



DEPARTMENT OF  
**FAMILY AND  
COMMUNITY  
SERVICES**



THE UNIVERSITY OF  
**MELBOURNE**

## **HILDA PROJECT DISCUSSION PAPER SERIES NO. 1/00, DECEMBER 2000**

*[Revised February 2001]*

---

### **The Household, Income and Labour Dynamics in Australia (HILDA) Survey: An Introduction to the Proposed Survey Design and Plan**

*Mark Wooden and Nicole Watson*

---

**The HILDA Project was initiated, and is funded, by the Commonwealth  
Department of Family and Community Services**



## Introduction

Most industrial nations now conduct large-scale, representative household-based panel (i.e., longitudinal) surveys designed to collect a large amount of information about households and the members of those households.<sup>1</sup> Australia, however, is a notable exception. While longitudinal data collections do exist, they typically focus on relatively small sub-groups of the population. Included here, for example, are the Longitudinal Surveys of Australian Youth (LSAY), which follow samples of young people,<sup>2</sup> the Longitudinal Survey of Immigrants to Australia (LSIA), which is restricted to recent immigrant arrivals, and the Survey of Employment and Unemployment Patterns (SEUP), which had a focus on job seekers. Moreover, these surveys typically involve relatively short panels. For example, the SEUP covered just four years while the first LSIA cohort was followed over a three- to four-year period. Furthermore, the focus in all of these surveys was on individuals rather than households, and as such the data collected do not allow individual respondents to be linked to data on other related individuals. Even the Negotiating the Life Course Study, which commenced in 1997 and is intended to be long running, only interviews one person per household (though information about other household members is collected during the interview).<sup>3</sup>

Australian policy-makers and researchers thus do not have access to data that are both representative of the Australian population (or at least a significant proportion of it) and provide information on the dynamic nature of events and how they interact in influencing the changing behaviour and fortunes of Australian households, families and individuals. This has been consistently identified as a major problem in reviews of policy-relevant research literature in areas such as labour market research and social policy (e.g., Creedy 1994; Barr 1999, pp. 22-23; Norris and Wooden 1996, p. 107; Wooden 1997, pp. 262-263).

Assessing the extent of poverty in Australia, for example, has long been plagued by the problem that income varies over the life cycle and hence at any particular point in time, households and individuals may appear income poor, even though this would not appear to be reflected in their consumption behaviour. Conventional cross-sectional data are not well placed to help with this type of research question. Comparison of different cross-sections collected at different points of time typically requires the construction of synthetic cohorts, and while this type of analysis can offer valuable clues, it is ultimately flawed because we can never be sure that the cohorts

---

<sup>1</sup> Examples of large national panel studies conducted in other countries where the case unit is a household or some other similarly related unit (e.g., family) include: Survey of Labour and Income Dynamics (Canada); German Socio-economic Panel Study; Indonesia Family Life Survey; Korean Labor and Income Panel Study; the Dutch Socio-economic Panel; Swedish Panel Study of Market and Nonmarket Activities; Swiss Household Panel Study; British Household Panel Survey; and the Panel Study of Income Dynamics (USA). In addition, 15 European countries, including four of those referred to above, are currently part of the European Community Household Panel Study.

<sup>2</sup> This survey program combines and builds on the earlier cohorts within the Youth In Transition, Australian Longitudinal Survey and Australian Youth Survey programs.

<sup>3</sup> This study also suffers from at least two significant weaknesses in its design. First, the sample is relatively small, with just 2231 persons participating in Wave 1 (819 of whom were incorporated from the pre-test). Second, interviews are conducted relatively infrequently; every three years. In addition, the initial response rate was, at 52 per cent, not very high. For more details about this survey, see McDonald et al. (2000).

actually consist of the same people. Alternatively, retrospective histories could be collected from members of cross-sectional surveys. This type of approach, however, is very burdensome on participants and, more importantly, suffers from problems associated with how respondents recall events in their past. The obvious solution to this type of dilemma is to collect longitudinal data. Such data would, for example, facilitate a more accurate assessment of incomes from a lifetime perspective.

It is against this background that, in 1999, the Commonwealth Government committed funds for the conduct of the first three waves of a major new longitudinal survey. Titled the Household, Income and Labour Dynamics in Australia (or HILDA) Survey, its primary objective is to support research questions surrounding three broad and inter-related areas. These are:

- (i) income dynamics — with a particular focus on low-to-middle income households and their responses to policy changes aimed at improving financial incentives, and interactions between changes in family status and poverty;
- (ii) labour market dynamics — with a focus on low-to-middle income households, female participation and work-to-retirement transitions; and
- (iii) family dynamics — focusing on separation/divorce and social/economic status, and on any links between income support and family formation/breakdown.

The HILDA Survey is also expected to yield data designed to inform policy development in two major outcome areas for the Department of Family and Community Services (FaCS): economic and social participation and stronger families.

The management of the HILDA Survey was subsequently put out to tender, and eventually culminated in the project being awarded (in August 2000) to the University of Melbourne. More specifically, a team based at the Melbourne Institute of Applied Economic and Social Research is managing the HILDA Survey. The winning tender also involves the significant involvement of the Australian Council for Educational Research (ACER) and the Australian Institute for Family Studies (AIFS).

This paper, which represents the first in a Discussion Paper series that will accompany the development of the HILDA Survey, provides a preliminary outline of the survey design being proposed, as well as discussing other issues relating to the collection, processing and eventual dissemination of the data. Note that many (though far from all) aspects of the survey design and accompanying management plan are still far from finalised. This reflects the fact that aspects of the design, together with the survey instruments, are the subjects of testing and further development during the first half of 2001.

## **Survey Design**

### **Overview**

The panel design proposed here is based, in large part, on the design used in the British Household Panel Survey (BHPS).<sup>4</sup> Thus, like the BHPS, the sampling unit would be the household, and members of those households would be tracked over an

---

<sup>4</sup> Extensive documentation on the BHPS can be found on the world wide web at: <http://www.irc.essex.ac.uk/bhps/index.htm>.

indefinite life. Assuming participants can be traced each year and are prepared to cooperate, individuals would only drop out of the sample in the event of death, emigration from Australia, the acquisition of some disability that prevented further participation (such as the onset of dementia), and incarceration.<sup>5</sup>

However, and in contrast to the conventional longitudinal design involving a single cohort, in this design it is possible for the overall sample to grow. That is, the sample is automatically extended over time by following rules that add to the sample any new children of members of the selected households (including both biological and adopted children) as well as new household members resulting from changes in the composition of the original households.

