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### **The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Survey Methodology**

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## **Introduction**

This paper details the survey methodology employed for Wave 1 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey.

A brief description of the survey instruments is initially provided together with how these instruments were administered. Details of the sample design are then presented including a description of the reference population, sampling units and how the sample was selected. The subsequent sections detail the fieldwork procedures followed, the response rates obtained, and the data processing undertaken.

## Survey Instruments

The Wave 1 questionnaires were developed over a 12-month period. The Terms of Reference for the HILDA Survey, provided by the Department of Family and Community Services, contained a list of research questions that were used to guide the questionnaire content. Various academics and government departments provided comments on the survey instruments at several stages of the questionnaire development process. The survey instruments were operationalised through a three phased testing process by ACNielsen, the organisation contracted to undertake the data collection tasks for the HILDA Survey.

Four survey instruments were designed for Wave 1. These were:

- Household Form – which collected observations about the dwelling (for non-response analysis purposes) and basic information about household members for participating households;
- Household Questionnaire – which collected information about the household, including use of childcare and housing;
- Person Questionnaire – which collected detailed employment, income, family and background information from household members aged 15 years or over; and
- Self-Completion Questionnaire – which collected primarily attitudinal data from the people that completed the Person Questionnaire.

The Household Form was always the first form completed with a household, followed by the Household Questionnaire. Any adult member of the household could complete these two instruments, but a preference was stated for the interview to be conducted with the household member knowing most about the finances or with a group of people from the household (and including the household member knowing most about the finances). The childcare section of the Household Questionnaire could be deferred until the interviewer spoke with the person knowing the most about the household's child care arrangements. The Household Form and the Household Questionnaire together took approximately 10 minutes to complete.

After the non-child care questions in the Household Questionnaire had been completed, interviews were pursued with each person aged 15 years or over in the household. The Person Questionnaire took approximately 35 minutes to complete. The interviewer could return to the household over a number of days to complete these interviews. Once an individual completed the Person Questionnaire they were provided with the Self-Completion Questionnaire to complete in private. The interviewer returned to the household at a later date to pick up the Self-Completion Questionnaire. If the Self-Completion Questionnaire could not be collected, instructions were left with the respondent to return the Self-Completion Questionnaire by mail.

## 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.<sup>1</sup>

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.<sup>2</sup>

### 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 (i.e., 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;
- 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.

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<sup>1</sup> In future waves a distinction will be between continuing sample members (CSMs) and temporary sample members (TSMs). CSMs will remain in the sample indefinitely and include all members of wave 1 households. In addition all children born to a CSM and all new entrants who have a child with a CSM will be converted to CSM status. All other persons who join the sample in subsequent years are TSMs. If they cease living with a CSM they cease being a sample member.

<sup>2</sup> 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.

Note that individuals living in private dwellings attached to non-private dwellings, such as hospitals, motels and prisons (for example, motel manager, janitor, etc), and long-term residents in caravan parks were considered part of the reference population.

Residents of non-private dwellings such as hospitals, motels and prisons were excluded from the Wave 1 sample due to the increased operational complexities involved in obtaining interviews from such people.<sup>3</sup> Also, individuals living in remotely and sparsely populated areas were excluded due to the large travel costs involved in interviewing them. According to the ABS, this exclusion of remote and sparsely populated areas resulted in the loss of approximately 80,000 people from the reference population.

These coverage rules are broadly in line with those adopted by the ABS in the monthly Labour Force Survey supplements.<sup>4</sup> 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. The main reason for these differences reflects the focus of the HILDA on households rather than simply the individual members of those households. It thus makes no sense to exclude members of the permanent defence forces when other members of their household would be considered in-scope. Similarly, it was believed desirable to include children of household members who are away living in study-related accommodation into the sample. This is in line with the practice in the British Household Panel Survey (BHPS).

### **Sampling Units**

The sampling unit is the household. The household is also the enumeration unit for both the Household Form and Household Questionnaire. In contrast, the enumeration unit for the Person Questionnaire and Self-Completion Questionnaire is household members aged 15 and over.

