



2001 CENSUS OF POPULATION AND HOUSING

Census Paper

## **2001 CENSUS: INCOME**

**(Census Paper No. 03/04)**



# **2001 CENSUS: INCOME**

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Population Census Evaluation  
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## SUMMARY OF FINDINGS

The 2001 Census Paper: *Income* presents an evaluation of the quality of Income data collected in the 2001 Census of Population and Housing. Income distributions and data quality measures were compared with those of the 1996 Census. The quality of 2001 income data was also compared with that of the 1999-2000 Survey of Income and Housing Costs (SIHC) and 1999-2000 Taxation Statistics.

*The main findings of this paper are:*

- The Non-response rate to the Income question in the 2001 Census was 5.3% compared to 4.9% in the 1996 Census. Factors that may have contributed to the Non-response were: community assumptions that the question did not apply to those not in the labour force or the unemployed, respondent load (the question required a simple answer for a complicated question), and the sensitive financial nature of the question.
- Comparison of income distributions from the 2001 Census with income distributions from the 1996 Census, the SIHC and Taxation Statistics, revealed that Census data and SIHC showed the same trends. However, Taxation data was less consistent with Census data.
- The Nil Income category comprised of 5.9% of the applicable population, while 0.6% of respondents reported a Negative Income.
- Investigation of responses to the 'Nil' and 'Negative' responses:
  - The predominant characteristics of respondents to the 'Nil' category were: aged 15-24 years (50% of Nil Income responses); female (61%); and 'Not in the labour force' (82%). Of Nil Income respondents, 43% were students.
  - The predominant characteristics of respondents to the Negative category were: aged 15-24 years (29%) but there were as many male responses as female. Students made up 27% of all Negative Income responses, only 3% of whom were part-time students compared to 24% of full-time students.

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# 1. INTRODUCTION

## *1.1 About Census Papers*

The ABS has a stated, corporate objective to provide the means for informed and increased use of statistics. This Paper is one of a series produced after each census by the Australian Bureau of Statistics' Population Census Evaluation team, whose role is to review the data quality of the 5-yearly Census of Population and Housing. The aim of Census Papers is to inform users of issues that have been identified as impacting on the quality of the census data, and that they should keep in mind when utilising the data. Analyses such as this are a critical factor in the continuous quality improvement of the Census Program. The ABS welcomes your feedback and suggestions.

## *1.2 Census Paper: Income*

This Census Paper examines the quality of Income data from the 2001 Census and follows similar analyses to those provided in previous Census Working Paper's examining Income data quality: 96/1 (1991) and 00/04 (1996). In these papers data quality is addressed by examining changes in collection or processing procedures, as well as format and sequencing changes to the Income question. Analyses of key indicators such as Non-response rates, intercensal changes, and comparisons with other sources of income data, provide an indication of data quality. The three comparison sources used in this paper are 1996 Census data, the 1999-2000 Survey of Income and Housing Costs (SIHC), and 1999-2000 Taxation Statistics.

As well as investigating data quality, this paper provides some background information about the Income question, which may be of interest to data users. Finally, this paper provides suggestions for possible improvements in form design and processing, which could result in higher data quality outcomes for the 2006 Census.

## *1.3 Background*

The Census of Population and Housing provides small area Income data for Australia. A question on income was first asked in 1933 as a method of measuring the effect of the Depression. It was reintroduced in 1976 and has been asked in all subsequent censuses.

This variable is used by both government and private sector agencies as an important social indicator. Main users include Centrelink, the Department of Veteran's Affairs, welfare groups and charities, universities, academics, social commentators and other private researchers. In particular these data (as well as other social and demographic characteristics) are used to identify the areas of disadvantaged groups, so that support services can be appropriately distributed. The data are also extensively used within the ABS with other data, providing a tool for the research and analysis of a diverse range of issues.

It should be noted that the Goods and Services Tax (GST) was introduced on the 1st of July 2000. Most sources of income as collected by the 2001 Census Income question were unaffected by the GST, (i.e. wages or salaries).

Income data comprise a financial variable, and as such are affected by macro-economic factors such as inflation. Inflation over the intercensal period as measured by the Consumer Price Index was 11.4% (See Appendix A). Therefore, this needs to be taken into account when making comparisons between 1996 and 2001 income data.

## 2. QUESTION DESIGN

The Income question on the census form is applicable to all persons aged 15 and over. Income ranges are used because testing has shown that asking for exact dollar amounts increases Non-response rates to an unacceptable level. Therefore information is captured in Income ranges.