Compared with other possible designs, such as a classic single cohort panel (e.g., the National Longitudinal Survey of Youth — NLSY — in the USA) or a repeated medium-life panel (e.g., the LSIA and LSAY in Australia, or the Survey of Labour and Income Dynamics — SLID — in Canada), this design is superior in terms of delivering high quality information about family, income and labour dynamics. The lengths of medium-life panels, for example, are often too short to provide an understanding of some of the issues and questions that of highest priority in the HILDA. A good example here is the impact of early work experiences on subsequent labour market careers as adults. There is considerable debate over the question of whether casual and part-time work experiences when young assist or hinder long-run employment prospects. As discussed in Wooden (1999, p. 34), most longitudinal data available in Australia that might assist researchers analyse this question simply do not track people over sufficiently long periods of time.<sup>6</sup> Gaston and Timcke (1999), for example, have attempted to analyse this question using data from the Australian Youth Survey, but were only able to consider transitions over a four-year period.

An important feature of the proposed design is the hierarchical nature of the data to be collected, wherein all individual participants can be grouped into a larger unit — the household. Household-based data sets thus permit analysis of the behaviour of both individuals and households (and indeed, other units of analysis are also possible; e.g., couples, families, income units within households).<sup>7</sup> Moreover, this data structure is ideal for the development and testing of models in which household characteristics and dynamics are thought to shape individual behaviour, and similarly where the characteristics and behaviour of individual household members are thought to influence outcomes observed for households.

### **Reference Population**

The reference population is essentially all residents of Australia who live in private households. That is, and consistent with most previous longitudinal surveys of this type (e.g., both the BHPS and the Panel Study of Income Dynamics [PSID]), the scope of the population for sample selection at the first wave will exclude most persons living in institutions (such as hospitals and other health care institutions,

---

<sup>5</sup> And in the later case, it would still be our intent to conduct interviews once the period of incarceration had come to an end.

<sup>6</sup> The possible exception here is the first cohort of the *Youth in Transition Survey* conducted by ACER, which tracked a group first surveyed at age 17 up to age 33.

<sup>7</sup> For a discussion of the relationship between households and other types of statistical units, see ABS (1995).

military and police installations, correctional and penal institutions, convents and monasteries, and boarding schools) and most other non-private dwellings (such as hotels and motels).<sup>8</sup> So as to ensure that all members of the in-scope population have the same probability of selection, dwellings which are not primary places of residence (e.g., holiday homes) will also be excluded.

For cost reasons, persons who live in remote and sparsely populated areas will also be excluded from the sample. The Australian Bureau of Statistics (ABS) adopts the same practice in its supplements to the monthly Labour Force Surveys. This exclusion results in about 80,000 persons being omitted from the scope of the survey.

Note that while all members of the household would be defined as members of the sample, interviews would only be conducted with those persons who are at least 15 years of age (on June 30 in the year the survey wave commences). Some limited information about younger persons (e.g., their date of birth, sex, presence of long-term health conditions or disabilities, and contact arrangements with parents if parents separated), however, will be collected from an appropriate adult member (i.e., parent / guardian) of the household.

### **Data Collection Unit**

The data collection unit is the household. Following the ABS, this is broadly defined as “a group of people who usually reside and eat together” (ABS, *Statistical Concepts Library*, ABS Cat. No. 1361.30.001). The ABS goes on to clarify 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.

The ABS makes the further observations about households.

- 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.
- 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.

---

<sup>8</sup> Note that long-term caravan park residents are treated as residing in private dwellings.

In general, persons who live in more than one household will only be treated as members of the household where they spend most of their time.

It is expected, however, that we will vary from the ABS practice in how children attending boarding schools and halls of residence while studying are treated. Specifically, while these dwellings are out of scope, such individuals will be treated as members of sampled households provided they spend at least part of the year in the sampled dwelling. This will mean that some interviews will need to be conducted in locations other than at the household address.

Note that just because the unit of data collection is the household does not mean that the unit of analysis will also be confined to the household. As Creedy (1994, p. 63) has emphasised, since household composition will change over time, researchers will typically use the individual as the unit of analysis, attributing to individuals the characteristics of the household in which each person lives (see also Duncan and Hill 1985). Indeed, in terms of tracking sample participants over time, it is the individual that is the most relevant unit.

### **Sample Representativeness and Following Rules**

One often claimed weakness of the type of design proposed here is that over time the sample becomes increasingly less representative of the population. One reason for this is that the nature of the sample changes systematically through attrition. The experience with the PSID, possibly the world's most well known household panel (and certainly one of the longest running), however, suggests that in well-managed surveys, such concerns take a very long time to assume significant proportions. Fitzgerald, Gottschalk and Moffit (1998), for example, have shown that 21 years on, and despite a loss of 50 per cent of the original sample, the sample still retained its cross-sectional representativeness.

This outcome, however, was no accident, and reflects the presence of following rules that ensure that the sample replaces itself in the same manner as the population (Duncan and Hill 1989). In the BHPS, for example, persons not included in the first wave but who subsequently became members of households containing an original sample member (e.g., as a result of birth or marriage, or because of other changes in household composition and formation) become eligible for sample inclusion. We propose to adopt similar following rules in implementing the HILDA.<sup>9</sup>

Essentially, eligibility for sample inclusion after Wave 1 can occur in the following ways.

- (i) A child is born to, or is adopted by, an 'original' or 'continuing sample member'. This child automatically counts as an original sample member and information about that child will be collected from parents until age 15 (after which they too will become eligible for interview).

---

<sup>9</sup> An excellent exposition of the following rules used in the Canadian panel, SLID, can be found in Michaud and Saint-Pierre (1994). Note again that the SLID uses a medium-life panel design, with sample members only followed for six years.

- (ii) An original sample member moves into a different household with one or more new people. These new people will now become eligible for interview, but are only treated as ‘temporary sample members’.
- (iii) One or more new people move in with an original sample member. Again, these new people will now become eligible for interview, and are counted as temporary sample members.

All temporary sample members remain in the sample for as long as they remain in the same household as the original sample member. Temporary sample members, however, are converted to continuing sample members if they become the parent of a new original sample member birth.