The definition of a household applied in the HILDA Survey is very similar to that used by the ABS. That is, a household is “a group of people who usually reside and eat together”<sup>5</sup>. 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

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<sup>3</sup> In future waves, however, interviews will be sought with existing sample members who move into institutions.

<sup>4</sup> ABS, *Labour Statistics: Concepts, Sources and Methods* (ABS Cat. No. 6102.0), ABS, Canberra, 2001.

<sup>5</sup> ABS, *Statistical Concepts Library* (ABS Cat. No. 1361.30.001), ABS, Canberra, 2000.

incomes and have a common budget to a greater or lesser extent; they may be related or unrelated persons, or a combination of both.

The ABS makes several further observations about households that were operationalised in the HILDA Survey.

- A household resides wholly within one physical dwelling. A group of people who make common provision for food but are living in two separate dwellings are two separate households.
- The notion of pooling income may be implied by the definition but it is not an essential criterion in defining a household.
- Lodgers, who receive accommodation only (not meals), are treated as a separate household.
- Boarders, who receive accommodation and meals (board), are treated as part of the household.

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, such individuals were treated as members of sampled households provided they spent at least part of the year in the sampled dwelling.

### **Sample Selection**

The households were selected using a multi-staged approach. First, a sample of 488 areas was selected from across Australia (each of which consists of approximately 200 to 250 households). Within each of these areas, a sample of 22 to 34 dwellings was selected, depending on the expected response and occupancy rates of the area. Within each dwelling, up to three households were selected to be part of the sample.

