out of scope households (due to death or move overseas)</i>	68	
<i>Total households</i>	8,326	100.0
Refusals to interviewer	490	5.9
Refusals to fieldwork company (via 1800 number or email)	132	1.6
Non-response with contact	134	1.6
Non-contact, not lost to tracking	75	0.9
Lost to tracking	250	3.0
Fully responding households	6,541	78.6
Partially responding households	704	8.5

Table 32: Wave 3 Household Outcomes

<i>Sample Outcome</i>	<i>All households</i>		<i>Wave 2 responding HH</i>		<i>Wave 2 non-responding HH</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Households from wave 2	8371		7245		1126	
<i>Plus split households</i>	463		394		69	
<i>Less out of scope households (due to death or move overseas)</i>	156		78		78	
<i>Total households</i>	8678	100.0	7561	100.0	1117	100.0
Refusals to interviewer	722	8.3	395	5.2	327	29.3
Refusals to fieldwork company (via 1800 number or email)	271	3.1	80	1.1	191	17.1
Non-response with contact	163	1.9	103	1.4	60	5.4
Non-contact, not lost to tracking	59	0.7	43	0.6	16	1.4
Lost to tracking	367	4.2	90	1.2	277	24.8
Fully responding households	6463	74.5	6289	83.2	174	15.6
Partially responding households	633	7.3	561	7.4	72	6.4

Table 33: Wave 2 and 3 Person Outcomes Against Wave 1 Person Outcomes

	<i>Wave 1</i>		<i>Child</i>	<i>New entrant, wave 2</i>	<i>New entrant wave 3</i>	<i>Total</i>
	<i>Respondent</i>	<i>Non-respondent</i>				
<i>Wave 2</i>						
Respondent	11993	222	250	576	-	13041
Non-respondent	1824	904	61	210	-	2999
Out-of-scope	152	32	19	-	-	203
Child	-	-	4457	345	-	4802
<i>Wave 3</i>						
Respondent	11190	223	462	356	497	12728
Non-respondent	2465	886	165	156	157	3829
Out-of-scope	314	49	37	334	-	734
Child	-	-	4123	285	363	4771
TOTAL	13969	1158	4787	1131	1017	22062

Table 33: Response rates for the HILDA Survey, waves 2 and 3 compared

	<i>Wave 2 (%)</i>	<i>Wave 3 (%)</i>
Previous wave respondents	86.8	90.4
Previous wave non-respondents	19.7	17.6
Previous wave children turning 15 years	80.4	70.9
New entrants to the wave	73.3	76.0

Attrition Bias

Attrition is generally only a serious concern when it is non-random (that is, when the persons that attrit from the panel have characteristics that are systematically different from those who remain).

Table 34 provides wave 2 and 3 attrition rates for various wave 1 sample characteristics. These results indicate that the attrition in both waves was highest among people with the following characteristics:

- living in Sydney, Melbourne and rural Western Australia;
- aged 15 to 34 years;
- single or living in a de facto marriage;
- born in a non-English-speaking country;

- low levels of education; or
- unemployed in the previous wave.

The relatively high rates of attrition evident in wave 2 for people living in Tasmania, or living in flats or units were not similarly experienced in wave 3. Similarly, the higher attrition rates occurring in wave 3 for people living in rural Victoria or rural South Australia or for employers were not apparent in wave 2.

Overall, attrition is not random. While we can make adjustments for the attrition through the sample weights, these adjustments are only as good as our ability to measure differential attrition.

The attrition between waves 1 and 2 is discussed at length in Watson and Wooden (2004c).

Table 34: Response rates for the HILDA Survey, waves 2 and 3 compared

<i>Characteristic</i>	<i>Attrition rate (%)</i>		<i>Characteristic</i>	<i>Attrition rate (%)</i>	
	<i>Wave 2</i>	<i>Wave 3</i>		<i>Wave 2</i>	<i>Wave 3</i>
Area			Country of birth		
Sydney	17.6	10.8	Australia	11.9	8.9
Rest of NSW	11.8	7.8	Overseas		
Melbourne	14.6	10.7	Main English-speaking	12.9	9.8
Rest of Victoria	11.9	11.2	Other	20.1	13.5
Brisbane	12.5	7.7	Indigenous status		
Rest of Qld	10.8	9.9	Indigenous	19.8	15.6
Adelaide	10.8	7.4	Non-indigenous	13.1	9.5
Rest of SA	11.4	10.9	Education attainment		
Perth	11.4	8.5	Year 11 or below	15.2	11.2
Rest of WA	13.4	12.4	Year 12	16.6	11.0
Tasmania	14.2	8.5	Certificate	13.0	9.0
Northern Territory	4.6	8.7	Diploma	10.5	7.8
ACT	9.1	9.3	Degree or higher	8.3	7.1
Sex			Dwelling type		
Male	13.7	10.3	House	12.8	9.6
Female	12.8	9.0	Semi-detached	12.8	9.4
Age group (years)			Flat, unit, apartment	17.5	9.5
15–19	20.3	15.1	Other	11.1	9.0
20–24	23.4	12.4	Labour force status		
25–34	14.2	11.0	Employed full-time	13.3	9.7
35–44	11.2	8.8	Employed part-time	12.6	8.9
45–54	11.5	8.5	Unemployed	18.9	13.8
55–64	10.4	8.0	Not in labour force	12.7	9.5
65–74	8.0	6.2	Employment status in main job (employed only)		
75+	12.8	8.5	Employee	13.4	9.4
Marital status			Employer	10.0	12.4
Married	11.4	8.6	Own account worker	11.1	8.3
De facto	16.5	10.4	Contributing family worker	13.9	6.4
Separated	11.8	7.3			
Divorced	10.8	7.2			
Widowed	7.9	7.2			
Single	17.9				

Data Processing

Data Entry

The data from the Household Form, Household Questionnaire and Person Questionnaires were manually entered into a database. The keyed numerical data were subject to 100 per cent verification (i.e., the data was entered in twice and any discrepancies corrected). The keyed verbatim responses were only entered once as these were only used for coding purposes and any mis-entered data could be easily identified and corrected. During data entry, the data was checked using range, logical and consistency edits. Where necessary the data entry was suspended until the identified problem was resolved.

The data from the Self-Completion Questionnaire were scanned into a database using a mark-sense recognition system. A sample of forms, together with forms that had a high proportion of missing responses, were visually inspected to ensure the scanning process was working correctly. All inappropriately marked multiple responses were also visually inspected, and where no single response could be clearly differentiated from the scanned image, the following rules (based on the SF-36 rules for coding problems in Ware et al, 2000) were applied:

- If a respondent marked two responses that were adjacent to each other that were part of a scale, one was randomly picked and entered.
- If a respondent marked two responses for an item and they were not adjacent to each other, the item was coded as “multiple crosses made on SCQ”.
- If a respondent marked three or more responses for an item, the item was coded as “multiple crosses made on SCQ”.

Once the data from all forms were entered, consistency in the data recorded on the various forms was checked. Any discrepancies were then investigated and resolved.

Coding Responses

The coding of the occupation and industry questions was done in the office prior to data entry. Occupation questions are coded to four-digit Australian Standard Classification of Occupation (ASCO) and industry questions are coded to four-digit Australian and New Zealand Standard Industry Classification (ANZSIC).

The questionnaires also contained items for which a partial list was provided with an ‘other, please specify’ category and some of these lists needed to be further extended. These codeframe extensions occurred once a sufficient number of forms had been entered so that common responses could be identified. Some backcoding into the original codeframe in the questionnaire was also done where the interviewer had written down an ‘other’ response that actually fell into the codeframe already provided in the questionnaire.