As in the BHPS, we would expect that all continuing sample members would be traced and followed in subsequent waves, including persons who move into institutions. The only exceptions here would be those persons who cease to have residence in Australia or are in prison at the time of the interview. These sample members, however, may still be interviewed at subsequent waves should their status change (i.e., they return to Australia or are released from prison). Temporary sample members, on the other hand, are only followed for as long as they remain living with, or are converted to, a continuing sample member.

Other potential problems with the representativeness of the sample relate to the treatment of:

- (i) persons with illness conditions and disabilities that render them unable to be interviewed;
- (ii) persons with English language difficulties; and
- (iii) recent immigrants.

The first problem will be addressed mainly through obtaining assisted and proxy interviews. That said, it is recognised that there is likely to be little value in persisting with interviews of elderly persons who, because of age-related conditions, are unable to participate meaningfully in the interview, and where there is little prospect of any improvement in their condition. The second problem will be handled through the use of bilingual interviewers, though financial considerations mean that foreign language interviewing will only be available for a handful of the most common languages. The third problem is even more difficult to address, though in the short- to medium-term it is not expected that the under-representation of recent immigrant arrivals will seriously bias the representativeness of the sample. In the longer-term serious consideration will need to be given to adding a ‘refresher’ sample of recent immigrant arrivals.<sup>10</sup>

---

<sup>10</sup> Immigrant refresher samples have been added to both the PSID and the German Socio-Economic Panel. In both cases, however, these new samples were not considered warranted until after the survey had been running for many years. The German study commenced in 1984 with the immigrant refresher added in 1994 and 1995. The PSID has been running since 1968 and the new immigrant sub-sample was only added in 1997 (though a Latino supplement was added in 1990 only to be discontinued five years later).

## **Interview Frequency**

Interviews will be conducted on an annual basis, at least during the first three years of the survey. This seems to be accepted international practice.

The main weakness with annual surveys, of course, is that the data collected may provide only limited information about dynamics that occur within the year. That is, while it will provide detailed, high quality data about the situations of households and their members at yearly intervals, it is less likely to provide detailed information about changes in status and behaviour between interviews. For example, many people who commence an unemployment spell exit unemployment within six months of entering it.<sup>11</sup> Further, many (about one quarter of job seekers in the year ended February 1999) experience more than one spell of unemployment within the year. Given these dynamics, there is a danger of missing a significant amount of important information with survey dates a year apart. The main way we propose to handle this is through asking questions at each wave about the labour market and social security histories of the respondents over the course of the previous year.

## **Proxy Interviews**

While every attempt will be made to avoid proxy interviews, these will be needed where eligible sample members are incapable of responding, either because of illness or some other incapacity (e.g., poor hearing) or because they are unable to make themselves available for interview. It is not expected, however, that the number of proxy interviews conducted would exceed more than five per cent of the total number of interviews.

## **Data Collection Mode**

In general, international practice is that during the first few waves at least, panel surveys are conducted on a face-to-face basis.<sup>12</sup> Face-to-face interviewing is generally thought to be more successful in eliciting cooperation, which is vital during the earliest years of the panel when sample member identification with the study is still developing.<sup>13</sup> However, as noted earlier, the budget for this study together with the expected sample size precludes conducting face-to-face interviews in all three waves.

---

<sup>11</sup> According to data from the ABS Survey of Labour Force Experience for the year ended February 1999 (ABS cat. no. 6206.0), 64 per cent of persons who had been looking for work during that year spent less than 6 months of the year engaged in job search. These data, however, will understate unemployment duration given they do not pertain to completed spells of unemployment.

<sup>12</sup> The Swiss Household Panel Study is a notable exception.

<sup>13</sup> Response rates in surveys employing face-to-face interviews have generally been found to be higher than surveys using other methods. In a meta-analytic review involving 28 different studies where telephone and face-to-face methods were compared, de Leeuw and van der Zouwen (1988) reported an average response rate for face-to-face interviews of 75 per cent. This compared with an average of 69 per cent for the telephone interview method. Further, both Australian and UK evidence suggests that the gap may be even greater (Collins et al. 1988, Donovan et al. 1997). Indeed, in the Australian study reported by Donovan et al. (1997) the reported response rates for telephone interviews was just 46 per cent, compared with 57 per cent for face-to-face interviews. Note, however, that a lower response rate does not necessarily mean lower quality data. The meta-analysis reported by de Leeuw and van der Zouwen (1988), for example, found small differences between face-to-face surveys and telephone surveys on five indicators of data quality (response validity, absence of social desirability bias, item response, amount of information and similarity of response distributions).



The most likely scenario, therefore, is that face-to-face interviews will be conducted in Wave 1 followed by computer assisted telephone interview (CATI) in subsequent waves.

### *Face-to-face Interviewing versus Telephone Interviewing*

Apart from eliciting greater rates of respondent cooperation, use of face-to-face interviews provides other advantages. First, more difficult questions that are not easily asked over the telephone can be posed with the use of show cards and other visual aids. This is of particular significance to the HILDA Survey given the difficulties likely to be associated with collecting income data, and especially the components of income, over the telephone. Second, face-to-face interviews provide more opportunity for respondents to check records to verify their answers. Third, compared with CATI, more data can be collected with a face-to-face interview (i.e., direct face-to-face contact tends to be associated with greater interviewee attention, thus facilitating the collection of more accurate data over longer interviews).

The main downside of face-to-face interviewing is that it is much more expensive and thus will mean a smaller sample size. As a consequence, the data may not provide sufficient numbers of observations to analyse important sub-groups within the population, including those of particular interest to the Commonwealth (i.e., persons in receipt of certain types of benefits). Other disadvantages include:

- (i) greater difficulties supervising interviewers and hence maintaining 'control' over the interview process;
- (ii) respondent discomfort arising from the physical presence of strangers within the home; and
- (iii) a loss of statistical efficiency from having to use a clustered design.

### *A Mail-out Supplement*

Given the telephone is used as the main mode of data collection in Waves 2 and 3, there may be considerable value in administering a supplementary mail-out questionnaire.

As discussed above, telephone-based surveying constrains the amount of data that can be collected and the complexity of information sought. This problem might be avoided by sending all respondents an additional self-completion questionnaire. The main weakness with this approach is that it adds an additional element of non-response. That is, in addition to unit non-response, we now have a much greater likelihood of item non-response. In this case the non-response arises not because sample members refuse to answer specific questions, but because they fail to complete or return the mail-out questionnaire. It is well accepted, for example, that response rates are lower for mail-out surveys than other survey methods.