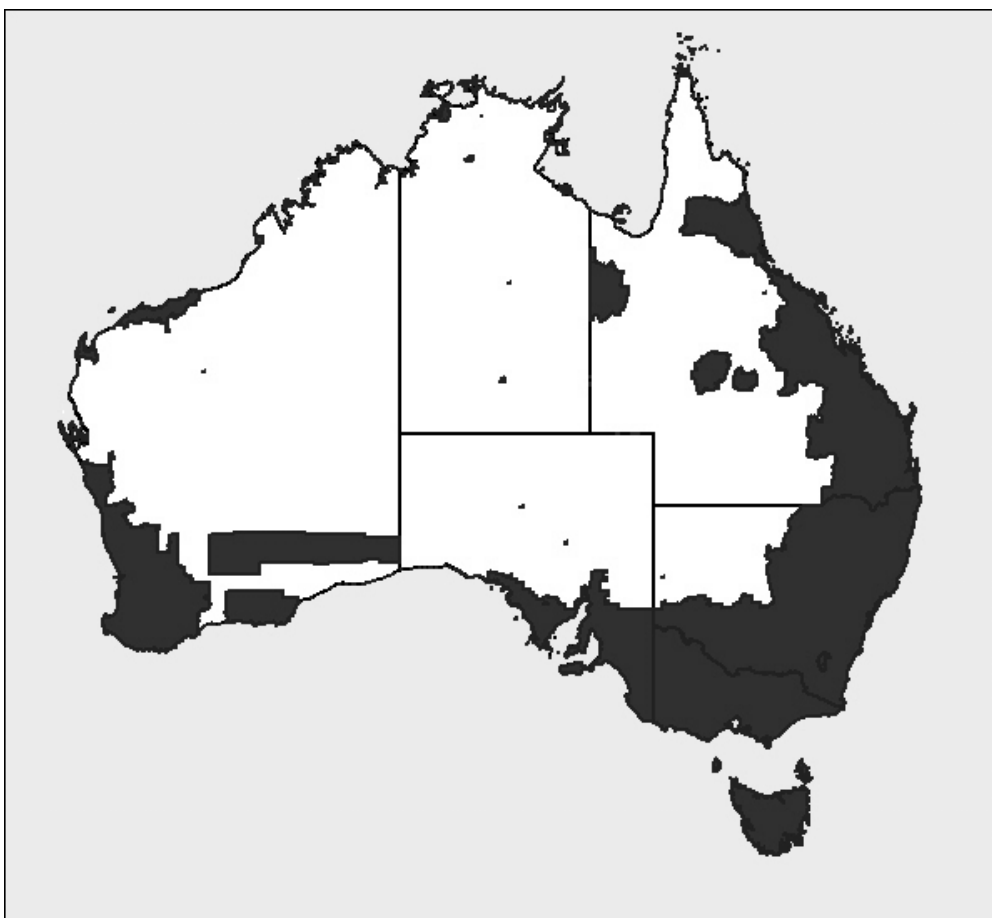
#### *Stage 1: Area Selection*

The list of 1996 Census Collection Districts (CDs) formed the area-based frame from which 488 CDs were selected. This frame excluded CDs that had zero land area (usually used for homeless people or off-shore/migratory people) or were remote or

sparsely populated.<sup>6</sup> Figure 1 highlights the areas from which CDs were selected (the dark shaded areas).<sup>7</sup>

The frame of CDs was stratified by State, and within the five largest States in terms of population, by metropolitan and non-metropolitan regions. Despite the region-based stratification, however, the smaller States and Territories were not over-sampled. This reflects both the focus of the HILDA on producing nation-wide population estimates, and our view that any benefits from a differential probability approach to sampling are outweighed by the negative impacts on overall statistical efficiency.

**Figure 1: Areas from which CDs were Selected**



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<sup>6</sup> The ABS provided a list of CDs that were defined as remote or sparsely populated for the monthly Labour Force Survey supplements. These CDs were excluded from the area-based frame used to select the HILDA sample.

<sup>7</sup> Areas that had a chance of being included in the sample that may be difficult to identify in this chart include: Broken Hill, Mt Isa, Charters Towers, Longreach, Barcaldine, Coober Pedy, Roxby Downs, Peterborough, Broome, Kalgoorlie, Coolgardie, Esperance, Carnarvon, Exmouth, Roebourne, Port Headland, Newman, Darwin, Katherine, Jabiru, Tennant Creek, and Alice Springs.



The CDs were sampled with probability proportional to their size as measured by the number of dwellings (unoccupied and occupied) recorded in the 1996 Census. Adjustments for the population growth that has occurred since the last Census could not be made. While the ABS had building approvals data that could have been used to make some crude growth adjustments, the Melbourne Institute could not gain access to this information at the detail required. However, since all dwellings within the selected CDs were listed as part of the sample selection process (as discussed below), we can correctly calculate the probability of selection of households where CDs have increased or decreased in size since the 1996 Census. The inaccuracies of the area frame information will, therefore, be reflected in the variability of the design weights.

To ensure the sample of CDs selected provided good coverage of the CDs in the frame, the CDs were sorted by statistical sub-division and section of State. Within each of these groups, the CDs were sorted into geographical (or serpentine) ordering based on the centroid of the CDs. Using a random start, a systematic selection of CDs was then undertaken by staff at the Melbourne Institute. The total number of CDs selected across Australia, by region, is provided in Table 1.

**Table 1: Number of CDs selected by Region**

	<i>Total</i>	<i>Metropolitan</i>	<i>Non-metropolitan</i>
New South Wales	164	99	65
Victoria	121	85	36
Queensland	90	40	50
South Australia	42	30	12
Western Australia	46	34	12
Tasmania	14		
Northern Territory	4		
Australian Capital Territory	7		
<b>Total</b>	<b>488</b>		

### *Stage 2: Dwelling Selection*

ACNielsen used a specifically trained team of interviewers to visit each selected CD and provide a full listing of the dwellings from which dwellings were selected for the Wave 1 sample. The interviewers followed a predetermined route around the entire CD to list all dwellings they came across. Particular attention was paid to ensure that all dwellings had an equal probability of selection, including granny flats, flats, residential warehouses and battleaxe properties.

As mentioned above, the full listing allowed an accurate probability of selection to be calculated, and this is particularly important where the CDs have increased or

decreased in size since the 1996 Census. There were, for example, 12 CDs where the current dwelling count was more than 20 per cent lower than the Census count, and 52 CDs where the current dwelling count was more than 40 per cent higher than the Census count.