While the question and income ranges remains the same in 2001 as in 1996, changes were made to the list of income sources (see Section 2.1)

**Figure 1: 2001 Household Form and Personal Form**

<p><b>31 What is the gross income (including pensions and allowances) that the person usually receives each week from all sources?</b></p> <ul style="list-style-type: none"> <li>• <b>Mark one box only.</b></li> <li>• <b>Count all income for each person including:</b> <ul style="list-style-type: none"> <li>family allowance</li> <li>parenting payment</li> <li>unemployment benefits</li> <li>rental assistance</li> <li>pensions</li> <li>student allowance</li> <li>maintenance (child support)</li> <li>workers' compensation</li> <li>superannuation</li> <li>wages</li> <li>salary</li> <li>overtime</li> <li>commissions and bonuses</li> <li>interest received</li> <li>dividends</li> <li>rents received (less expenses of operation)</li> <li>business or farm income (less expenses of operation)</li> </ul> </li> <li>• See page 11 of the Census Guide for more information.</li> </ul>	<ul style="list-style-type: none"> <li><input type="radio"/> \$1,500 or more per week (\$78,000 or more per year)</li> <li><input type="radio"/> \$1,000 - \$1,499 per week (\$52,000 - \$77,999 per year)</li> <li><input type="radio"/> \$800 - \$999 per week (\$41,600 - \$51,999 per year)</li> <li><input type="radio"/> \$700 - \$799 per week (\$36,400 - \$41,599 per year)</li> <li><input type="radio"/> \$600 - \$699 per week (\$31,200 - \$36,399 per year)</li> <li><input type="radio"/> \$500 - \$599 per week (\$26,000 - \$31,199 per year)</li> <li><input type="radio"/> \$400 - \$499 per week (\$20,800 - \$25,999 per year)</li> <li><input type="radio"/> \$300 - \$399 per week (\$15,600 - \$20,799 per year)</li> <li><input type="radio"/> \$200 - \$299 per week (\$10,400 - \$15,599 per year)</li> <li><input type="radio"/> \$160 - \$199 per week (\$8,320 - \$10,399 per year)</li> <li><input type="radio"/> \$120 - \$159 per week (\$6,240 - \$8,319 per year)</li> <li><input type="radio"/> \$80 - \$119 per week (\$4,160 - \$6,239 per year)</li> <li><input type="radio"/> \$40 - \$79 per week (\$2,080 - \$4,159 per year)</li> <li><input type="radio"/> \$1 - \$39 per week (\$1 - \$2,079 per year)</li> <li><input type="radio"/> Nil income</li> <li><input type="radio"/> Negative income</li> </ul>
--	---

**Figure 2: 1996 Household Form and Personal Form**

<p><b>29 What is the gross income ( including pensions and allowances) that the person usually receives each week from all sources?</b></p> <p> <b>• Mark one box only.</b>  <b>•Count all income for each person including:</b>                      family payment                      additional family payment                      rental assistance                      pensions                      unemployment benefits                      student allowance                      maintenance                      (child support)                      worker's compensation                      superannuation                      wages                      salary                      overtime                      commissions and bonuses                      interest received                      dividends                      rents received                      (less expenses of operation)                      business or farm income                      (less expenses of operation)                 </p>	<p> <b>•Do not deduct:</b>                      tax                      superannuation                      health insurance                 </p>	<p> <input type="checkbox"/> \$1,500 or more per week                      (\$78, 000 or more per year)  <input type="checkbox"/> \$1000 - \$1,499 per week                      (\$52, 000 - \$77,999 per year)  <input type="checkbox"/> \$800 - \$999 per week                      (\$41,600 - \$51,999 per year)  <input type="checkbox"/> \$700 - \$799 per week                      (\$36,400 - \$41,599 per year)  <input type="checkbox"/> \$600 - \$699 per week                      (\$31,200 - \$36,999 per year)  <input type="checkbox"/> \$500 - \$599 per week                      (\$26,000 - \$31,199 per year)  <input type="checkbox"/> \$400 - \$499 per week                      (\$20, 800 - \$25, 999 per year)  <input type="checkbox"/> \$300 - \$399 per week                      (\$15,600 - \$20,799 per year)  <input type="checkbox"/> \$200 - \$299 per week                      (\$10,400 - \$15,599 per year)  <input type="checkbox"/> \$160 - \$199 per week                      (\$8,320 - \$10,399 per year)  <input type="checkbox"/> \$120 - \$159 per week                      (\$6,240 - \$8,319 per year)  <input type="checkbox"/> \$80 - \$119 per week                      (\$4,160 - \$6,239 per year)  <input type="checkbox"/> \$40 - \$79 per week                      (\$2,080 - \$4159 per year)  <input type="checkbox"/> \$1 - \$39 per week                      (\$1 - \$2,079 per year)  <input type="checkbox"/> Nil income  <input type="checkbox"/> Negative income                 </p>
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A Special Short Form was introduced in 2001 for anyone who was sleeping out, staying in a squat or improvised dwelling, and persons who were unlikely to be completing a Personal Census Form at a hostel, refuge or other accommodation. This form only included three income categories, limiting responses to Nil Income, and \$1 to \$159, and \$160-\$199 per week.

**Figure 3: 2001 Special Short Form**

<p><b>6 What is your weekly income from all sources?</b></p> <p> <input type="checkbox"/> \$160 - \$199 per week (Newstart Allowance)  <input type="checkbox"/> \$1 - \$159 per week  <input type="checkbox"/> Nil income                 </p>
--

There was no change to the Income question on the Special Indigenous Form Personal Form between 1996 and 2001.

**Figure 4: 2001 and 1996 Special Indigenous Personal Form**

**28 How much money do you get each *fortnight* before tax?**

- Mark one box only.
- A fortnight is two weeks.
- Include salary, government payments, CDEP money, other money, before tax or anything else is taken out.