## **Sampling Issues**

### *Sampling Frame*

The first choice faced in any sample is that of the sampling frame. The use of face-to-face survey methods in Wave 1 dictates some form of direct physical sampling (face-to-face interviewing usually requires a cluster sample to minimise travel costs), which

in turn almost always involves a cluster sample design. Typically, cluster locations are chosen using the most recent Census to determine the probability of sampling within each Census Collection District. Then a set of dwellings is enumerated within the Collection District and the sample is drawn from them. Ideally, the enumeration would occur prior to the interviewing (as is done in the NLSY in the US).

Cluster sampling does lose some statistical efficiency compared with unclustered designs (such as are possible with telephone surveys). This is minimised by keeping the clusters as small as the budget permits. In regions of very low population density, however, clustering may mean that isolated households have no practical chance of selection. Finally, the task of physically selecting dwellings has become more difficult in recent years due to increases in the incidence of security systems.

### *Stratification*

Only limited stratification of the sample is being proposed — by State, and within States, by metropolitan and non-metropolitan regions. Furthermore, despite the region-based stratification, it is not intended that the smaller States and Territories will be over-sampled. This reflects the focus of the HILDA on producing nation-wide population estimates.

Nevertheless, there has been some discussion over whether some specific regions, and especially regions where low-income households are heavily concentrated, should be over-sampled. The case for such over-sampling is based on two main arguments. First, these groups are of greatest interest for social policy development. Second, attrition and non-response is generally expected to be relatively high among low-income groups. However such methods tend to provide only limited improvements in the sampling of small subgroups unless the sampling distortions are major, an approach that may severely impact upon the statistical efficiency of the overall survey. It has, therefore, been decided to avoid any complex differential probability approach to sampling.

### *Sample Size*

It is hoped that the achieved sample in Wave 1 will be upwards of 8000 households, which would make it considerably larger than the initial sample sizes in many other studies of this type, including the PSID, the BHPS and the German Socio-Economic Panel (GSOEP). Sample size, however, will depend on the cost structure of the fieldwork provider, which is yet to be appointed.

## **Expected Response Rates**

### *Wave 1*

Non-response is a potential problem for all surveys for at least three reasons. First, if non-respondents have distinctly different characteristics from respondents then the survey data will generate biased estimates of population parameters.<sup>14</sup> Second, non-

---

<sup>14</sup> That said, the evidence from most major household panels (such as the PSID) indicate that, despite initial non-response rates of between 24 and 31 per cent (depending on who is included in the denominator), the characteristics of respondents are in line with population benchmarks, with

response reduces sample size and hence increases the variance of survey estimates. Third, efforts to reduce non-response increase survey costs which, given a fixed budget, again means a reduced sample size. In addition, low response rates (and high attrition rates) are also problematic in that they have the potential to seriously undermine the legitimacy of the survey findings.

Non-response can basically take two forms: unit non-response and item non-response. Unit non-response refers to the failure to collect any data from a sample member, while item non-response refers to the failure of a cooperating sample member to provide responses on all items of information sought. It is unit non-response that is of most concern here. This type of non-response is, in turn, the result of two basic types of events — the failure to make contact with a selected sample member or a refusal by a sample member to participate.

International experience with face-to-face interviewing suggests that achieving an initial response rate in excess of 75 per cent in a survey of this type will be very difficult.<sup>15</sup> For example, in the first wave of the BHPS (conducted in 1991) at least one interview was completed at 74 per cent of eligible households, with complete coverage of eligible adults achieved in 69 per cent of households. Similarly, at the commencement of the PSID, 76 per cent of households were reported being successfully interviewed in the first year (Brown, Duncan and Stafford 1996, p. 158).<sup>16</sup> Even lower response rates were reported for the GSOEP — just 61 per cent for their initial West German sub-sample.<sup>17</sup>

It also needs to be borne in mind that across the world, survey organisations are reporting greater difficulty maintaining high response rates than in the past. For example, a new 7000 households were added to the GSOEP in 2000, and early indications are that the achieved response rate will be just 55 per cent. Singh (1995) suggests that such trends reflect the greater use of surveys, changes in living patterns and greater suspicion of strangers.

Whatever the reason, it may not be reasonable to expect the same sorts of response rates achieved in other past surveys. That said, there are recent examples where high response rates have been achieved, but only where considerable resources and efforts are devoted to promoting high rates of response. The NLSY is perhaps the best example, with the first wave response achieved for its 1997 cohort being 92 per cent (CHRR 2000, p. 18).

The types of methods typically used to increase response rates and reduce refusals include:

---

differences small and not attributable to differences in data collection methods or definitions (Duncan and Hill 1989, p. 449).

<sup>15</sup> There are many different ways in which response rates can be calculated. The discussion in this proposal is based on a response rate calculated as obtained interviews as a proportion of all eligible individual sample members. Of course, with telephone surveys, and especially those based on dialling randomly generated numbers, determining eligibility is not always straightforward.

<sup>16</sup> The 76 per cent response rate reported for the PSID does not take into account the fact part of the sample was derived from an earlier survey, 25 per cent of which refused to allow their names to be sent to the PSID survey team. Adjusting for this would reduce the actual response rate to 69 per cent.

<sup>17</sup> Higher response rates were achieved in their sub-sample of households with foreign-born heads.

- use of primary approach letters prior to interview;
- ensuring calls/interviews are scheduled at times most conducive to cooperation;
- provision of financial incentives to interviewees;
- extensive call-back procedures, both to make a contact and to convert a contact into a successfully completed interview (while at the same ensuring that the privacy of individuals is respected);
- making appointments to defer resistance to participation;
- collecting extensive contact information (e.g., other phone numbers at which people may be contacted, and preferred contact times)
- employing non-aggressive procedures for persuading reluctant sample members to participate;
- appropriate interviewer selection and training;
- employment of a fieldwork company that understands, and work to, academic standards; and
- providing for relatively long fieldwork periods.