The actual number of dwellings selected within each CD varied depending on projected variations across CDs in response rates and in occupancy rates. The response rate assumptions were based on ACNielsen's experience with survey response rates within the metropolitan and non-metropolitan areas of each State. The occupancy rates are based on the 1996 Census occupancy rates, with the additional qualification that no more than 10 additional selections could be added to cover the expected number of unoccupied dwellings.<sup>8</sup> Given a targeted average of 16 responding households per CD, this meant the selected sample had to be large enough to generate 23 occupied in-scope dwellings per CD.<sup>9</sup> The average number of selected dwellings was thus 25.<sup>10</sup>

The selection of dwellings from those listed occurred as follows. The initial dwelling was selected at random from the list of dwellings in the area. A skip of five in urban areas and two in rural areas was then applied to select the remainder of the dwellings required for the area. This ensured that the cluster of dwellings selected from each CD was sufficiently spread out across the CD while not generating large travel costs.

A total of 12,252 dwellings were selected. Of these, close to 11,200 were expected to be in-scope. With an expected response rate of 70 per cent, this meant interviews with around 7800 households and, assuming an average of two in-scope respondents per household, 15,500 individuals.

While the listing typically took place well in advance of the fieldwork, for 18 CDs the listing occurred just prior to the fieldwork commencing. After the interviewer had completed the listing task, the office gave them the start point, the skip pattern and the total number of dwellings to select. The interviewers needed to travel a substantial distance (either by car or plane) to reach these areas.

For five of the more remote CDs selected that were extremely large in size, a block selection stage was used so that the entire CD did not have to be listed. For each of these areas, a satellite map which details the buildings in the CD was used to divide the CD into blocks with an approximately equal expected number of dwellings in each. A sample of these blocks was selected for full block listing. A sample of dwellings was then selected from these listings in the usual manner. Using this auxiliary information on the number of expected dwellings in each block avoids the

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<sup>8</sup> There were only 12 CDs affected by the capping of the increase in sample for unoccupied dwellings. These CDs had relatively low occupancy rates, ranging from 30-70 per cent. The expected achieved cluster size in these CDs was between 6 and 15.

<sup>9</sup> The number of responding households targeted within each CD was considered. An analysis of 1996 Census data, however, revealed that given the cost structure of the data provider (ACNielsen) and the available budget, an achieved cluster size of 14 to 16 households provided the best accuracy for unemployment estimates.

<sup>10</sup> In the main, the number of selected dwellings ranged from 22 to 34, and the expected number of occupied dwellings ranged from 21 to 25. There was one CD where the number of selections was revised due to a dramatic fall in the number of dwellings listed compared to the Census count.

biases introduced when defining blocks by the area they cover (such as over-sampling dwellings with large land areas and under-sampling dwellings with small land areas).

### *Stage 3: Selection of Households Within Dwellings*

Where a dwelling contained three or fewer households, all such households were sampled. Where there were four or more households occupying one dwelling, a random sample of three households was obtained. Where there were four or more households occupying one dwelling, all households had to be enumerated at the time of first contact and a random sample of three households obtained (based on a predetermined pattern).<sup>11</sup>

### *Over-sampling*

There was some earlier debate over whether to over-sample CDs with particular characteristics, and in particular, CDs with relatively high concentrations of low-income households. Ultimately this was rejected. The reasons for this decision can be briefly summarised as follows.

First, the correlation between household income and location is not all that high. Consequently, the over-sampling proportions required in order to obtain a significant increase in the share of the sample accounted for by low-income households is extremely large, with obvious adverse consequences for effective sample size.

Second, over-sampling on income is not compatible with an indefinite life panel design. The main purpose of over-sampling low income groups is presumably to follow transitions out of low-income states. Since income is not fixed, this is best facilitated by a short- to medium-life panel, such as the ABS Survey of Employment and Unemployment Patterns, or even better still, by a medium-life panel with rotating samples, such as the Canadian Survey of Labour and Income Dynamics. With this type of design, new low-income sub-samples could be added with each cohort. In contrast, with the indefinite life design the number of households that will experience low-income states at some point during the panel will gradually accumulate. Consequently, the need for over-sampling will diminish with time.