The accuracy of the coding was monitored on a continual basis. Senior coders verified 10 per cent of the occupation and industry codes. Any discrepancies identified were discussed between the coders and corrected, thus identifying problematic areas for further investigation and providing feedback to the coders. The coding of the ‘other, please

specify' responses were checked through a blind re-coding of all cases. Wherever problems were identified, these were investigated and resolved.

HILDA USER TRAINING

The next user training session is scheduled for Wednesday 28 September 2005, prior to the two-day HILDA Survey Research Conference. The aim of the training is to arm new HILDA users with knowledge about the survey and data, along with some practical experience, so you are more comfortable using the data on your own. The training will be held at the University of Melbourne and will be limited to 70 participants. A modest registration fee will apply.

Further information about the user training session will be circulated to the HILDA email list and will be posted to the HILDA website. (To subscribe to the HILDA email list, go to www.ecom.unimelb.edu.au/iaesrwww/hilda/mail/hilda-l.html.)

We plan to conduct user training sessions at least every two years.

GETTING MORE INFORMATION

No doubt there will be questions this manual does not answer. There are a number of other ways to get more information about the HILDA Survey data:

- Go to the HILDA website – copies of all survey instruments and various discussion and technical papers can be viewed and downloaded. You will also find the order forms for the data files along with a growing bibliography of research papers that use the HILDA Survey data.
- Contact the HILDA team at the Melbourne Institute – if your query is about getting access to the data or you have lost your password, contact Samantha Roberts on 03 8344 2108 or email hilda-inquiries@unimelb.edu.au. Alternatively, if you have questions about the data files or variables, contact Nicole Watson on 03 8344 2088 or email n.watson@unimelb.edu.au.
- Circulate a message to the HILDA email list – all users of the data are automatically subscribed to the HILDA email list when you apply for the data. You will receive an email confirmation that you have been subscribed. If your question could be answered by the broader HILDA user community, please feel free to send your question to this group (email: hilda-l@unimelb.edu.au).

REFERENCES

- ABS, (1994) *Australian and New Zealand standard industrial classification: alphabetic coding index*. Australian Bureau of Statistics, Canberra; Department of Statistics, Wellington. Cat No 1293.0.
- ABS (1997) *Australian Standard Classification of Occupations* Australian Bureau of Statistics, Canberra. Cat No 1220.0
- Cummins, R.A. (1996), 'The domains of life satisfaction: An attempt to order chaos', *Social Indicators Research*, vol. 38, no. 3, pp. 303-332.
- Galinsky, E. (1999), *Ask the Children: What America's Children Really think about Working Parents*, William Morrow & Co, New York.
- Groves, R.M. and Couper, M. (1998), *Nonresponse in Household Interview Surveys*, John Wiley and Sons, New York.
- Henderson, S., Duncan-Jones, P., McAuley, H. and Ritchie, K. (1978), 'The patient's primary group', *British Journal of Psychiatry*, vol. 132, pp. 74-86.
- Horn, S (2004), 'Guide to Standard Errors for Cross Section Estimates', HILDA Project Technical Paper Series No. 2/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.
- Little, R.J.A., and Su, H.L. (1989) 'Item Non-Response in Panel Surveys' in *Panel Surveys*, edited by Kasprzyk, D., Duncan, G.J., Kalton, G., Singh, M.P., John Wiley and Sons, New York.
- Manski, C. and Straub, J. (2000), 'Worker Perceptions of Job Insecurity in the Mid-1990s', *Journal of Human Resources*, vol. 35, no. 3, pp. 447-479.
- Marshall, M.L., and Barnett, R.C. (1993), 'Work family strains and gains among two-earner couples', *Journal of Community Psychology*, vol. 21, pp. 64-78.
- VandenHeuvel, A. and Wooden, M. (1995), 'Self-employed contractors in Australia: How many and who are they?', *The Journal of Industrial Relations*, vol. 37, no. 2, pp. 263-280.
- Ware, J.E., Snow, K.K., Kosinski, M. and Gandek, B. (2000), *SF-36 Health Survey: Manual and Interpretation Guide*, QualityMetric Inc., Lincoln, RI.
- Watson, N (2004a), 'Income and Wealth Imputation for Waves 1 and 2', HILDA Project Technical Paper Series No. 3/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.
- Watson, N (2004b), 'Wave 2 Weighting', HILDA Project Technical Paper Series No. 4/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Fry, T (2002), 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Weighting', HILDA Project Technical Paper Series No. 2/02, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Wooden, M (2002a), 'Assessing the Quality of the HILDA Survey Wave 1 Data', HILDA Project Technical Paper Series No. 4/02, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Wooden, M (2002b), 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Survey Methodology', HILDA Project Technical Paper Series No. 1/02, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Wooden, M (2004a), 'Assessing the Quality of the HILDA Survey Wave 2 Data', HILDA Project Technical Paper Series No. 5/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Wooden, M (2004b), 'Wave 2 Survey Methodology', HILDA Project Technical Paper Series No. 1/04, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Watson, N, and Wooden, M (2004c), 'Sample Attrition in the HILDA Survey', *Australian Journal of Labour Economics*, vol. 7, June, pp. 293-308.

Wooden, M, Freidin, S, and Watson, N (2002), 'The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1', *The Australian Economic Review*, vol. 35, no. 3, pp. 339-48.

APPENDIX 1A: SUMMARY OF HILDA SURVEY CONTENT, WAVES 1 – 4

The following table provides a guide to topics covered in the HILDA Survey across the first 4 waves. If you are interested in which specific variables are available each waves, you should refer to the cross-wave index provided with the documentation on Release 3.0 of the HILDA CD-Rom.

HOUSEHOLD FORM	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Sex ^a	X	X	X	X
Date of birth ^a	X	X	X	X
Fraction of time spent living at address	X			
English language ability of household members	X			
Disabilities of household members	X	X	X	X
Marital status of household members	X			
Employment status of household members	X		X	X
Household relationships	X	X	X	X
Entrants – reasons for, and date of, joining household		X	X	X
Movers – reasons for, and date of, leaving household		X	X	X

a Pre-printed in Waves 2, 3 and 4.

HOUSEHOLD QUESTIONNAIRE	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Child Care				
Difficulties with child care (12 items ^c)	X	X	X	X
Care during school term time – hours and cost by type	X ^b	X	X	X
Care during school holidays – hours and cost by type	X ^b	X	X	X
Care for pre-school children while working – hours and cost by type	X ^b	X	X	X
Care while not working – hours and cost by type		X	X	X
Receipt of Child Care Benefit	X	X	X	X
Receipt of Family Tax Benefit			X	X
Housing				
No. of bedrooms	X	X	X	X
Ownership status	X	X	X	X
Landlord type	X	X	X	X
Rent payments	X	X	X	X
Boarders	X	X	X	X
How housing provided if live rent free	X	X	X	X
Notional rent (if live rent free)	X	X	X	X

HOUSEHOLD QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Dwelling type ^d	X	X	X	X
Condition of dwelling (interviewer assessed) ^d	X	X	X	X
Housing Wealth				
Owner IDs and share owned		X		
First home buyer	X	X		
Year home purchased		X		
Purchase price of home		X		
Current value of home	X	X	X	X
Value of housing debt	X	X	X	X
Value of housing loans repayments	X	X	X	X
Year expect housing loan to be paid off	X	X	X	X
Value of initial housing loans		X		
Household Assets [special module]				
Other properties		X		
Equity investments		X		
Trust funds		X		
Childrens bank accounts		X		
Other cash-type investments		X		
Business wealth		X		
Value of vehicles		X		
Life insurance		X		
Collectibles		X		
Other				
Number of motor vehicles	X			
Weekly expenditure on groceries / food	X		X	X
Weekly expenditure on meals out	X		X	X
Adequacy of household income	X			
Total household income (bands)				X

- b In Wave 1 all child care items related to employment-related child care, with questions restricted to households where all carers in household were employed.
c One item added in Wave 3.
d Collected as part of the HF in Wave 1.