Overall, and given the budget constraint, we are targeting an initial response rate of at least 70 per cent (defined as the number of households where at least one interview is conducted as a proportion of the total number of in-scope dwellings).<sup>18</sup>

### *Waves 2 and 3*

In a longitudinal design there is potential for non-response at every wave. At one level this is less problematic than non-response at Wave 1. In particular, since we have detailed information on the characteristics of all respondents at Wave 1, it should be easier to apply weights to the data to compensate for any bias this non-response gives rise to. Such procedures, however, are only likely to be effective in the short-run. Over the longer-term it is important to minimise attrition because of the potential for the ‘movers’ to be quite different from the ‘stayers’ in ways that may not be observable at Wave 1. Further, high rates of attrition have obvious detrimental effects on sample size. Finally, there are again good reasons to be concerned about the adverse effects of high attrition on the perceived legitimacy of continuing to conduct this type of study.

International experience tends to suggest that attrition is highest in the first two years of the survey and then stabilises. Indeed, in the PSID, attrition rates fall to as low 2 to 3 per cent by Wave 3. Fourteen per cent of the sample, however, was lost in Wave 2 (Brown et al. 1996, p. 158).

Attrition rates in most other studies are, if anything, higher. Again we can point to the experience with the BHPS. In that survey, interviews were conducted with 88 per cent of the Wave 1 respondents in Wave 2. By Wave 8 the proportion had fallen to 68 per cent. A good proportion of the attrition by Wave 8, however, was due to deaths (7% points) or because the sample member had moved out of scope (2.5% points). In total, after adjusting for deaths and movements out of scope, 75 per cent of the original sample remained in scope at Wave 8.

---

<sup>18</sup> The experience of the BHPS suggests that this response will mean that completed interviews will be obtained from all household members at about 65 per cent of cases.

The preceding discussion, however, is based on surveys that used face-to-face interviews, at least in the first few waves; attrition rates can be expected to be higher when using CATI. Certainly, and as noted earlier, response rates are lower in cross-section surveys. In Wave 2 of the HILDA we would, therefore, hope to achieve retention rates (i.e., before adjusting for deaths) of at least 80 per cent, rising to 85 per cent by Wave 3. Assuming continued funding for this study, these rates would be expected to gradually rise to between 90 and 95 per cent. This, of course, will require the allocation of substantial effort and resources to tracking sample members.

## **Survey Content and Instruments**

### **Survey Content and Questionnaire Design**

A critical issue for survey design is the nature of the data items to be collected and the extent of information sought.

As noted earlier, the research questions of highest priority for the HILDA identified fall into three categories:

- (i) income dynamics;
- (ii) labour market dynamics; and
- (iii) family dynamics.

These three areas, however, are extremely broad and given the likely tight time constraints on interview length (discussed further below), will require efficient survey design plus a need to cycle some data items across different waves of the survey. Further pressures on survey content also come from the need for HILDA to yield data that will inform policy development and evaluation, and the likely emergence of pressures over time to use HILDA for a range of different purposes, assuming that HILDA becomes Australia's 'gold standard' panel survey.

The design of the survey instrument will follow a modular approach, thus allowing blocks of questions to be easily added to, or removed from, different waves of the survey.<sup>19</sup>

Responsibility for questionnaire design rests with five teams. The responsibilities of each of each of these teams are as follows:

- Team 1. Overall coordination of survey design, design of modules for background items (such as household composition and individual demographics), design of non-core modules and monitoring and revising instrument design across survey waves.
- Team 2. Design of income modules.
- Team 3. Design of labour market modules.
- Team 4. Design of family modules.
- Team 5. Ensuring that important policy questions are covered in draft instruments, and design of separate modules for specific policy issues.

---

<sup>19</sup> An excellent example of the modular approach to questionnaire design is the Canadian SLID. See, for example, the labour interview component of the 1999 wave of SLID which is set out in Sauve, Lutz and Wallace (1999).

Again closely following the BHPS, it is proposed that in Wave 1 the HILDA survey comprise up to five different instruments. These are as follows:

- (i) a contact sheet;
- (ii) a household interview schedule;
- (iii) an individual interview schedule;
- (iv) an individual self-completion questionnaire; and
- (v) a tracking sheet.

Obviously when designing the survey instruments, consideration will be given to how data items have been measured and collected in other surveys. This is important for achieving comparability with other studies (especially those undertaken overseas), ensuring that the HILDA does not result in unnecessary duplication of other Australian data, and producing weights for dealing with non-response.

Care will, therefore, be taken to ensure that key data items are measured and classified in a way that accords with accepted practice, especially as established by the ABS. Attempts will also be made to ensure that some comparison on key data items can be made with data from major overseas panel studies.

### **Contact Sheet**

This sheet will provide information obtained prior to interview or which can be observed prior to making contact with members of the household.

The type of information to be recorded on this sheet includes:

1. name of interviewer;
2. address;
3. type of accommodation / residence;
4. whether residence in-scope;
  - private residence vs business, institution or other non-private dwelling
  - whether occupied on an on going basis
5. date and time of visit(s);
6. outcome of *each* visit;
7. for refusing households, reason for refusal; and
8. the number of households at the address.

We are also contemplating including some perceptual questions for interviewers. Most consideration is being given here to interviewer assessments of the:

- socio-economic status of the neighbourhood;
- condition of the residence; and
- size of the residence.

### **Household Interview Questionnaire**

This questionnaire will collect information about the household rather than about individual household members per se. It need only be administered to one responsible adult member of the household, and ideally, this should be the person in the best position to answers questions about the financial situation of the household. In practice, however, interviewers will be encouraged to be flexible. If more than one household member wishes to be present at the interview this is perfectly acceptable;

indeed, it should improve the quality of data collected. Further, interviewers will be given the flexibility to deliver part of this interview to one household member and part to another.

Key data items to be collected here include:

1. household composition – name, date of birth and sex of all household members, together with their relationship to each other;
2. other selected personal characteristics of household members (e.g., marital status, labour force status);
3. size (number of rooms, bedrooms) and condition of residence;
4. residence ownership status;
5. value of residence;
6. mortgage payments / rent; and
7. household expenditures.

Interviewers will be instructed to avoid item non-response on the components listed under topic 1 above. Indeed, if there is any non-response on these items, the fieldwork provider will be expected to re-contact the household to obtain the data. Answers to this set of questions are obviously critical to linking respondents across the survey waves.

#### *Interview Situation*

Before the household interview commences the interviewers will be instructed to record the date of interview and the time at which it commences. At the completion of the interview the time of completion should be noted together with the reference number for the person or persons who participated in the interview.