\$1,200 or more per fortnight

\$1,000 - \$1,199 per fortnight

\$800 - \$999 per fortnight

\$600 - \$799 per fortnight

\$400 - \$599 per fortnight

\$320 - \$399 per fortnight

\$240 - \$319 per fortnight

\$160 - \$239 per fortnight

\$80 - \$159 per fortnight

\$1 - \$79 per fortnight

Nil income

Negative income

### ***2.1 Changes to the Income Question for 2001***

For 2001, changes made to the 'dot point' list of income sources on the Household and Personal Forms included:

- 'Family payment' was replaced with 'family allowance', and 'additional family payment' was replaced with 'parenting payment'. These changes ensured that the reference sources were consistent with current Centrelink terminology;
- 'Unemployment benefits' was placed in a more prominent position, being listed 3rd in 2001 rather than 5th, as it was in 1996.

Instructions were included at the end of the Income question referring respondents to the Census Guide for further explanation. Among other instructions, the Census Guide contained an elaboration on the meaning of 'Negative Income' and 'Nil Income'.

The Income question appeared at the bottom of the page in the 2001 Census. By comparison, the question had been placed at the top of the page in the 1996 Census. Testing in May 1997 verified that the placing of the question had minimal impact on response rates.

### ***2.2 List effect***

Where a question offers a list of mark box options for responses such as the 2001 Income question, there can be a possible bias in self-coded responses, known as a 'list effect'.

The impact of this form of question design could include one or more of the following factors:

- an increase in response to the top option on the list;
- people chose a category from the list of response options in preference to one not on the list;
- the response options listed encourage responses different from those which would have been provided without them;
- the options listed influence respondents to answer in a different way, generally in a following write-in section if applicable.

During the form design and testing phase of the census program, questions are assessed for any such impact before being approved for use in the final format. For more information, refer to Information Paper *2001 Census of Population and Housing: Nature and Content* (2008.0).

Changes to question design implemented in the 2001 Census will be investigated further in this paper and compared to 1996 data to identify where these changes may have affected data quality.

### 3. COLLECTION OF THE DATA

The census is a self-enumerated questionnaire. This is a significant data quality issue when it comes to questions such as Income. While general help was available from collectors during drop off or collection activities, detailed assistance was not normally provided at this point. Householders were advised to contact the Census Inquiry Service (CIS) to obtain further information and clarification. Any remaining unresolved problems could be passed on by the Collector to Census Group Leaders for resolution.

During the collection phase of the 2001 Census, collectors reported increased difficulty contacting some householders. Access to secure small and large apartment buildings, gated communities, and growing community concerns about security, make it increasingly difficult to judge whether the residents of a dwelling are absent or not. System Created Records (SCRs) are created during census processing for people for whom a census form has not been received but where the collector believes the dwelling was occupied on census night. SCRs have values imputed for age, sex, marital status and usual residence only, values for other variables are set to Not Stated or Not Applicable, depending on the imputed value for age.

An increase in Non-response (Not Stated) rates is apparent for all census variables in the 2001 Census. Most of the change can be attributed to the increase in the proportion of SCRs. A Fact Sheet - *Effect of Census Processes on Non-response Rates and Person Counts* - has been produced that discusses the factors that may have contributed to the increase in SCR for 2001, and the percentage of records affected by state. Please refer to the ABS web site ([www.abs.gov.au](http://www.abs.gov.au)) for further detail. Discussion of the Non-response rates for the subject of this Census Paper are in Section 5.3.

As found in the Census Working Paper 00/04 *1996 Census Data Quality: Income*, issues that may lead to misunderstanding and, ultimately, inaccurate reporting and higher Non-response rates include the perception by some groups in the population (particularly those respondents who are not in the labour force or are unemployed) that the Income question does not apply to them. Additionally, the process of estimating one figure for gross weekly income from all possible (and often quite complex) sources of income can be difficult.

The results of investigations in previous censuses (Census Working Paper 00/04 *1996 Census Data Quality: Income*) have suggested that there is a tendency for persons to underestimate their income. In particular, there has been a tendency for respondents not to include government payments when stating their income. There have also been higher Non-response rates for 'Persons not in the labour force'.

Community concerns about disclosing potentially sensitive financial information have been addressed by the ABS. Strategies have been implemented that provide persons with support in completing their census forms. These strategies include:

- distributing Census Guides that provide information on completing Census Forms;
- operating a telephone Census Inquiry Service;
- extensive dot point examples of what to include and not include;
- Nil and Negative Income categories to decrease Non-response; and
- assurances of confidentiality for responses.





## **4. PROCESSING AT THE DATA PROCESSING CENTRE (DPC)**

### **4.1 Data Capture (DC)**

Data capture is the process of scanning the forms into the image and text files that are used for all subsequent processes. At this stage, mark box responses are captured and text responses are examined for their fitness for Automatic Coding (AC). The Income question was captured by this process. Forms that had multiple marks or where Data Capture could find no response were then directed to Computer Assisted Coding (CAC).

### **4.2 Coding procedures**

Computer Assisted Coding (CAC) is the process of using procedures and rules to allow a coder to match the image of the text responses to entries on an index for that topic. If no match can be made, the response may be 'dump' coded to a less specific index entry, or to Inadequately Described. The operators also confirm if there is no response to the question.