CONTINUING PERSON QUESTIONNAIRE	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Country of birth & language				
Country of birth	X			X
Year of arrival	X			X
English as first language	X			
Aboriginality	X			

CONTINUING PERSON QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Australian citizenship				X
Permanent residence				X
NZ citizen prior to arrival				X
Refugee				X
Visa category [recent arrivals only]				X
Family background				
Lived with parents at 14	X			
Why not living with parents	X			
Parents ever separated / divorce	X			
Age at time of separation	X			
Age left home	X			
Siblings	X			
Whether eldest sibling or not	X			
Father's / mother's country of birth	X			
Father's / mother's occupation	X			
Father's unemployment experience	X			
Education				
Study status	X	X	X	X
Year left school	X	X	X	X
Type of school last attended	X	X	X	X
Qualifications studying for		X	X	X
Qualifications completed	X	X	X	X
Date completed qualification		X	X	X
Country in which completed qualification	X	X	X	X
Employment history & status				
Years since left FT education	X			
Years in paid work	X			
Years unemployed	X			
Years out of labour force	X			
Main activity when not in labour force	X			
Employment status – ABS definition (9 questions)	X ^e	X	X	X
Current employment				
Usual weekly hours of work – all jobs	X	X	X	X
Preferred weekly hours of work – all jobs	X	X	X	X
Reasons for working part-time hours	X	X	X	X
Multiple job holding	X	X	X	X

CONTINUING PERSON QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Usual weekly hours of work – main job	X	X	X	X
Days of the week worked	X	X	X	X ^f
Shiftwork	X	X	X	X
Occupation	X	X	X	X
Occupation change		X	X	X
Occupation experience	X	X	X	X
Job tenure	X	X	X	X
Industry	X	X	X	X
Working at home (3 questions)	X	X	X	X
Trade union membership	X	X	X	X
Paid holiday leave	X	X	X	X
Paid sick leave	X	X	X	X
Employment contract type	X	X	X	X
Expectation of contract renewal	X			
Labour hire	X	X	X	X
Expected quit probability	X	X	X	X
Expected dismissal probability	X	X	X	X
Expected probability of finding another job	X	X	X	X
Work-related training (3 questions)			X	X
PAYE tax status	X	X	X	X
Supervisory responsibilities	X	X	X	X
Employer type	X	X	X	X
Workplace size	X	X	X	X
Firm size	X	X	X	X
Job satisfaction (6 items)	X	X	X	X
Job search while employed	X	X	X	X
Intended age of retirement	X		X	
Reason for ceasing last job		X	X	X
Characteristics of a previous job (5 items)		X	X	X
Persons not in paid employment				
Job search activity	X	X	X	X
Looking for work – When began looking for work	X	X	X	X
Looking for work – Hours spent in job search in last wk		X	X	X
Looking for work – Intensive Assistance	X	X	X	X
Looking for work – Availability to start work	X	X	X	X
Looking for work – Difficulties finding a job	X	X	X	X
Looking for work – Number of job offers	X	X	X	X

CONTINUING PERSON QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Not looking for work – Main activity	X	X	X	X
Not looking for work –Preference to work	X	X	X	X
Not looking for work –Reasons for not looking	X	X	X	X
Not looking for work – Availability to start work	X	X	X	X
Reservation wage	X	X	X	X
Desired hours of work	X	X	X	X
Expected probability of finding a job	X	X	X	X
Reason for ceasing last job	X	X	X	X
Characteristics of a previous job (5 items)	X	X	X	X
Whether retired	X	X	X	
Year / age retired	X	X	X	
Age plan to retire	X	X	X	
Labour market calendar	X	X	X	X
Mutual Obligation activity	X	X	X	X
Income				
Current wage and salary income	X	X	X	X
Current income from government benefits	X	X	X	X
Financial year income by source	X	X	X	X
Credit card use and payment strategy	X	X	X	X
Wealth [special module]				
Bank accounts		X		
Credit card debt		X		
Other debts		X		
Superannuation		X		
Family Formation				
Number of children	X	X	X	X
Non-resident children characteristics	X	X	X	X
Financial support for non-resident children	X	X	X	X
Amount of contact with youngest non-resident child	X	X	X	X
Employment status of other parent			X	X
Resident children characteristics	X	X	X	X
Financial support from other parent	X	X	X	X
Amount of contact other parent has with youngest child	X	X	X	X
Employment status of other parent			X	X
Desire to have another child	X	X	X	X
Likelihood of having another child	X	X	X	X

CONTINUING PERSON QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Number of additional children intend to have	X	X	X	X
Year intend to have next child		X		
Partnering / Relationships				
Changes in marital status		X	X	X
Current marital status	X	X	X	X
Current living circumstances		X	X	X
Single persons – Likelihood of marriage	X	X	X	X
De facto relationships – Year relationship started	X	X	X	X
Number of other de facto relationships		X	X	X
Retirement [<i>special module</i>]			X	
Health / Disability				
Whether has disability / health condition	X	X	X	X
Type of disability			X	X
Whether disability commenced in last year	X	X		X
Year of onset of disability			X	
Impact of disability on work (2 questions)	X	X	X	X
Difficulties as a result of disability (3 questions)				X
Need for help / supervision (4 questions)				X
Use of aids				X
Home modifications				X
Employment difficulties				X
Education difficulties				X
DVA Treatment Entitlements Card				X
Private health insurance (8 questions)				X
Hospital visits in past 12 months (7 questions)				X
Youth module				X
Other				
Life satisfaction (9 items)	X	X	X	X
Importance of life domains (8 items)	X			
Attitudes to life in Australia (3 items)	X			
English language speaking (2 questions)	X	X	X	X
Movers – Date moved to current address		X	X	X
Movers – Date left previous address			X	X
Movers – Reasons for moving		X	X	X

e In Wave 1 a shorter series of questions was used.

f Additional sub-question included to better enable weekend workers to be identified.

SELF-COMPLETION QUESTIONNAIRE	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Health / Lifestyle / Living Situation				
Health and well-being – SF36 (36 items)	X	X	X	X
Serious health conditions (8 items)			X	
Exercise (one item)	X	X	X	X
Smoking incidence	X	X	X	X
Smoking frequency		X	X	X
Tobacco expenditure	X			
Alcohol consumption (2 items)	X	X	X	X
Time stress (2 items)	X	X	X	X
Preferences to live in area	X	X	X	X
Neighbourhood characteristics (10 items)	X	X	X	X
Housing adequacy (6 items)	X	X		
Satisfaction with family life (8 items)	X	X	X	X
Marital relationship quality (6 items)			X	
Membership of clubs etc	X	X	X	X
Social interaction	X	X	X	X
Social support (10 items)	X	X	X	X
Self-efficacy (7 items)			X	X
Time use	X	X	X	X
Fairness of housework	X	X	X	X
Religion (3 questions)				X
Life events in past 12 months		X	X	X
Finances				
Self-assessed prosperity	X	X	X	X
Stressful financial events (7 items)	X	X	X	X
Response to financial emergency (2 items)	X	X	X	X
Savings habits	X	X	X	X
Savings time horizon	X	X	X	X
Reasons for saving		X		
Risk preference	X	X	X	X
Attitudes to borrowing (5 items)	X	X		
Intra-household decision-making (3 items)		X	X	X
Employment				
Job characteristics (12 items)	X	X	X	X
Family friendliness of the workplace (3 items)	X			
Access to family friendly benefits (7 items)	X	X	X	X

SELF-COMPLETION QUESTIONNAIRE (cont'd)	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>	<i>Wave 4</i>
Parenting				
Parenting stress (4 items)	X	X	X	X
Fairness of childcare	X	X	X	X
Work family gains and strains (13 items)	X	X	X	X
Other				
Attitudes about work and gender roles (14 items)	X			
Sex		X	X	X
Age group		X	X	X

APPENDIX 1B: HILDA SURVEY DATA ITEM SOURCES

In this appendix we provide a simple summary of the origin behind many of the questions and data included in the Wave 1 HILDA Survey instruments. Many of these questions are included in later waves. If an item is not listed it can be assumed that the question was either a generic item (such as the date of birth or sex of an individual) or was developed specifically for the HILDA Survey with no, or minimal, reference to previous surveys.