#### **Individual Interview Questionnaire**

This instrument should be administered to every person aged 15 years and over (on 30 June) in the household. Proxy interviews will be permitted but only as a last resort. Assisted interviews (e.g., to assist with language translation) are perfectly acceptable.

This instrument will be the longest and collect the bulk of data items. Examples of the types of items that are being considered for inclusion are listed in Table 1.

Of course, there is a range of other topics that ideally we would like to have information on, the inclusion of which may be constrained by the lack of space. It is anticipated, however, that at least some of these topics will be covered during the different waves of the survey. Possible candidates here include:

- savings and wealth;
- time use;
- literacy and numeracy;
- career aspirations;
- recent training and education experiences; and
- health and subjective well-being.

**Table 1: Examples of Major Data Items, Wave 1: Individual Interview**

<i>Design team</i>	<i>Module</i>	<i>Examples of major data items to be collected:</i>
Background characteristics	Individual demographics	Date of birth Country of birth and year of arrival (if born overseas) Aboriginality Language first spoken English language skills Educational attainment Type of schooling Self-reported health status Disabilities and impact on work Duration of residence at current address
	Family background	Place grew up Whether lived with parents when growing up Number of siblings Parents' occupation/education Parents' country of birth
	Life satisfaction	
Income dynamics	Individual incomes	Financial year pre-tax income by source (e.g.): wages, self-employment income; government benefits; superannuation, rent; interest, dividends; child maintenance; other Current income by source Credit card ownership and payment strategy Subjective financial situation
Labour market dynamics	Labour market activity	Activity calendar
	Current employment	Hours usually worked, all jobs Preferred hours of work, all jobs Hours usually worked, main job Employment status (e.g., self-employed or wage and salary earner; permanent, casual, or fixed-term) Occupation Industry Job tenure Work schedule Leave entitlements Supervisory responsibilities Attitudes to work (e.g., job satisfaction) Employment expectations (re. job loss, quitting, retirement and promotion) Union membership Workplace and firm size Private sector / public sector



**Table 1 (cont'd)**

<i>Design team</i>	<i>Module</i>	<i>Examples of major data items to be collected:</i>
	Experiences of persons not in paid employment	Job search activity and methods Duration of unemployment / joblessness Barriers to employment Desire for employment Reasons for not seeking work
	Employment history	Years spent in paid employment Years spent looking for work Years not in the labour force First job characteristics Previous job characteristics
Family dynamics	Relationships	Marital / relationship status (current) Marital history (number, duration, how ended) History of cohabiting relationships (number, duration)
	Family formation / parenting	Number of children Contact with children who live with other parent Contact with parent who lives elsewhere Attitudes and expectations regarding having children Child care arrangements Problems / difficulties with child care

Note that while explicit mention of ‘life events’ has not been made, it is fully expected that major life events will be fully documented within the scope of the survey. Major changes in household composition (e.g., arising from births, death, the formation and dissolution of cohabiting relationships, and children leaving home) will obviously be captured in the survey, as will other significant life events, such as purchasing large assets (e.g., a home), moving house, changing employment, promotions, loss of a job, retirement from paid work and major changes in health status.

#### *Interview situation*

As with the household interview, before each individual interview commences the interviewers will be instructed to record the date of interview and the time at which it commences. At the completion of the interview the time of completion should again be noted.

Interviewers will also be asked to record:

- (i) whether there were any other people present during the interview;
- (ii) the degree of respondent cooperation during the interview (5-point scale: very poor to very good);
- (iii) presence of obvious problems which may have affected the interview (blindness, hearing problems, reading difficulties, English was 2<sup>nd</sup> language);
- (iv) degree of difficulty completing interview due to English language difficulties;

- (v) perception of English language ability; and
- (vi) whether interview was assisted.

Finally, interviewers will be asked to make any further observations, in writing, about the interview that would clarify problems that arise during processing and which would assist when re-contacting the respondent in the future.

### **Self-completion (Supplementary) Questionnaire**

In addition to face-to-face interviews, consideration is being given to also leaving each sample member with a self-completion questionnaire to be collected at a later date.<sup>20</sup> This can be justified on at least two grounds. First, some respondents may not be prepared to answer some questions out loud in a face-to-face interview. This might arise where the topic is considered sensitive or because of the presence of other household members at the time of the interview. The second reason is simple — to collect all of the information desired will require interviews that are longer than most interviewees can be expected to tolerate. A self-administered questionnaire is a cheaper, less intrusive way of collecting data on topics that are relatively straightforward and do not require interviewer assistance.

It is expected that the types of issues that might be covered in such a questionnaire would include (but not restricted to):

- (i) marital and relationship stability;
- (ii) satisfaction with family relationships;
- (iii) social support;
- (iv) psychological distress;
- (v) parenting stress;
- (vi) work family balance; and
- (vii) time use.

Use of this questionnaire, however, is subject to additional funding being made available. Within the budget available at time of writing, use of this option will not be possible.

### **Tracking Form**

The aim of this form will be to assist following sample members over the next year. The key information sought will be:

- (i) for every adult interviewed, a name of two close friends or relatives not living at the address;
- (ii) for every adult interviewed, a range of other contact details will be sought, including mobile telephone numbers, email addresses and work telephone numbers; and
- (iii) an indication of the likelihood of moving within the next year and, if applicable (and if known), a forwarding address.

---

<sup>20</sup> In Wave 2 and 3, when the main interviews will be conducted by telephone, this survey would need to be administered by mail.

## **Interview Length**

Longitudinal surveys typically impose quite onerous requirements on respondents, not just because respondents are encouraged to remain in the survey for very long periods of time, but also because interview times tend to be quite long. In the BHPS, for example, the time taken to interview a one-person household is approximately 60 minutes, with a further 40 minutes for each additional adult person in larger households. It is the view of the members of this consortium that such contact times will deter response and promote attrition.

It is also widely accepted that maintaining effective contact with respondents over a telephone is much more difficult than with a face-to-face approach, thus meaning interview times need to be reduced further in later wave. While at the time of writing overall instrument length is still to be finalised it is expected that we will be working towards the following average interview lengths.

Wave 1 (face-to-face): Total interview time of 50 minutes for first respondent and 40 minutes for all other eligible household members.

Wave 2 (CATI): Total interview time of 30 minutes for first respondent and 20 minutes for all other household members.