For the Income question, forms that had multiple markings or no response were viewed by a coder. Where two or more responses were clearly marked, the first response was chosen as there was no way of determining which mark was more appropriate or more correct for the respondent. This is a standard processing rule. When the coder determined there was no response given, the question was confirmed as Not Stated.

Coding of the Special Short Form differed slightly to the coding of the Household and Personal Forms. As the only categories on this form were Nil Income, \$1-159 per week and \$160-199 per week (see Figure 3), these categories were coded to the categories of Nil Income; \$1-39 per week; and \$160-199 per week, respectively. Coding of the Special Indigenous Form was also different: the upper limit was \$600 or more per week, which was asked in fortnightly amounts and then coded to corresponding weekly amounts.

### **4.3 Edits applied to the data**

The ABS Census program has a minimalist editing approach, with most data output as reported on census forms. However, editing is the systematic way of altering data to ensure that it is :

- more complete e.g. if the basic demographic variables of age, sex or usual residence are not stated they are imputed based on known distributions;
- socially consistent to some extent, e.g. age edits do not allow 5 year olds to be attending high school;
- consistent with ABS classifications used in other ABS collections E.g. labour force status is derived using the same derivation used in the Labour Force Survey, to allow clients to more accurately compare data.

Only one edit applied to Income data, and is as follows:

- if aged under 15 years of age, Income is not applicable.

This edit has remained the same over all Censuses.

#### 4.4 Quality Management

Quality management processing takes a sample of each coder's work, plus samples of codes resulting from Data Capture and Automatic Coding, for duplicate coding by a second coder. When the original code and second code differ, both outcomes are written to a mismatch file; these mismatches are then recoded for a third time, by an adjudicator, who determines which is the correct code. When the adjudicator determines a code that differs from the original and/or second coder, a discrepancy is recorded for that source; in some cases the adjudicator may determine both are incorrect, and both will have a discrepancy recorded. A report of these discrepancies is fed back to the relevant coder, or process, so that retraining can be done, or systems updates can be made.

In the majority of cases, the data is not corrected as a result of this sampling, the aim is to improve the coder or process so that such errors do not reoccur. However, in extreme cases the production data is recoded. The discrepancies are also aggregated into the Management Information System (MIS) reports which provide data on the types and frequencies of coding errors over time.

The discrepancy rates for Income were as follows:

**Table 1: DISCREPANCY RATES, 2001 Census**

<i>Process</i>	<i>Number of Discrepancies</i>	<i>Sample Size</i>	<i>Percentage</i>
DC	392	222036	0.2%
CAC	615	11,320	0.5%
DC & CAC	1,007	335,556	0.3%

73.1% of the Income question was Data Captured, 16.7% was coded via pre CAC edits and 4.4% was CAC'd. Of the remaining 5.8%, 0.6% came through Balancing ( a process that ensures that all Census forms were accounted for in each Collection District and that all data created from these forms were valid structures on the unit record file) and 5.2% were inserted in Main Edits (a process in which records were imputed due to non contact, refusal, forms not being mailed back, and lack of personal forms compared with the Summary form).

In CAC, 17% of errors occurred when the incorrect code was 'Not applicable'. Of the remaining discrepancies, 54% (of 511) occurred where the correct code was 'Not stated', and the incorrect code was an actual Income category or where incorrect was 'Not stated' and the correct code was an actual Income category (35%).

These discrepancy rates are low and even more so when compared to other Census topics such as Religion and Landlord Type that registered discrepancy rates over 1%.

#### 4.5 Validation

The role of validation in the processing system is to ensure that the data produced, and released, meets the requirements of the users. This role is carried out by checking the data produced by the system to ensure that it meets the stated output requirements, and identifying and correcting the errors that occur. When the source of the error is identified, that part of the

system that is generating the error is reviewed for the most suitable method of correction. In some cases, a procedural correction may be more appropriate than a system update.

In the case of the Income question, validation commenced after each Collection District was passed as having no illegal output codes for the variable. Validation for income included checking intercensal change (realistic change in the data), validating the 'Not applicable' category to make sure that each record met the specified criteria, and ensuring that overseas visitors were correctly assigned.

#### **4.6 *Data Quality Investigation Sample***

Multiple responses to the Income question is an issue when analysing the quality of data (see Section 5.4). To measure multiple response, a 2% statistically derived sample of CDs (approximately 760) from each State and Territory in Australia, representing a range of urban and rural CDs was selected. Using this sample, Data Quality Investigation Tasks (DQIs) were carried out at the 2001 DPC, which were directly related to the areas for which in-depth investigations were planned. The resulting data quality information is made available to clients in Census Papers, and other related publications, and through analysis provided via the Census query network.



## 5. FINAL DATA ANALYSIS

### 5.1 *The Income Population*

In determining the Income Population, a meaningful subset of the number of people counted in Australia on Census Night to be used as a benchmark for Income data quality analysis, a total of 4,486,584 non-contributing records were excluded. These records are Persons under 15 years of age (3,934,011), Overseas visitors (181,565) and System Created Records (SCRs), comprising non-contact (345,238) and administration/other (25,770).