Third, it is generally agreed that “over-sampling to meet an objective identified at the start of a panel may prove harmful to objectives that emerge later” (Kalton and Citro 2000, p. 45).<sup>12</sup> That is, it was deemed preferable to allow the HILDA Survey to serve a broad ranging agenda rather than focus too narrowly on one sub-group within the population, even though they may be of immediate policy interest.

Consideration was also given to differential sampling of households across the States and Territories. This idea was also rejected. First, there was very little interest in State-based estimates. Second, reliable State-based estimates would require significant injection of sample into the smaller States away from the larger States,

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<sup>11</sup> Of all dwellings where contact was made, there were only 10 where there were more than three separate households.

<sup>12</sup> Kalton, G. and Citro, C.F., ‘Panel Surveys: Adding the Fourth Dimension’, in D. Rose (ed.), *Researching Social and Economic Change: The Uses of Household Panel Studies*, Routledge, London, 2000.

resulting in a less efficient sample at the national level. It is expected that the HILDA Survey will be used, in the first instance at least, to address Australia-wide research issues rather than State-based issues.

#### *Expected Accuracy of Estimates*

Calculations were undertaken prior to Wave 1 being conducted to determine the level of accuracy that could be expected from the HILDA Survey. Tradeoffs between the sample size, the level of clustering, and the accuracy of the estimates were considered within the available budget. A summary of expected relative standard errors for estimates of different size is provided in Appendix 1. Overall we were of the opinion that expected relative standard errors were not large and compare favourably with other household surveys once differences in sample sizes are accounted for.<sup>13</sup>

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<sup>13</sup> The sample of private dwellings used by the ABS in its Monthly Population Survey, for example, numbers around 30,000.

## **Fieldwork**

### **Interviewers**

A total of 139 interviewers were used for the Wave 1 fieldwork. All interviewers were required to have had at least 100 hours of face-to-face fieldwork experience prior to working on the HILDA Survey. Most of the interviewers were more experienced than this and many had past experience with social surveys.

Fieldwork manuals were used by supervisors and interviewers to ensure the fieldwork was conducted in a consistent manner. These manuals were developed though the pilot testing phase (see below) and sought to address all the issues likely to face interviewers in the field.

All supervisors and interviewers working on this survey attended a two-day project briefing session conducted by ACNielsen. A total of nine briefing sessions were conducted in five capital cities around Australia. These briefing sessions covered the aims of the survey, fieldwork procedures, questionnaire content, and strategies to maximise response rates. In addition to this training, the less experienced interviewers were provided with an extra half-day of training, which focused on refusal aversion.

### **Fieldwork Process**

#### *Pilot Testing*

The Wave 1 Pilot was used to test both the questionnaire and the field procedures. The pilot incorporated three stages of testing: a skirmish; a pre-test; and a dress rehearsal.

Each progressive stage of the Pilot tested the questionnaires and procedures in more depth. The Skirmish principally involved testing the flow of the questionnaires and identifying problematic questions. The Pre-testing provided some information on the questionnaire length, further identified problems with specific questions and with the sequencing of questions, and highlighted areas that needed further attention in the interviewer training. The Dress Rehearsal provided accurate questionnaire lengths and tested all procedures to be used in Wave 1.

#### *Data Collection Mode*

In Wave 1, the vast majority of the data was collected though face-to-face interviews. All Household Forms and Household Questionnaires were completed on a face-to-face basis. While most of the Person Questionnaires were completed face-to-face, 0.3 per cent were conducted by telephone. Of the individual interviews conducted, 3.6 per cent were done in the presence of a third party who assisted in the communication between the respondent and the interviewer. Telephone interviews and assisted interviews were conducted to ensure a high response rate, and were only used as a last resort.

The use of proxy interviews was considered, but was rejected. This would have involved a third party answering on behalf of the sample member and would have been used when the sample member was unable to be interviewed because they were

too busy, away or ill. However, the use of proxy interviews was abandoned due to the complicated consent process that would have been required and the more limited nature of the information that could have been collected via this means.