HOUSEHOLD FORM		
W1 Qstn #	Data item / Topic	Notes on origin / Source
<p>Note on overall structure</p> <p>The HF essentially comprises three components:</p> <ul style="list-style-type: none"> (i) a record of calls made and outcomes; (ii) a household grid; and (iii) questions about all dwellings and refusal information. <p>The Household Grid was largely inspired by the Household Grid concept used in the BHPS and in the family composition section (Section A) of the Canadian Survey of Financial Security.</p>		
X5a/b	Fraction of time spent living at address	Based on question B7 in the FaCS General Customer Survey (GCS), 2000.
X6a	English language use at home	Based on question asked in the ABS, Population Census.
X6b	English language speaking ability	Response categories identical to those used in the ABS, Population Census.
X7	Long-term disability / chronic health condition	Concepts underlying this question (and the accompanying showcard) based on questions asked in the FaCS GCS and in the ABS Survey of Training and Education.
X12	Intra-household relationships	Many other surveys (e.g., the British Household Panel Survey [BHPS] and the US panel Study of Income Dynamics [PSID]) specifically ask how each household member is related to a specific reference person in the household. The HILDA Survey, however, may well be the first survey of its type to directly code the relationships between all household members.
Y1	Type of residence	Categories based on ABS, Survey of Income and Housing Costs.
Y3	Security features of premises	Adapted from US National Survey of Health and Stress (see Groves and Couper 1998, p. 75).

HOUSEHOLD QUESTIONNAIRE		
W1 Qstn #	Data item / Topic	Notes on origin / Source
Q4	Problems or difficulties with childcare arrangements	Adapted from a comparable question included in the Negotiating the Life Course Study.
Q7 / Q8 / Q10	Type, cost and hours of child care	The structure used is unique to the HILDA Survey, but the types of care identified draws heavily from the Negotiating the Life Course Study.

HOUSEHOLD QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
R1	Number of bedrooms	Based on questions included in the ABS 1999 Survey of Living Standards pilot (q. D4) and in the BHPS (q. H1a, Wave 1, HQ).
R2	Residence ownership status	Adapted from question included in the ABS Population Census.
R3	Landlord type	Adapted from question included in the ABS Population Census.
R4	Rent	Based on q. D9 and q. D10, ABS 1999 Survey of Living Standards pilot.
R10	Value of residence	Adapted from questions asked in the PSID and the BHPS.
R11-R21	Mortgages / Home loans	While the structure is quite different, a number of the questions included here are quite similar (especially R15) to questions included in the US Survey of Consumer Finances (SCF).
R30	Subjective income adequacy	European Community Household Panel Study.

PERSON QUESTIONNAIRE		
W1 Qstn #	Data item / Topic	Notes on origin / Source
A2	Year of arrival	Based on question asked in the BHPS, but with the addition of the 6-month residency requirement.
A3	English language	Adapted from ABS 1993 Survey of Training and Education.
A4	Indigenous origin	Question text based on a comparable question in the Population Census. Response options are as used in the ABS Labour Force Survey.
B1	Parental presence at age 14	International Social Science Survey, Australia (IcssA) 1999.
B2	Reason for not living with both own parents at age 14	Re-worded version of question asked in IcssA 1999.
B3a	Parents ever separated / divorced	IcssA 1999.
B3b	Parents ever reunited after separation / divorce	IcssA 1999.
B7-B9	Siblings	Based on similar questions asked in the PSID and the 1998 SCF.
B12	Employment status of father at age 14	Similar questions asked in both the BHPS and PSID.
B13	Occupation of father	Basic approach to measuring occupation follows standard ABS practice.
B15	Employment status of mother at age 14	Similar questions asked in both the BHPS and PSID.
B16	Occupation of mother	Basic approach to measuring occupation follows standard ABS practice.

PERSON QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
C1	Age left school	Adapted from FaCS GCS.
C2	Highest year of school completed	Revised version of question in ABS 1993 Survey of Training and Education. Showcard based on information provided in ABS, <i>How to Complete Your Census Form</i> , p. 10 (ABS, Canberra, 2001).
C6	Post-school qualifications	Based on a question included in the ABS 1999 Living Standards Survey pilot.
C7A	Type and number of post-school qualifications	Response categories used are based on those used in various ABS surveys (e.g., the 1993 Survey of Training and Education and the 1999 Survey of Living Standards pilot). The list of categories, however, was extended to distinguish different levels of Certificate qualifications.
C7C	Type of nursing qualification	Categories based on those used in the ABS 1999 Survey of Living Standards pilot.
C7D	Type of teaching qualification	Categories based on those used in the ABS 1999 Survey of Living Standards pilot.
C10A	Current education enrolment	Based on a question included in the ABS 1999 Living Standards Survey pilot.
C11A	Type of qualification being studied for	Response categories used are based on those used in various ABS surveys (e.g., the 1993 Survey of Training and Education and the 1999 Survey of Living Standards pilot). The list of categories, however, was extended to distinguish different levels of Certificate qualifications.
C11C	Type of nursing qualification being studied for	Categories based on those used in the ABS 1999 Survey of Living Standards pilot.
C11D	Type of teaching qualification being studied for	Categories based on those used in the ABS 1999 Survey of Living Standards pilot.
D3A	Years in paid work	Modified version of a question included in the ABS Survey of Employment and Unemployment Patterns (SEUP).
D3B	Years unemployed	Modified version of a question included in the ABS SEUP.
D3C	Years not in labour force	Modified version of a question included in the ABS SEUP.
D5	Main activity during years out of labour force	Modified version of a question included in the ABS SEUP.
D6-D7	Employment status in last week	ABS Monthly Population Survey (also known as the Labour Force Survey), but with the concept of "last week" replaced by "the last 7 days".
D8	Employment status – main job	ABS Monthly Population Survey (prior to changes introduced in April 2001).
D9	Business incorporation	ABS Monthly Population Survey.
D12	Time since last worked for pay	Modified version of question asked in the ABS Monthly Population Survey.
D13-D19	Characteristics of last job (persons not currently in paid work)	These items are essentially duplicates of questions listed below about characteristics of the current job.