**Table 2: KEY INCOME-RELATED FIGURES, 2001 Census**

<i>Component Details</i>	<i>Count</i>
Total Census Population	18,972,350
Persons under 15 years of age	3,934,011
Records that could not respond to Income question (SCRs, Overseas Visitors)	552,573
Potential respondents to Income question	14,485,766

### 5.2. *Census Income Data - Distribution and Intercensal Comparison*

#### 5.2.1 *Census Income distribution by Form Type, 2001*

The Income question was collected on the Household Form, the Personal Form, the Special Indigenous Personal Form and the Special Short Form. The distribution of income reported on each form type is shown in Table 3.

Refer to Section 2. Question Design for differences in the question posed (and categories available) on each form type.

**Table 3: DISTRIBUTION OF INCOME, by Form Type(a), 2001 Census**

<i>Income Category</i>	<i>Household Form</i>	<i>Personal Form</i>	<i>Special Indigenous Personal Form</i>	<i>Special Short Form</i>
Negative Income	0.6	0.5	0.5	0.0
Nil Income	5.9	6.1	4.9	7.9
\$1-\$39	1.5	1.6	0.2	24.9
\$40-\$79	2.5	1.9	1.9	0.0
\$80-\$119	2.9	2.2	6.1	0.0
\$120-\$159	5.1	4.2	13.2	0.0
\$160-\$199	9.3	9.2	42.3	56.7
\$200-\$299	12.6	20.7	14.6	0.0
\$300-\$399	8.9	6.2	5.4	0.0
\$400-\$499	8.5	5.1	2.6	0.0
\$500-\$599	8.1	4.1	1.6	0.0
\$600-\$699	6.2	3.4	1.5	0.0
\$700-\$799	5.2	3.3	0.0	0.0
\$800-\$999	6.9	4.9	0.0	0.0
\$1,000-\$1499	7.1	6.3	0.0	0.0
\$1,500 or more	3.9	4.8	0.0	0.0
Not stated	4.9	15.6	5.2	10.5
Row grand Total	100.0	100.0	100.0	100.0

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

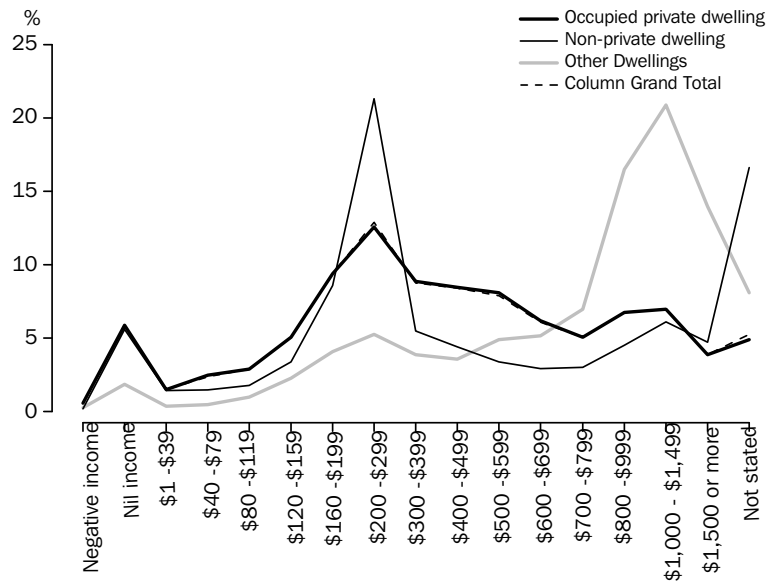
Persons in accommodation such as hotels, hostels, hospitals, staff or student quarters, persons concerned about the privacy of their responses, and persons in households of more than six people, were enumerated on the Personal Form. The most frequent Income bracket was \$200 - \$299 per week on both Personal and Household Forms.

Identified Indigenous communities were enumerated using a Special Indigenous Personal Form (SIPF) and the Special Indigenous Household Form (SIHF). Income is asked on the SIPF. The majority of respondents were coded to the \$160 - \$199 per week Income bracket. The distribution of income for people responding on SIPF were more narrowly distributed in the \$120-\$159, \$160-\$199, \$200-\$299 per week Income brackets (70.1% of all SIPF incomes).

The SIPF also showed a slight increase in the population in the \$160 - \$199 per week Income bracket. In 2001 there was 42.3% of the respondents in the \$160 - \$199 Income bracket. However, in the 1996 Census, the population for this particular bracket spread more evenly over the \$120 - \$159 per week (23.7%) and the \$160 - \$199 per week (29.1%) income brackets. Further investigation of the respondents in the \$160-\$199 per week category revealed that 93% are employed by the Community Development Employment Programme (CDEP).

The Special Short Form was designed for anyone who was sleeping out, or staying in a squat or improvised dwelling and who was unlikely to complete a Personal Census form at a hostel, refuge or other accommodation. The majority of respondents were coded to the \$160 - \$199 per week category.