## **Tracking and Tracing Survey Participants**

It is recognised that ensuring the HILDA Survey is a success, and is perceived as such, requires implementing strategies for preventing attrition. Among the strategies that are typically used are:

- (i) inclusion of tracking questions in survey instruments;
- (ii) maintenance and frequent updating of a database on respondents' location;
- (iii) promoting subject identification with the study; and
- (i) extensive communication with sample members.

While it is premature at this stage to propose a concrete plan for maintaining the panel prior to awarding a contract to a fieldwork agency, it is expected that in formulating such a plan, serious consideration would be given to the following:

- Inclusion of tracking questions in the questionnaire design seeking names of relatives or friends not living at the same address, email addresses, mobile telephone numbers and information on future movement intentions.
- Sending thank you cards to all interviewees following the interview, together with change-of-address cards for notification of any intended moves.
- Maintaining contact with participants between survey waves.
- Maintaining a 1800 telephone number so that participants can contact the fieldwork agency and/or the Project Director / Survey Manager.
- Seeking forwarding addresses or telephone numbers from non-sample members at the address or telephone number of the original sample member.
- Using electronic White Pages and Australia Post to pursue contact details for persons who have changed address.
- Training interviewers in 'interviewee friendly' techniques.

## **Timetable**

We are operating to a very ambitious timetable, with the fieldwork scheduled to commence in September 2001. During Wave 1 the fieldwork will run until at least mid-December, facilitating a public release of the Wave 1 data by the middle of 2002.

In later waves the fieldwork period is expected to be extended through to April. That is, the fieldwork period will run from September through to April each year. This is consistent with the practice in the BHPS, and is needed to maximise the locating and interview all sample members. This longer fieldwork period, of course, will mean data releases in later years will also occur later. At this stage we expect public releases of the Wave 2 and Wave 3 data, together with the relevant longitudinal data files, will take place by the end of 2003 and 2004 respectively.

## **Confidentiality and Privacy Issues**

### **Risk of Disclosure**

As with all unit record data sets, there is a risk that the identity of some respondents will be revealed through the information collected in the survey. This risk, however, is even higher with longitudinal data because of the large array of events and transitions that will be documented over the lifetime of sample members.

Solutions to the risk of disclosure will need to be explored in detail during Stage 1 of the study. It is inevitable, however, that some of the information collected will not be made available on the public-use file. In particular, some variables may be provided in a form that is more aggregated than that in which it was collected. This, for example, would include occupation and residential location variables.

We would, however, expect that users who are able to demonstrate a strong need for any missing data would still be able to access that data, but only after agreeing to a set of use conditions concerning access, security and disposal of the data.

### **Meeting the Requirements of the Privacy Commissioner**

In 1998 the Office of the Privacy Commissioner released its recommended *National Principles for the Fair Handling of Personal Information*. These were subsequently revised and amended in 1999. These principles are intended to guide organisations with respect to the application of *The Privacy Act 1988*.

In terms of HILDA the key Principles would appear to be:

- (i) informing participants about who the data are being collected for and for what purpose [Principle 1.3];
- (ii) where practicable, not collecting information about the participant from others, and when this is required, taking reasonable steps to ensure that the subject is informed [Principles 1.4 and 1.5];
- (iii) keeping information secure [Principle 4.1];
- (iv) letting participants know the nature of the information collected [Principle 5.1];
- (v) providing opportunities for access and correction [Principle 6.1];

- (vi) limiting use of identifiers assigned by government agencies [section 7.1]; and
- (vii) limiting the collection of sensitive information [section 10.1].

We do not anticipate any problems in meeting these requirements in administering the HILDA Survey.

All participants will be informed at, or prior to interview (through a primary approach letter), about the purposes of the survey, and whom they can contact should they desire any further information about the survey (a 1800 telephone number will be established for this purpose). They will also be informed that participation in the survey is entirely voluntary and that there is no obligation to answer any or all of the questions asked.

Further, more detailed information about the purposes of the HILDA will also be sent after interview to Wave 1 respondents (and any new sample members at later waves), along with further information about the way the data are being held, what is being done with the data, and how individuals can, on request (but after undergoing a range of security checks), access that information.

Every attempt will also be made to interview all sample members directly, though, as noted earlier, in some cases this may prove difficult. In these instances (i.e., where proxy interviews are conducted), the subject will be informed in writing that someone else answered on their behalf and will then be given an opportunity to contact the data collection agency directly if they so wish.

We also guarantee to set in place all the appropriate protocols and procedures required to ensure that the data collected are secure, and thus protected from both damage and loss and from unauthorised access or misuse.

With respect to the collection of sensitive information, it is recognised that some of the information that will be sought may be regarded as sensitive, such as ethnic origin and income. We will, however, endeavour to ensure that such information is only collected if absolutely essential (as income clearly is given the purpose of HILDA). Further, no respondent will be pressured to provide answers to questions with which they are uncomfortable.

### **The Privacy Principles and the Possibility of Linking HILDA to Other Data Sets**

At this point, it is worth noting the difficulties the Privacy Act poses for any attempts to link the HILDA data to other administrative data sets (such as those held by FaCS). In particular, any attempt to link data will require participants to be informed that this is being done and why. Indeed, we would always seek informed consent prior to undertaking any such linking. This may compromise both response rates and data quality, especially among FaCS clients who may be fearful of breaches. In our view, therefore, it would be unwise to pursue this route until considerable trust on the part of respondents has been developed.

## **Dissemination and User Support**

The principal end product will be a public-use micro-data file with front-end software (e.g., SAS or SPSS) that will allow users to select variables and sub-populations of interest. A cross-section data file will be released after the completion of Wave 1, with subsequent releases occurring each year with data from subsequent waves merged into the earlier waves.

In all likelihood, this public-use micro-data file will be made available on a CD-Rom for a nominal charge. The data may also be lodged with other organisations from where it could be directly downloaded.

As mentioned below, accompanying the data file will also be extensive documentation, which again will be made freely available from the HILDA web site.

Finally, and as discussed earlier, users who can demonstrate a clear need for data items not provided on the public use file will be given access to the missing data, but only after signing an agreement that specifies a strict set of conditions concerning the use, access to, and disposal of the data. We would, however, expect to have to charge a fee to cover the additional costs associated with meeting these special requests.

### **Documentation**

Following the procedures used in documenting SLID (see Webber 1995), it is expected that there will be three major forms of documentation.