PERSON QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
D20	Reason ceased last job	Based on questions asked in the ABS Monthly Population Survey, February 2000 (Labour Mobility module) and the Second Longitudinal Survey of Immigrants to Australia.
E1	Hour worked per week – all jobs	ABS 1993 Survey of Training and Education.
E5	Reason for working part-time	Modified version of a question asked in the Canadian Survey of Labour and Income Dynamics (SLID).
E9	Hour worked per week – main jobs	ABS 1993 Survey of Training and Education.
E10	Days of the week usually worked	ABS, Working Arrangements Survey (Supplement to the LFS).
E11	Number of days usually worked in 4-week period	ABS, Working Arrangements Survey (Supplement to the LFS).
E12	Shift work arrangements	SLID.
E13	Occupation in main job	Based on standard ABS item.
E14	Years in current occupation	Based on question included in ABS 1993 Survey of Training and Education
E15	Current job tenure	ABS Monthly Population Survey, February 2000 (Labour Mobility module).
E16	Industry	Based closely on standard ABS question (but unlike the ABS we do not precede this question with one asking respondents to nominate the name of the business that employs them).
E22	Annual leave	ABS Monthly Population Survey, August 2000 (Employment Benefits module).
E23	Sick leave	ABS Monthly Population Survey, August 2000 (Employment Benefits module).
E24	Type of employer / business	Based loosely on question used in the 1995 Australian Workplace Industrial Relations Survey (AWIRS).
E26	Contract renewal expectations	ABS Monthly Population Survey, August 1998 (Non Standard Employment module).
E28	Likelihood of losing job in next 12 months	Wisconsin Survey of Economic Expectations (see Manski and Straub 2000).
E29	Likelihood of finding replacement job	Wisconsin Survey of Economic Expectations (see Manski and Straub 2000).
E30	Likelihood of quitting job	Wisconsin Survey of Economic Expectations (see Manski and Straub 2000).
E31	PAYE status	VandenHeuvel and Wooden (1995).
E32	Supervisory responsibilities	BHPS / SLID.
E33	Workplace size	Based on question asked in BHPS.
E35	Firm size	ABS 1993 Survey of Training and Education. Response categories based on those provided in similar question asked of managers in the 1995 AWIRS.

PERSON QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
E36	Job satisfaction	Based on question in the BHPS, but with one item added and an an 11-point scale used instead of a 7-point scale.
E39	Intended retirement age	FaCS GCS.
F1	Looking for work	Modified version of question in the ABS Monthly Population Survey.
F2	Job search methods	ABS Monthly Population Survey.
F3	When began looking for work	Modified version of question in ABS Monthly Population Survey.
F5	Availability to start work (unemployed)	ABS Monthly Population Survey.
F6 / F7	Reasons had trouble getting a job	Based on ABS Monthly Population Survey, July 2000 (Job Search Experience of Unemployed Persons module).
F8	Number of job offers	ABS SEUP (Wave 2, q. S122).
F10	Main activity since last worked or looked for work	Modified version of a question included in the ABS SEUP.
F11	Work intentions	Based on ABS Monthly Population Survey, September 2000 (Persons Not in the Labour Force module).
F12 / F13	Reasons for not looking for work in the last 4 weeks	Based on ABS Monthly Population Survey, September 2000 (Persons Not in the Labour Force module).
F16	Availability to start work (not looking for work))	Based on ABS Monthly Population Survey, September 2000 (Persons Not in the Labour Force module).
F17	Preparedness to start work	ABS Monthly Population Survey, September 2000 (Persons Not in the Labour Force module).
F23b	Intended age of retirement	FaCS GCS.
G1-G33	Income	All of the income questions are taken directly from, or based on, the ABS Survey of Income and Housing Costs, 1999/2000.
G34	Credit card ownership / payment strategy	Canadian Survey of Financial Security.
H3	Non-resident child grid	Based on the AIFS Family Formation Project 1990 and the AIFS Australian Divorce Transitions Project 1997.
H5	Child support payments	AIFS Australian Divorce Transitions Project 1997.
H7	Other financial support for non-resident children	
H15	Children with parent living elsewhere grid	Based on the AIFS Family Formation Project 1990 and the AIFS Australian Divorce Transitions Project 1997.
H18	Child support received	AIFS Australian Divorce Transitions Project 1997.
H19	Other financial support for children received	
H26	Desire to have children	Modified version of question asked in the Negotiating the Life Course Study.
H27	Likelihood of having children	

PERSON QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
H29	Intended number of children	Modified version of question asked in the National Survey of Families and Households.
J2	Marriage history grid	Based on AIFS Family Formation Project 1990.
J4	Duration of current de facto relationship	Modified version of a question asked in the AIFS Life Course Study.
J5	Likelihood of marriage	AIFS Life Course Study.
J6	De facto relationships history	Based on a question asked in the National Survey of Families and Households.
J7	Number of de facto relationships	National Survey of Families and Households.
J8 / J9	Duration of first de facto relationship	Based on a question asked in the AIFS Life Course Study.
K1	Current health status	Item taken from the SF-36 Health Survey (Ware et al. 2000).
K2	Health condition or disability status	Question text comes from FaCS GSC. The list of activities used to define disability, however, comes from the ABS Survey of Training and Education.
K3	Impact of disability or condition on work	A similar question is asked in many surveys, including the BHPS and the PSID.
K4	How much condition limits work	Conceptually similar question questions asked in many surveys (e.g., the BHPS and the PSID), but do not employ the 11-point scale that is used here.
K6-K7	Life satisfaction	The format of the question is based on one included in the GSOEP, but the content is largely driven by the work of Cummins (1996).
K9	Views about life in Australia	ACNielsen
K10	Date began living at current address	Combination of questions from the BHPS and the US SCF.
K14	Reasons for moving in last year	Mostly based on a question included in the PSID, but extensively revised. Also draws on questions included in the BHPS and the ABS SEUP.
T4	Likelihood of moving in next 12 months	Adapted from question asked in the BHPS.
Z1	Presence of others during interview	BHPS
Z2	Influence exerted by others on respondent	BHPS
Z3	Understanding of questions	1998 SCF
Z4	Suspicion about study	1998 SCF
Z5	Frequency respondent referred to documentation	1998 SCF
Z6	Degree of cooperation	BHPS
Z7	Presence of problems	BHPS

SELF-COMPLETION QUESTIONNAIRE		
W1 Qstn #	Data item / Topic	Notes on origin / Source
A1 to A11d	General health and well-being	SF-36 Health Survey (Ware et al 2000).
B1	Frequency of moderate / intensive physical activity	Based on a question used in the ABS 1995 National Health and Attrition Survey. The wording of the two questions, however, is very different and, unlike the ABS survey, pre-coded categories are used.
B4	Frequency of alcohol consumption	Based on a question included in the Australian Institute of Welfare (AIHW), 1998 National Drug Strategy Household Survey.
B5	Daily consumption of alcohol when drinking	AIHW 1998 National Drug Strategy Household Survey (q. H14).
B6	Frequency of feeling rushed or pushed for time	ABS 1999 Survey of Living Standards pilot (q. L1).
B7	Frequency of having spare time	ABS 1999 Survey of Living Standards pilot (q. L3).
B9	Neighbourhood characteristics	Based on a question occasionally used in the IcssA and the British Social Attitudes Survey. Four items are taken directly from the BSA Survey, one is a modified version of a BSA item, three are direct from IcssA (though two of the BSA items are also included in the IcssA) and two are new. Like the IcssA, a 5-point scale is used (the BSA uses a 4-point scale), but the bottom category has been relabelled and the lead-in question is different.
B10	Housing adequacy	Based on a question used in the Tasmanian Healthy Communities Survey (HCS). The HILDA question, however, only uses six items (not 11), one of which is not from the HCS. The categories are also labelled differently.
B11	Satisfaction with family life	Taken from AIFS Australian Living Standards Study (Part 4, q. 103), but asked on an 11-point scale rather than a 9-point scale.
B12	Perception of whether doing fair share of the housework	Negotiating the Life Course Study.
B14	Frequency of social activities	Based on a question asked in the Tasmanian HCS.
B15	Social support	The first seven items come from Henderson et al. (1978), while the last three items are from Marshall and Barnett (1993).
B16	Time use	Based loosely on a question included in the GSOEP. An extended version of the final question used was piloted as part of the IcssA 2000.
C1	Financial well-being (self-assessed prosperity)	Tested as part of IcssA 2000 (q. 5, p. 84).
C2	Stressful financial events	Based closely on ABS 1999 Survey of Living Standards pilot (q. H6).
C3a	Ability to raise \$2000 in an emergency	Inspired by ABS 1999 Survey of Living Standards pilot (q. H4). The ABS survey, however, did not seek to identify how difficult it would be to raise the money, only whether it was possible or not.