**Graph 1: DISTRIBUTION OF INCOME, by Dwelling Type(a), 2001 Census**

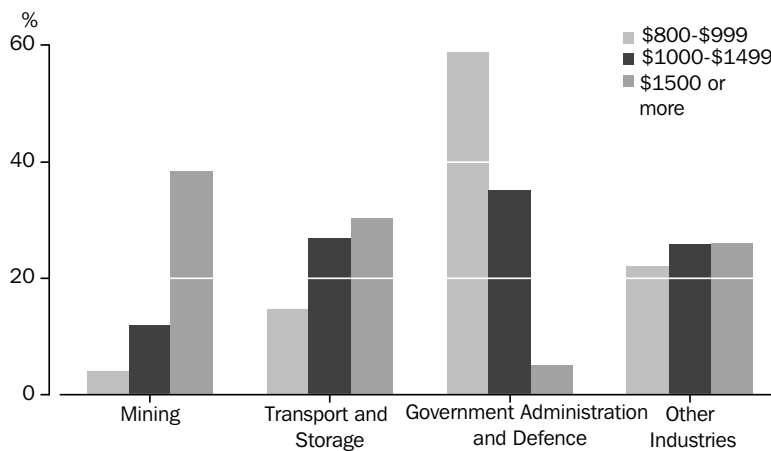


(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Persons enumerated in Non-private or Other Dwellings were shown to have a different income pattern than those in a Private dwelling. Two peaks in the data were shown to be persons in accommodation for the elderly or retired (NPDs) with an income of \$200-\$299 per week, and in the \$800-\$999 and \$1000-\$1500 per week bracket, those in Migratory or Off-shore dwellings.

Respondents enumerated in Off-shore or Migratory dwellings were persons who reside on off-shore oil rigs, drilling platforms and the like, were aboard a ship in Australian waters, or were on an overnight journey by train or bus. These respondents were involved in the mining, transport and storage, and government administration and defence industries (see Graph 2).

**Graph 2: INCOME, migratory or off-shore dwellings, Industry, 2001 Census(a)**



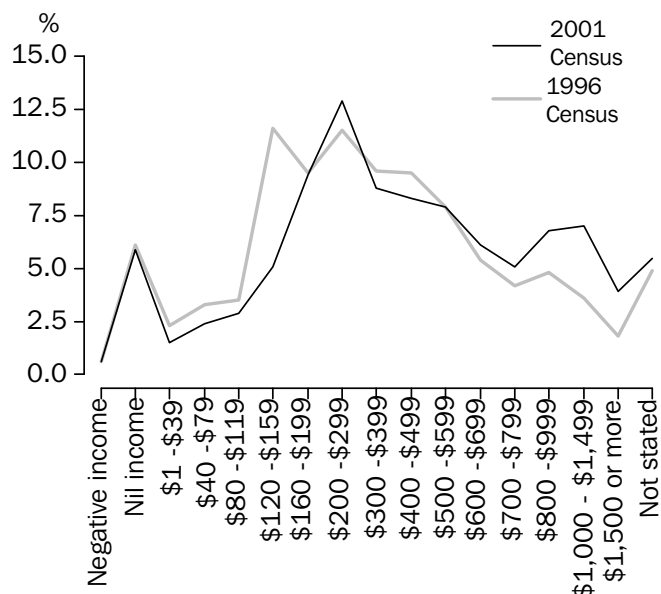
(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

38.4% of persons in the '\$1500 or more' Income bracket were in the mining industry compared to 26% of all other industries. In the \$800 - \$999 income bracket, there were approximately 60% in Government administration.

### 5.2.2 Intercensal comparison of Census Income distributions, 1996 - 2001

There were relatively minor changes to the Income question for the 2001 Census Form. However, it is not appropriate to directly compare Income data from 1996 and 2001 Censuses due to inflation. The following graph shows the differences in income distributions obtained from the 1996 and 2001 Censuses, in terms of percentages of the working age population.

**Graph 3: CENSUS INCOME DISTRIBUTION(a), 1996, 2001**



(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Although there was no change in the categories for the 2001 Census, there has been a slight change in income distribution. There has been decreases in all Income ranges below the \$160-\$199 per week Income bracket, with the largest being a 6.6% difference in the \$120-\$159 range. The medium Income brackets remained relatively stable, with the most noteworthy difference a 1.4 % increase in the \$200-\$299 range. The comparison of higher Income brackets shows a move toward higher incomes.

Corresponding to the drop in frequency of lower incomes, there were increases in all ranges greater than \$500-\$599. The higher ranges (\$600 or over) contained approximately 29% in 2001 compared to 20% in 1996. The largest difference was a 3.4% increase in the \$1000-\$1499 category.

Both Nil Income and Negative Income categories remained very similar, however there was a 0.5% increase in the Non-response rate, to 5.3% (See Graph 3). Non-response analysis is discussed in more detail in Section 5.3.



The general trend in this data was a shift from lower to higher incomes, which is further demonstrated by the upward shift of the mode incomes from \$120-159 in 1996 to \$200-299 in 2001.

The majority of people aged 15 years or over in Australia in 2001 (47%) were in the Income brackets \$160 to \$599. The Income range \$600 or over, contained a further 34% of the total population. The four Income brackets that make up the range \$1 to \$159 contained the balance, approximately 18%. More specifically this graph shows that the most common Income bracket in 2001 was the \$200-\$299 per week range, with 12.8% of all responses (just over 1.8 million wage earners).

Possible reasons for the change in distribution in the data between 1996 and 2001 are:

- Inflation which was 11.4% for the intercensal period (Census Working Paper 00/04 *1996 Census Data Quality: Income*);
- Actual increases in income. This can be supported by a 18% increase in average weekly earnings from \$568.80 in August 1996 to \$673.10 in August 2001 (Average Weekly earnings, Cat. 6302).