- (i) Technical documentation of the database content and structure.
- (ii) A user handbook.
- (iii) A series of dedicated discussion papers providing detailed documentation on specific topics.

Possible topics that might be addressed in the technical paper series include:

- (i) Approach to questionnaire design plus list of all data items.
- (ii) Content for micro-data files.
- (iii) Evaluation of various testing results in Stage 1.
- (iv) Summary of relative merits of different data collection modes.
- (v) Discussion of following rules that are used.
- (vi) Analysis of the impact of inserting joiners into the panel.
- (vii) Sample design and weighting methodology.
- (viii) Questionnaire and collection procedures.
- (ix) Approach to confidentiality.
- (x) Calculation of derived variables.
- (xi) Measurement issues.
- (xii) Representativeness of respondents.
- (xiii) Analysis of response issues.

### **User Support**

Some of the ways in which user support will be provided include:

- preparation of discussion papers referred to above;
- production and circulation of a regular newsletter;

- creation of a database containing many user-friendly derived variables;
- provision of annual training courses (perhaps as part of ACSPRI summer courses delivered at the ANU);
- holding user seminars at different locations around the country;
- easily accessible documentation from a dedicated web site (now available at: [www.melbourneinstitute.com/Hilda](http://www.melbourneinstitute.com/Hilda));
- provision of a user support service accessed via the telephone or email; and
- establishing and maintaining a users group communicating via an email-based list server.<sup>21</sup>

---

<sup>21</sup> Details on how to subscribe to this list can be found on the HILDA web page mentioned above.

## References

- Australian Bureau of Statistics [ABS] (1995), *A Provisional Framework for Household Income, Consumption, Saving and Wealth* (ABS cat. no. 6549.0), ABS, Canberra.
- Barr, N. (1999), 'Fundamentals of Social Security Analysis', *Australian Social Policy* 1999/1, pp. 7-29.
- Brown, C., Duncan, G.J. and Stafford, F.P. (1996), 'Data Watch: The Panel Study of Income Dynamics', *Journal of Economic Perspectives*, vol. 10, no. 2, pp. 155-168.
- Centre for Human Resource Research [CHRR] (2000), *NLSY97 User's Guide: A Guide to the Rounds 1 and 2 Data, National Longitudinal Survey of Youth 1997*, Bureau of Labour Statistics, US Department of Labor, Washington DC.
- Collins, M., Sykes, W., Wilson, P. and Blackshaw, N. (1988), 'Nonresponse: The UK Experience', in R.M. Groves, P. Biemer, L.E. Lyberg, J.T. Massey, W.L. Nicholls II and J. Waksberg (eds), *Telephone Survey Methodology*, John Wiley and Sons, New York.
- Creedy, J. (1994), 'The Statics and Dynamics of Income Distribution: An Introductory Survey', *Australian Economic Review*, No. 108 (4/94), 51-71.
- de Leeuw, E.D. and van der Zouwen, J. (1988), 'Data Quality in Telephone and Face to Face Surveys: A Comparative Meta-Analysis', in R.M. Groves, P. Biemer, L.E. Lyberg, J.T. Massey, W.L. Nicholls II and J. Waksberg (eds), *Telephone Survey Methodology*, John Wiley and Sons, New York.
- Donovan, R.J., D'Arcy, C.D., Holman, J., Corti, B. and Jalleh, G. (1997), 'Face-to-face Household Interviews Versus Telephone Interviews for Health Surveys', *Australian and New Zealand Journal of Public Health*, vol. 21, no. 2, pp. 134-140.
- Duncan, G.J and Hill, D.H. (1985), 'Conceptions of Longitudinal Households: Fertile or Futile?', *Journal of Labor Economics*, vol. 3, no. 4, pp. 508-532.
- Duncan, G.J. and Hill, D.H. (1989), 'Assessing the Quality of Household Panel Data: The Case of the Panel Study of Income Dynamics', *Journal of Business and Economic Statistics*, vol. 7, no. 4, pp. 441-452.
- Fitzgerald, J., Gottschalk, P. and Moffitt, R. (1998), 'An Analysis of Sample Attrition in Panel Data: The Michigan Panel Study of Income Dynamics', *Journal of Human Resources*, vol. 33, no. 2, pp. 251-299.
- Gaston, N. and Timcke, D. (1999), 'Do Casual Workers Find Permanent Full-time Employment?', *Economic Record*, vol. 75, no. 231, pp. 333-347.
- McDonald, P., Evans, A., Baxter, J. and Gray, E. (2000), 'The Negotiating the Lifecourse Survey Experience: Implications for HILDA'. Paper presented to the Panel Data and Policy Conference (Department of Family and Community Services), Rydges Canberra, 1-3 May.



Michaud, S. and Saint-Pierre, Y. (1994), 'SLID Following Rules: Who to Trace and Who to Interview', SLID Research Paper Series, Cat. No. 94-01 (Product reg. No. 75F0002MIE94001), Statistics Canada, Ottawa.

Norris, K. and Wooden, M. (eds) (1996), *The Changing Australian Labour Market* (EPAC Commission Paper No. 11), AGPS, Canberra.

Sauve, J., Lutz, D. and Wallace, W. (1999), 'SLID Labour Interview Questionnaire – January 1999, SLID Research Paper Series, Cat. No. 99-04 (Product reg. No. 75F0002MIE99005), Statistics Canada, Ottawa.

Singh, C. (1995), 'A Comparative Analysis of Attrition in Household Panel Studies', Comparative Research on Household Panel Studies Papers No. 10, Panel Comparability Project, CEPS/INSTEAD, Differdange, Luxembourg.

Smith, W., Chey, T., Jaludin, B., Salkeld, G. and Capon, T. (1995), 'Increasing Response Rates in Telephone Surveys: A Randomized Trial', *Journal of Public Health Medicine*, vol. 17 no. 1, pp. 33-38.

Webber, M. (1995), 'Disseminating Data from Longitudinal Surveys: Issues Facing the Survey of Labour and Income Dynamics', SLID Research Paper Series, Cat. No. 95-11 (Product reg. No. 75F0002MIE95011), Statistics Canada, Ottawa.

Wooden, M. (1997), 'Rapporteur Comments', in Industry Commission, *Changing Labour Markets: Prospects for Productivity Growth: Workshop Proceedings*, Industry Commission, Melbourne.

Wooden, M. (1998), *Impediments to the Employment of Young People*, National Centre for Vocational Education Research, Adelaide.