SELF-COMPLETION QUESTIONNAIRE (cont'd)		
W1 Qstn #	Data item / Topic	Notes on origin / Source
C3b	Source of money in an emergency	Categories based on those used in Canadian Survey of Financial Security (q. L14).
C4	Family's savings habits	1998 SCF (X3015-3020).
C5	Savings time horizon	1998 SCF (X3008).
C6	Risk preference	1998 SCF (X3014), but with addition of option: "I never have any spare cash".
C7	Attitudes to borrowing	Based closely on 1998 SCF (X402-406).
D1	Attitudes about work and gender roles	Five items come from Galinsky (1999), two items come from the Negotiating the Life Course Study; four items come from the PSID / NSFH and one item is new to HILDA.
E1	Job characteristics	The 12-items used here, or variants of them, have been included in a great number of surveys about job characteristics. At least four of the items, however, are taken directly from the IcssA.
F2	Parenting stress	PSID Child Development Supplement 1997, Primary Caregiver of Target Child – Household Questionnaire (q. A29).
F3	Perception of whether doing fair share of the child care	Negotiating the Life Course Study.
F4	Work-family gains and strains	Marshall and Barnett (1993).

List of Acronyms

ABS	Australian Bureau of Statistics
AIFS	Australian Institute of Family Studies
AIHW	Australian Institute of Health and Welfare
AWIRS	Australian Workplace Industrial Relations Survey
BHPS	British Household Panel Survey
BSA	British Social Attitudes
FaCS	Family and Community Services (Department of)
GCS	General Customer Survey
GSOEP	German Socio-Economic Panel
HCS	Healthy Communities Survey
HILDA	Household, Income and Labour Dynamics in Australia
IcssA	International Social Science Survey, Australia
LFS	Labour Force Survey
PSID	Panel Study of Income Dynamics
SCF	Survey of Consumer Finances
SEUP	Survey of Employment and Unemployment Patterns
SLID	Survey of Labour and Income Dynamics

APPENDIX 2: CHANGES TO THE DATA FROM RELEASE 2.0

Due to these changes, users of the previous release of HILDA are **strongly** advised against mixing data from prior and current releases.

Changes to wave 2 files

The changes to the wave 2 files provided in Release 3.0 (compared to Release 2.0) are listed below.

Cleaning

- One new person with no Country of Birth or Family Background data was asked a special “revision” questionnaire and the data updated; affects sections AA;BB;A;H & K
- 6 relationships in 4 households backcoded from other specify; mostly grandparents; may affect family type
- Why live with (for new entrants) revised for 2 households
- Relationship grid corrected for 155 relationships in 98 households. Will affect household type; relationship in household and may affect family type and family number (bhhtype; bhhrih; bhhfam; bhhty).
- Cleaned highest level of education (bedhigh); 70 cases that were year 12 became year 11 (as still at school); 5 other changes;
- DOB cleaned and age recalculated on basis of subsequent information.

Corrections in calculations

- Total time since leaving school. If the respondent had some time in employment (behtjb > 0) and some time in unemployment (behtuj > 0) since leaving school, the time in employment is now correctly added to total time since leaving school (behtse).
- Weighted means substituted for truncated top-coded values in 145 income, age and wealth variables
- Percent of financial year not in labour force (bcapnlf) now correctly calculated. Overlaps in activities now taken into account in calculations.
- Wave 2 responding person weight for statistical purposes (bhhwtrps) corrected.

- If the respondent had some time in employment (behtjb > 0) and some time in unemployment (behtuj > 0) since leaving school, the time in employment was added to the history variable of total time since leaving school (behtse).
- Current pensions and benefits (cbnc), foreign pensions removed, renamed to cbncaup
- Master file: Variables for number of adults and number of adult respondent no longer swapped.
- Wealth: superannuation for retirees (bpwsupr) 9 cases set to refused as had incorrectly been set to zero. Superannuation for non-retirees (bpwsupwk) 135 cases set to refused or don't know as had incorrectly been set to zero. Superannuation imputation flags at person level corrected. [Imputed variables and flags at household level had been constructed correctly.]
- Some wealth values were flagged as imputed when there was no apparent difference with the original data. This was because the values differed in the thirteenth through sixteenth decimal places after imputation. This has been corrected by rounding the imputed variable.

Flag and cases affected:

Joint bank account	bhwjbanf	33
Total bank accounts	bhwtbanf	33
Home value	bhwhbvaf	3
Other property	bhwopvaf	5
Total property	bhwtpvf	5
Home: All debt	bhwhmdtf	3
Other property debt	bhwopdtf	3
Total property debt	bhwtpdf	5
Home equity	bhwhmef	3
Other property equity	bhwopef	8
Total property equity	bhwtpef	6
Household financial assets	bhwfinf	27
Household non-financial assets	bhwnfif	1
Household total assets	bhwassef	22
Household debt	bhwdebt	1
Household net worth	bhwnwf	23

- Derived variable bjstest dropped. (D3 currently unemployed, when began looking for work). bjstest was a working estimate not intended for release.
- Current wages and salary; current pensions and benefits; now calculated weekly rather than annualised; to overcome confusion with financial year variables
 bwscwc 'DV: Gross Workers compensation, accident or sickness insurance per week (\$)'.
 bwscwca 'DV: Net Workers compensation, accident or sickness insurance per week (\$)'.
 bwscme 'DV: Current weekly gross wages & salary, main job (includes estimated)'.
 bwscoe 'DV: Current weekly gross wages & salary, other jobs (includes

estimated)'.
 bwscmg 'DV: Main job, current weekly gross wages & salary (\$)'.
 bwscog 'DV: Other jobs, current weekly gross wages & salary (\$)'.
 bwscg 'DV: All jobs, current weekly gross wages & salary (\$)'.
 bbncaup 'DV: Current Australian pensions & benefits per week (\$)'.
 bwsce 'DV: Current weekly gross wages & salary - all jobs (\$) (includes estimated)'.
 bwscef 'DV: Imputation flag current weekly gross wages & salary.'
 bbnfcf 'DV: Imputation flag current weekly pensions & benefits.'
 bbneci 'DV: Imputed current weekly pensions & benefits (\$)'/
 bwscei 'DV: Imputed current weekly gross wages & salary - all jobs (\$)/'

- Pensions and benefits - current and financial year. Foreign pensions excluded; now Australian pensions and benefits.
- Age (bhgag) has been recalculated as the age at 30th of June 2002. In previous releases it was the age at date of completion of household form (initial stage).