### 5.3 Non-response to Income

Income traditionally has one of the highest Non-response rates of all census questions. Changes made to the Income question in 1996 were successful in reducing the proportion of Non-responses to the question (see Table 4).

**Table 4: INCOME NON-RESPONSE RATES(a): Australia, 1991, 1996 and 2001 Censuses**

<i>Census</i>	<i>1991</i>	<i>1996</i>	<i>2001</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Without System Created Records	na	4.9	5.3
With System Created Records	9.3	6.2	7.6

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

na not available

The wording of the Income question and the response Income ranges for 2001 were identical to those used in the 1996 Census. In the Census Working Paper 00/04 *1996 Census Data Quality: Income* it is suggested that increases in Non-response may be due to the increased concern about personal privacy and the confidentiality of information provided. The same paper also suggested that some people 'Not in the labour force' thought that the question was only to be answered by persons who worked.

The main issue that has been identified is the effect of the word 'income' which is misleading for people who are 'Not in the labour force'.

### 5.3.1 Non-response analysis

#### 5.3.1.1 Non-response to Income by Age

Nearly one quarter of the people who did not respond to the Income question were aged between 15 and 24. This is due to a high proportion of this group being either students or 'Not in the labour force' and therefore incorrectly believing they were not required to answer the question.

**Table 5: NOT STATED INCOME, by Age(a), 2001 Census**

<i>Age</i>	<i>Number of not stated responses</i>	<i>Percent of total not stated</i>	<i>Proportion of age category</i>
15-24	179,415	23.4	7.2
25-34	94,880	12.4	3.6
35-44	98,313	12.8	3.5
45-54	95,611	12.5	3.0
55-64	80,572	10.5	4.7
65-74	81,123	10.6	6.5
75-84	89,667	11.7	11.0
85-94	43,212	5.6	18.0
95 and over	4,823	0.6	25.6
Total	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

The remainder of the age categories (excluding those aged 85 years and over) were evenly represented at around 10-12% each.

In interpreting Table 5, it is important to take into account the level of Non-response relative to the size of each age group. When considering the total number of people enumerated in each age group, those aged 75 and over are more likely to omit their income details than any other group, followed by those in the 15-24 age group.

#### 5.3.1.2 Non-response to Income by Sex

In 2001 (as in the last two Censuses), a higher proportion of the respondents who did not state their income were female (55.7%). This represented 5.8% of all females aged 15 years or over, while for males the Non-response rate was 4.8%.

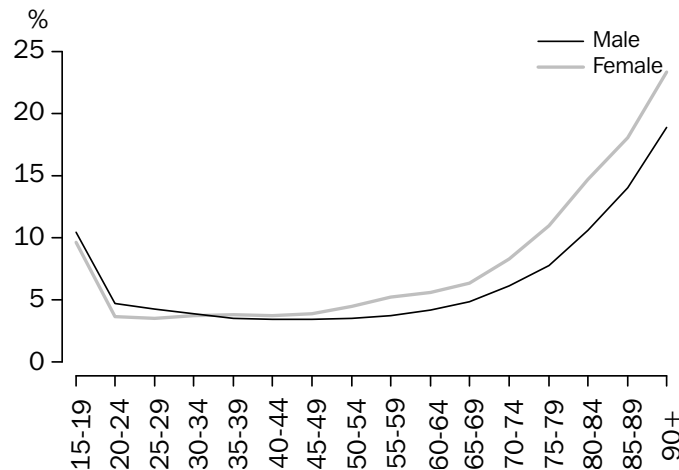
**Table 6: NOT STATED INCOME, by Sex(a), 2001 Census**

<i>Sex</i>	<i>Number of not stated responses</i>	<i>Percent of total not stated</i>	<i>Proportion of sex category</i>
Males	339,927	44.3	4.8
Females	427,689	55.7	5.8
Persons	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Graph 4 shows that age groups where people are less likely to be in the labour force have higher Non-response rates. Females have lower Non-response rates than males until age 35 or over.

**Graph 4: NOT STATED INCOME, by Age and Sex(a), 2001 Census**

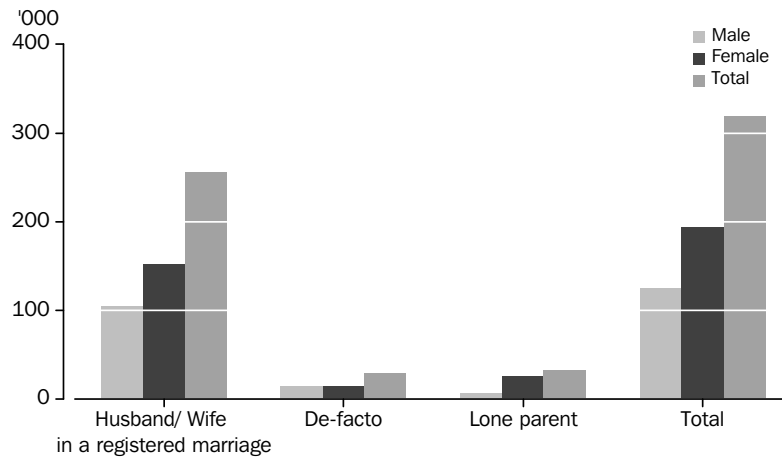


(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Analysis of Income Non-response, cross classified by sex and relationships reveals further patterns (See Graph 5). Consider the three relationship categories of 'Husband, Wife', 'Partner in de facto relationship (opposite and same sex couples)', and 'Lone parent'. In registered marriages, Non-response for females is notably higher than males. Investigation found that 51% of all females in registered marriages that did not state their income did not have a job compared to 31% of males. This emphasises the perception that persons 'Not in the labour force' do not have to answer the Income question (Census Working Paper 00/04 *1996 Census Data Quality: Income*).