The use of Computer Assisted Personal Interviewing (CAPI) was investigated with all the tenderers for the HILDA fieldwork, but was discarded for several reasons. First, the tender responses obtained suggest that CAPI is not widely used by Australian fieldwork companies. Second, the cost of implementing CAPI was substantial. Third, the potential for data loss was relatively high. It was estimated that the data loss would be about 1 to 2 per cent (which translates to the loss of 80 to 160 household interviews and 160 to 320 personal interviews per wave).

### *Timeline*

The fieldwork for Wave 1 primarily occurred between 24 August 2001 and 21 December 2001. Some additional calls were made to a very small proportion of households between 10 January and 23 January 2002. This additional fieldwork period was mainly due to the difficulties completing two areas in rural NSW involving an ill interviewer.

### *Survey Notification Material and 1800 Telephone Help Line*

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.<sup>14</sup> This pre-interview material marketed the survey to respondents as a study about 'Living in Australia' and covered:

- the purposes of the survey;
- who was conducting the research;
- who was collecting the data;
- how the household was selected;
- what was involved in participating in the survey;<sup>15</sup>
- the cash incentive offered;
- privacy issues; and
- how to contact ACNielsen with any questions about the survey.

The brochure stated that participation was voluntary and provided a means for sample members to opt out of the survey.

ACNielsen maintained a 1800 telephone help line during the fieldwork period from 8am to 8pm to handle queries from selected households concerning the survey. A total of 1260 calls were received during Wave 1, and 431 resulted in the household opting out of the survey. The remainder of the calls were divided between queries about the survey and messages for the interviewer.

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<sup>14</sup> For the 18 CDs where the listing occurred just prior to interviewing) the primary approach letter and the brochure were hand delivered to the selected households on the first call attempt.

<sup>15</sup> The brochure stated who would be interviewed and what topics would be covered. It said that the individual interview would take around 30 minutes, which was the expected median interview length. The brochure also indicated that, as the survey was about change, an interview would be sought with them in the following year.

### *Respondent Incentives*

As a result of the achievement of lower than expected response rates in both the Pre-Test and Dress Rehearsal, the response rate strategy for Wave 1 was substantially revised. The most significant component of this revised strategy was the introduction of cash incentives to respondents. 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. This type of incentive would have had the maximum benefit if it could be provided to respondents on the doorstep when they complete the interview. However, for operational and security reasons, cheques were posted to responding households following the finalisation of interviewers' workloads.

### *Call Routine*

The fieldwork was split into two distinct stages – an initial fieldwork period and a follow-up. During each phase interviewers were required to make at least six calls, if needed, to all selected households until a final household outcome was achieved (i.e. an interview, a refusal, etc). These calls were made on a minimum of five different days, not all of which could be consecutive. Typically three calls were made on weekdays and at least three calls were made on weekends. A mix of daytime and evening times were used, unless the interviewer was keeping an appointment made with individuals in the household.

### *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.<sup>16</sup> There were, however, 30 cases where a professional interpreter accompanied the interviewer. This resulted in interviews being completed in a language other than English in 12 households.

### *Follow-Up and Refusal Conversion*

As noted above, the fieldwork for Wave 1 was conducted in two stages. The first stage involved the interviewer working in an area (or CD) over a three-week period. They called each selected household according to the specified call-back pattern. This achieved approximately 65 per cent of the interviews from each area.

The remainder of each workload was consolidated into intensive follow-up workloads and reassigned to the most experienced interviewers. They again called at each of these households according to the specified call-back pattern, but concentrated into a two-week period (though there were many instances where the interview period was extended to a third week). These interviewers obtained the remaining 35 per cent of the interviews from each area. Where the first interviewer may have encountered some resistance or reluctance to participating in the survey, the second interviewer may have succeeded simply because they were more experienced in dealing with the

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<sup>16</sup> A total of 304 individual interviews were assisted by a third party as a result of English language difficulties.

concerns of the potential respondent, or because they had called at a better time for the respondent.