New variables

- Imputation flag for disposable income added to enumerated and household files
- Age at date of person interview (BHHIAGE). This variable is supplied in addition to BHGAGE (age at 30th June of interview year) on the responding person file
- bedqoun NPQ:A7a Qualifications obtained - 000 level unknown
- bedqnun NPQ:A7a No of qualifications - 000 level unknown
- bedtchun NPQ:A7e Teaching qualifications - 000 level unknown
- bedcqun NPQ:A12 Qualifications studying for - 000 level unknown

Renamed variables

- Exact age at 30th June BHHFAG renamed to BHGAGE.
- BWSMTOJ -> BWSCMTOJ Currently has more than one job
- BPTOT -> BPJOT Previous job: Employed in any other job since then and now

Deleted variables

- Current and financial year pensions: back-coded child care benefits. Has been deleted as it is asked at household level and modeled for all eligible families (bbncccb bbncccbba bbncccbw bbnfccb bbnfccbh bbnfccba bbnfccbf bbnfccbw)
- CPQ & NPQ B5 to B11 extended questions for employment status classification.

Documentation corrections

- All documentation updated
- Derived and imputed income variable labels rewritten
- Removed 'financial year' from variable label for top-coded current wages and salary; imputed version; and flag (bwsce, bwscei, bwscef)
- Marked up questionnaire :
Typo corrected BMHREAS -> BMHREAAS CPQ:K10,NPQ:K12 To be closer to amenities/services/public transport;
Typo corrected BORDFNNS -> BORDFNN
Removed (as not in datasets) BCAEFTSC, BCAEPTSC, BMHREASB, BMHREASP

Master File

- Corrected minor discrepancies due to late removal of 2 persons just prior to release 2.0

Changes to wave 1 files

The changes to the wave 1 files provided in Release 3.0 (compared with Release 2.0) are listed below.

Cleaning

- Relationship grids corrected. 124 relationships in 49 households altered as relationship not consistent over three waves. Variables affected: household type, relationship in household, family identifier, family type (ahhtype; ahhrih; ahhfam; ahhfty).
- Date of birth and age at wave 1 cleaned on basis of subsequent information.

Corrections in calculations

- Weighted means substituted for top-coded values in 42 income variables.
- Construction of highest level of education (aedhigh) changed to match construction at wave 2 (bedhigh); 446 of 450 undetermined set to highest level of school. Corrected 3 cases from year 11 to year 12.
- Per cent of financial year not in labour force (acapnlf). Program error corrected.
- Home value, home mortgage, other loans, second mortgages (ahsvalue ahsmgowe ahslnowe ahsslowe) were collected and supplied in \$'000 in releases 1 & 2. Now multiplied by 1000 to conform with later waves.

- To overcome confusing annualized amounts in DV's for current wages and salary; current pensions and benefits; with financial year wages and salaries and pensions and benefits, the current amounts are now supplied as weekly amounts. Affects:
 - awscme 'DV: Current weekly gross wages & salary, main job'.
 - awscoc 'DV: Current weekly gross wages & salary, other jobs'.
 - awscmg 'DV: Main job, current weekly gross wages & salary (\$)'.
 - awscog 'DV: Other jobs, current weekly gross wages & salary (\$)'.
 - awscg 'DV: All jobs, current weekly gross wages & salary (\$)'.
 - abncaup 'DV: Current Australian pensions & benefits - per week (\$)'.
 - awsce 'DV: Current weekly gross wages & salary - all jobs (\$) (includes estimated)'.
 - awscef 'DV: Imputation flag current weekly gross wages & salary.'
 - abncf 'DV: Imputation flag current weekly pensions & benefits.'
 - abnci 'DV: Imputed current weekly pensions & benefits (\$)'/
 - awscei 'DV: Imputed current weekly gross wages & salary per annum (\$)'/
 - awsly 'DV: Gross weekly current wages & salary (from all jobs) one year ago (\$)'/."
- In previous releases the wave 1 Household Form age (ahgage) was the age reported at date of household interview. As dates of birth have been updated, ahgage has been replaced with age at 30 June 2001. A new variable is supplied for age at date of personal interview (ahhiage)
- Pensions and benefits - current and financial year. Foreign pensions excluded; now Australian pensions and benefits (variables at release 1.0 were abnc and abnf, now abnfaup and abnffp; imputed versions were abnci and abnfi; now abncaupi and abnfaupi)

New variables

- An imputation flag for disposable income is now provided on the household file and enumerated file (ahifdif)
- Family variables household type (ahhtype), family identifier (ahhfam), family type (ahhfty), relationship in household (ahhrih) and income unit (ahhiu) added to Eperson file
- Date of birth (ahgdob) [unconfidentialised datasets only] replaces ahgday, ahgmth & ahgyear for consistency with subsequent waves.
- ahhiage is age at date of interview, constructed from interview date and date of birth
- AHGAGE replaces AHHFAG on the responding person file; as it is the age at 30th of June copied from the household file
- For consistency with subsequent waves, the following interviewer-check variables have been reinstated:
 - aedcs /* C4 Check box */

aedqnt /* C7b Check C7a */
 aedqcom /* C8 Check C7a */
 aedcqt /* C11b Check C11a */
 aehcs /* D1 Check C1 */
 aehhasto /* D4 Check any time spent in D3c. */
 aesempst /* D10 Employment status */
 ajbfpt /* E4 Check current hours worked per week */
 ajbempst /* E21 Check D10 employee status */
 artage1 /* E38 Check age on HH form */
 anljtgt /* F14 Check F12 */
 artage2 /* F21 Check Age */
 amouany /* FG2 Check whether unemployed at any time on calendar */
 awscjbs /* G6 Number of jobs in G2 */
 abnage /* G12 Check Age and Sex from HH form */
 ancudr25 /* H4a Check Ages in H3b */
 ancefs /* H4b Check everyday financial support in H3g */
 ancofs /* H6 Check Other financial support in H3h */
 arcefs /* H17 Check everyday financial support in H15e */
 arcofs /* H19 Check other financial support in H15f */
 aicage /* H25 Check age */
 aicprob /* H28 Check */
 aorhave /* J3 Check 8 in HF */
 amhl10yr /* K11 Check K10 */
 amhlyr /* K13 Check K10 */.

- New variables created during coding:
 aoifrsv G33a Sources of payments received - Redundancy and severance payments
 aoifrsva G33b Financial year, Redundancy and Severance payments (\$)
 aoifinh G33a Sources of payments received - Inheritance/bequests
 aoifinha G33b Financial year, Inheritance/Bequests (\$)

Deleted variables

- Current and financial year pensions: back-coded child care benefit has been deleted as it is asked at household level and is modeled for all eligible families (abncccb abncccba abncccbw abnfccb abnfccbh abnfccba abnfccbf abnfccbwb)

Renamed variables

- For consistency with subsequent waves, forms of childcare used for school-aged children HQ 7 and HQ 8; suffix for "not applicable - boarding school" changed from _np to _br (eg acsu1_np became acsu1_br)
- anlmtree F13 Main reason not looking for work in last 4 weeks renamed to ANLMRSN
- aujljrea (205) D20 Main reason stopped working renamed to AUJLJRSN

Documentation corrections

- All documentation updated
- Derived and imputed income variable labels rewritten
- Removed 'financial year' from label for top-coded current wages and salary; imputed version; and flag (awsce, awscei awscef)

APPENDIX 3: CHANGES TO THE DATA FROM RELEASE 1.0

Changes to wave 1 files

The changes to the wave 1 files provided in Release 2.0 (compared to Release 1.0) are listed below.

Cleaning

- Corrections to HF relationship grids and family type variables found during wave 2 fieldwork
- Removed 3 children from 1 household as they were correctly recorded in another household.
- Corrected wave 1 age and sex inconsistencies found during wave 2 fieldwork

Corrections in calculations

- Where mixture of years and months given, years additively calculated for
aehtjb 'DV: D3a Time in paid work (years)'/
aehtuj 'DV: D3b Time unemployed, looking for work (years)'/
aehto 'DV: D3c Time other than working or unemployed (years)'/.
- Corrected calculation of H22/H23 Days/nights spent with non-resident parent {for per 4 week period *13 (*12 had been used)}
- Corrected calculation, division by 52 not 12 for aehtuj D3b Time unemployed, looking for work (years)
- Highest level of education AEDHIGH : Some nurses with diplomas incorrectly set to Bachelors degree. Of 142, 113 now 'Undetermined'
- Family type: A small number of dependent students were incorrectly classified as non-dependent children
- Time lived in first defacto relationship (aordflt). Where mixture of years and months given, years additively calculated
- Income model and tax model completely revised. Release 1.0 income derived variables should be discarded.
- Per cent of financial year not in the labour force (acapnlf) now calculated for students (if not working and not unemployed)

New variables

- aoifref 'G33a Sources of payments received - Refused' and aesempst 'D10 Type of employee/employer' had been dropped from the person dataset. Now supplied
- Added 4 new duration of living arrangement variables
- aorcdur 'DV: Current defacto duration (years)'.
• amrcdur 'DV: Current marriage duration (years)'.
• amrwdur 'DV: Current widowed duration (years)'.
• amrsdur 'DV: Currently separated duration (years)'.
- Income unit
- Wealth variables

Renamed variables

- D12 aujmtu renamed to aujwku (as question asks weeks, not months), 'weeks' and 'year' appended to D12 labels
- Renamed variables in both files which had 2-digit suffixes to 2-letter suffix to allow for changes in questions over waves. This affects 652 HQ variables (questions Q4 Q7 Q8 Q10) 216 PQ variables and 83 SCQ variables (see attached table)

Documentation corrections

- Typographical error "arg11_12" corrected to "arg12_11" in marked-up relationship grid (Household Form)
- F2 Job search methods. Types of activity variable names ajsact06 to ajsact11 misnamed in Codeframe (incorrect number)
- Incorrect label in Rperson dataset (not documentation) for aujljt (label said 'occupation', now 'last employer')
- HF: Age variables incorrectly labeled in marked-up Household Form, ahfagt1 to ahfagt become ahgface1 to ahgface12
- First home owners (ahspown), codes swapped in codeframe (not marked up questionnaires)
- Family type (ahhfty01-ahhfty12) calculation codes 28,29, 99 listed in the codeframe are not in use in provided data

- Household expenditure on rent and groceries (axpgroc, axpfood, axposml and ahsfa) had inappropriate “Don’t Know” values (9999).
- Documentation and frequencies updated to reflect changes above

Self Completion Questionnaire

- 2 late-arriving SCQs added and matched to person dataset: (16810, 08765)
- New match for an SCQ (03750) which had been set to unmatched while awaiting clarification on handwritten correction to the person id
- Question B9, alsanh (neighbours helping each other out) and alsand (neighbours doing things together). Corrected variable names which had been swapped in supplied data.

APPENDIX 4: Little and Su Method

Formulae

The Little and Su method was implemented as follows:

(a) Column (wave) effects of the form

$$c_{hj} = \frac{\bar{Y}_{hj}}{\bar{Y}_h}$$

where $\bar{Y}_h = \frac{1}{m} \sum_j \bar{Y}_{hj}$

were computed for each wave $j = 1, \dots, m$, and for each age group $h = 1, \dots, c$, where \bar{Y}_{hj} is the sample mean of variable Y for wave j , age group h based on complete cases and \bar{Y}_h is the global mean of variable Y for age group h based on complete cases.

(b) Row (person) effects of the form

$$\bar{Y}_h^{(i)} = \frac{1}{m_i} \sum_j \frac{Y_{hij}}{c_{hj}}$$

were computed for both complete and incomplete cases. Here the summation is over recorded waves for case i ; m_i is the number of recorded waves; Y_{hij} is the variable of interest for case i , wave j , age group h ; and c_{hj} is the simple wave correction from (a).

(c) Cases were ordered by $\bar{Y}_h^{(i)}$, and incomplete case i is matched to the closest complete case, say l within age group h .

(d) Missing value Y_{hij} was imputed by

$$\hat{Y}_{hij} = \left[\bar{Y}_h^{(i)} \right] \left[c_{hj} \right] \left[\frac{Y_{hij}}{\bar{Y}_h^{(l)} c_{hj}} \right]$$

$$= Y_{hij} \frac{\bar{Y}_h^{(i)}}{\bar{Y}_h^{(l)}}$$

where the three terms in square parentheses represent the row, column, and residual effects, the first two terms estimate the predicted mean, and the last term is the stochastic component of the imputation from the matched case.

Example

Suppose we have the following small sample of fictitious responses to current wages and salaries.

All cases

OBS	Wages & Salaries		
	Wave 1	Wave 2	Wave 3
1		400	420
2	675	235	700
3	345	690	800
4	200	480	210
5	200		
6	350	370	
7	400	450	470
8	0	790	790
9	360	450	600
10	135	130	200

From this example, we see that observation 1 did not respond to the current wages and salaries question in wave 1, but provided responses in subsequent waves. Observations 5 and 6 also partially responded and wages and salaries information are not provided in all 3 waves.

The first step in the Little and Su method is to calculate the column effects based on complete cases only. Complete cases were defined as individuals that were interviewed in all 3 waves and responded in all 3 waves for the variable of interest. In this example, the complete cases are:

Complete cases

OBS	Wages & Salaries		
	Wave 1	Wave 2	Wave 3
2	675	235	700
3	345	690	800
4	200	480	210
7	400	450	470
8	0	790	790
9	360	450	600
10	135	130	200

The column effects are calculated using formula (a) above and are computed to be:

Column effects

OBS	Wages & Salaries		
	Wave 1	Wave 2	Wave 3
1		400	420
2	675	235	700
3	345	690	800
4	200	480	210
5	200		
6	350	370	
7	400	450	470
8	0	790	790
9	360	450	600
10	135	130	200
	0.70	1.06	1.24

The Little and Su method incorporates trend information into the imputed amounts via the column effects. In this example, the wave 1 column effect of 0.70 indicates that the mean current wages and salaries in wave 1 is 30% lower than the overall mean current wages and salaries, and the means in waves 2 and 3 are 6% and 24% higher than the overall mean, respectively.

Next, the row effects are calculated using formula (b) above and are computed to be:

Row effects

OBS	Wages & Salaries			
	Wave 1	Wave 2	Wave 3	
1		400	420	357
2	675	235	700	585
3	345	690	800	596
4	200	480	210	303
5	200			287
6	350	370		425
7	400	450	470	459
8	0	790	790	460
9	360	450	600	475
10	135	130	200	159
	0.70	1.06	1.24	

The sample is then ordered by the row effects, and the closest donor is identified.

Sorted by row effects

OBS	Wages & Salaries			
	Wave 1	Wave 2	Wave 3	
10	135	130	200	159
5	200			287
4	200	480	210	303
1		400	420	357
6	350	370		425
7	400	450	470	459
8	0	790	790	460
9	360	450	600	475
2	675	235	700	585
3	345	690	800	596

Once the closest donor has been identified, the missing value is imputed by multiplying the actual value for the variable of interest of the donor with the row effect of the recipient divided by the row effect of the donor.

In this example, the imputed current wages and salary amounts using the Little and Su method are highlighted below.

Impute missing values

OBS	Wages & Salaries		
	Wave 1	Wave 2	Wave 3
10	135	130	200
5	200	455	199
4	200	480	210
1	236	400	420
6	350	370	436
7	400	450	470
8	0	790	790
9	360	450	600
2	675	235	700
3	345	690	800