### *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.

During the Wave 1 fieldwork, the interviewers checked the completed questionnaires on a daily basis to make sure they had collected all the appropriate information from the respondent and that the information was consistent. Where necessary they clarified any inconsistencies with the respondent before returning the forms to the office for data entry.

The methods adopted to ensure and validate that the interviewers followed the correct procedures when pursuing contact with households included:

- Regularly monitoring information about each interviewer with respect to response rates and progress against the fieldwork schedule. This resulted in some on-the-job coaching and training being provided to interviewers achieving low response rates.
- Reallocating workloads of under-performing interviewers to better interviewers.
- Scrutinising the work returned by interviewers and providing them with feedback, especially on the quality of the data collected, the detail recorded in the open-ended questions, the sequencing through the questionnaire and the call routine adopted.

Supervisors re-contacted respondents to validate a minimum of 10 per cent of the questionnaires completed by each interviewer. The supervisors validated a selection of questions with the respondent as well as questioning any discrepancies identified in the provided information. Had any major discrepancies been identified in the interviewer's work, the affected workload would have been replaced with a new sample.<sup>17</sup>

### **Response**

A summary of the outcomes of the Wave 1 fieldwork is provided in Tables 2 and 3. Table 2 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 total household response rate is, therefore, 66 per cent.

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<sup>17</sup> Fortunately, such action was not required.



**Table 2: Wave 1 Household Outcomes**

<i>Sample outcome</i>	<i>Number</i>	<i>%</i>
Addresses issued	12,252	
<i>Less</i> out-of-scope (vacant, non-residential, foreign)	804	
<i>Plus</i> multi-households additional to sample	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 3: Wave 1 Person Outcomes**

<i>Sample outcome</i>	<i>Number</i>	<i>%</i>
<i>Enumerated persons</i>	<i>19,917</i>	
Ineligible children (under 15)	4,790	
<i>Eligible adults</i>	<i>15,127</i>	<i>100.0</i>
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

Out-of-scope dwellings comprised 7 per cent of the addresses approached in Wave 1 (which is two percentage points lower than the expected rate used in the sample design).

The person-level outcomes are provided in Table 3. Within the 7682 households interviewed, there were 19,917 people, resulting in an average of 2.6 people per household.<sup>18</sup> These people form the basis of the HILDA panel that will be followed over time. Of these people, 4790 people were ineligible for an interview in Wave 1 as they were under 15 years of age. Of the 15,127 eligible persons, 13,969 completed the Person Questionnaire.

Of the 13,969 people completing the Person Questionnaire, 13,159 completed and returned the Self-Completion Questionnaire. However, a small number of these SCQs – 104 – could not be successfully matched to a Person Questionnaire.<sup>19</sup>

While a future technical paper will discuss issues surrounding Wave 1 non-response, there are several points about the response rates that are worth being made here:

- The fieldwork for Wave 1 of the HILDA Survey was conducted in close proximity to the August 2001 Population Census (held on 7 August 2001). While the time taken to complete the Census form is minimal compared to the time involved in completing the various forms for the HILDA Survey, almost all people approached for the HILDA Survey would have been involved in the Census and had seen the numerous advertisements about participating in the Census. As a result, individuals may have been less willing to participate in another survey so soon after the Census, feeling that they have already participated in something for the government that would be for the ‘public good’.
- Due to the anthrax scare that occurred after 11 September 2001, some householders may have been unwilling to open the letters sent to them about the survey given did not know the sender. As a result, they would have been uninformed about the interviewer calling on them.
- A Federal election was held on 10 November 2001 and the affect this may have had on response rates is unknown. However, there were not any reports from interviewers to suggest that this had a large affect on response rates.

Despite the negative impact these external influences may have had, our view is that the response rates achieved are very good given the magnitude of the demand on the respondents’ time that participation in the HILDA Survey involved.

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<sup>18</sup> This is identical to the ABS reported figure, based on the 1996 Census, of 2.6 people per household in private dwellings (Australian Bureau of Statistics, *Household and Family Projections, Australia, 1996 to 2021*, ABS cat. no. 3236.0, ABS, Canberra, 1999).

<sup>19</sup> Interviewers were required to write the individual ID number on the SCQ and the SCQ serial number on the PQ form. Occasionally, however, mistakes were made, leading to the possibility of mismatches.

## Data Processing

### Data Entry

The data from the Household Form, Household Questionnaire and Person Questionnaire was manually entered into a database. The keyed numerical data was 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 was 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<sup>20</sup>) were applied:

- If a respondent marked two responses that were adjacent to each other, 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 across forms was checked. Any discrepancies were then investigated and resolved.

### Coding

The coding of the occupation and industry questions was done in the office prior to data entry. The Wave 1 Person Questionnaire contained four items that were coded to four-digit Australian Standard Classification of Occupation (ASCO):

- Occupation of father (B13);
- Occupation of mother (B16);
- Occupation of most recent job (D19); and
- Current occupation (E13).

There were also two items that were coded to four-digit Australian and New Zealand Standard Industry Classification (ANZSIC):

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<sup>20</sup> Ware, J.E., Snow, K.K, Kosinski, M. and Gandek, B., *SF-36 Health Survey: Manual and Interpretation Guide*, QualityMetric, Lincoln, Rhode Island, 1993, 2000.

- Industry of most recent job (D14); and
- Current industry (E16).

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. There were 15 items in the Person Questionnaire for which the codeframe was extended:

- Reason not living with own parents at age 14 (B2);
- Qualifications obtained (C7a);
- Qualifications currently studying for (C11a);
- Reason ceased working in last job (D20);
- Reason work part-time hours (E5);
- Activity undertaken to find work (F2);
- Reason for difficulty getting work (F6);
- Reason not looking for work (F12, F13);
- Deductions from current wages and salaries (G4c, G8c);
- Type of benefit currently received (G17);
- Deductions from wages and salaries in last financial year (G21c);
- Type of benefit received in last financial year (G31); and
- Reason for moving house (K14).

There were four items in the Household Questionnaire for which the codeframe was extended:

- Type of child care provider used for school children during term time (Q7);
- Type of child care provider used for school children between terms (Q8);
- Type of child care provider used for children not at school (Q10); and
- Type of landlord (R3).

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.

## Appendix 1: Expected Relative Standard Errors

The following provides an indication of the level of accuracy *expected* from the HILDA Survey based on the sample design implemented:

- Cross-sectional household level estimates of 10 per cent, were expected to have a relative standard error of 4.3 per cent. That is, the 95 per cent confidence interval for this estimate would be (9.2, 10.8). (This calculation assumes 7800 responding households and a design effect of 1.6.)
- Cross-sectional person level estimates of 10 per cent, were expected to have a relative standard error of 3.1 per cent. That is, the 95 per cent confidence interval for this estimate would be (9.4, 10.6). (Assumes 15,000 responding persons and a design effect of 1.9.)
- Longitudinal person level estimates of change of 5 per cent, were expected to have a relative standard error of 4.5 per cent. That is, the 95 per cent confidence interval for this estimate would be (4.6, 5.4). (Assumes 14,000 common responding persons and a design effect of 1.9.)

### *Concepts*

The design effect expresses how well the chosen sample design compares to a simple random sample of the same sample size. As the design effect increases, the smaller the effective sample size will be. The relative standard error is the standard error of the estimate expressed as a percentage of the estimate. For example, for an estimate of 10 percent with a standard error of 0.43 percent, the relative standard error is 4.3 per cent.

The *achieved* accuracy of the estimates cannot be determined until the sample has been appropriately weighted. However, the accuracy of the estimates is dependent on the achieved sample size and the effect of the sample design. The sample size is linked to the achieved response rates and attrition rates. The design effect is linked to the level of clustering used in the survey design, the accuracy of the frame information, the differing response rates of different groups in the population, and, for the person estimates, the degree of clustering of responses within households. The assumed design effect used in the above calculations is fairly conservative, but is expected to provide a reasonable guide to the level of accuracy that can be expected from this survey.