Within de-facto partnerships, the Non-response rate was marginally higher for males than for females. Within the 'Lone parent' category, females accounted for 80.5% of the Non-response. This, however, is not surprising as 83.3% of lone parents are female.

**Graph 5: NOT STATED INCOME, by Relationship(a),  
2001 Census**



(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

### 5.3.1.3 Non-response to Income by Labour Force Status (LFS)

The majority of persons who did not respond to the Income question were 'Not in the labour force' (47.7% of all persons aged 15 and over) (See Table 7). This has traditionally been a problem for the Income question. It may be due to the misconception that those in 'Not in the labour force' are not required to respond because 'income' is earned from employment or paid work only.

**Table 7: NOT STATED INCOME, by Labour Force Status(a), 2001 Census**

<i>Labour Force Status</i>	<i>Number of total not stated</i>	<i>Percent of total not stated</i>	<i>Proportion of LFS category</i>
Employee	144,400	18.8	2.1
Employer	19,747	2.6	3.4
Own account worker	26,368	3.4	3.2
Contributing Family Worker	5,140	0.7	8.5
Unemployed (looking for full-time work)	21,657	2.8	4.6
Unemployed (looking for part-time work)	9,503	1.2	5.0
Not in the labour force	366,027	47.7	7.0
Not Stated	174,774	22.8	60.9
Total	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Another interesting finding from Table 7 is the high rate of Non-response for the income question from those who did not provide their LFS (22.8%). There is often a high correlation of Non-response between related variables. Of those that did not provide their LFS, 60.9% also did not state their income.

25.5% of Non-response for the Income question came from those employed. This is most likely due to people’s concerns about revealing sensitive financial information. This percentage is probably also large because ‘employed’ is a significant sector of the labour force, and therefore is more likely to be represented in these figures.

Employees were most likely to respond to the Income question (Non-response rate of only 2.1%), while 'Contributing family workers' and those 'Not in the labour force' more commonly did not respond (8.5% and 7.0% respectively).

#### 5.3.1.4 Non-response to Income by Student Status

Persons 'Not attending an educational institution' were more likely not to state their income (65.8%) (see Table 8). This is reasonable to expect since the category ‘not attending’ constitutes the majority of the population aged 15 years and over, and therefore is more likely to be represented in these figures.

**Table 8: NOT STATED INCOME, by Student status(a), 2001 Census**

<i>Student status</i>	<i>Number of not stated responses</i>	<i>Percent of total not stated</i>	<i>Proportion of Student status category</i>
Not attending	505,406	65.8	4.2
Full-time	123,240	16.1	9.2
Part-time	18,652	2.4	2.6
Not stated	120,318	15.7	64.5
Total	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

The percentage of Non-response for those attending full-time study (9.2%) was much higher than those studying part-time (2.6%). This is consistent with the proposition that those 'Not in labour force' (which many of those in full-time study would be) believe they do not need to answer the question (Census Working Paper 00/04 *1996 Census Data Quality: Income*).

Part-time students had the lowest Non-response rate. This indicates that these people may have had some type of employment as well. Of those that did not report their student status, 64.5% did not respond to the Income question.

#### 5.3.1.5 Non-response to Income by Form Type

The vast majority of Census information was collected on Household forms, so it would be logical to expect the majority of Non-response to income to have been recorded on Household forms. However, Household forms actually had the lowest proportion of Non-response (4.9%) while Personal forms had the highest (15.6%). Special Indigenous Personal Forms, completed by an interviewer, had a Non-response rate of 5.2%.

**Table 9: NOT STATED INCOME, by Form type(a), 2001 Census**

<i>Form Type</i>	<i>Number of not stated responses</i>	<i>Percent of total not stated</i>	<i>Proportion of Form type category</i>
Personal	80,528	10.5	15.6
Household Form	684,581	89.2	4.9
Special Indigenous Personal Form	2,507	0.3	5.2
Total	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

The use of Personal Forms by those concerned for the privacy of their Census information was actively promoted by the ABS. This policy may have biased the use of these forms by those who did not want to reveal sensitive information such as income.

People of Aboriginal or Torres Strait Islander descent living in nominated discrete Indigenous areas in 2001 had their responses to the Census recorded on a Special Indigenous Personal Form (SIPF) by an interviewer. In these areas the concept of 'Income' may not be clearly understood.

#### 5.3.1.6 Non-response to Income by Proficiency in English

Two thirds of those who did not state their income spoke only English at home. Non-response rates for those that spoke a language other than English at home did not impact greatly on the over-all Non-response to the Income question.

**Table 10: NOT STATED INCOME, by Proficiency in English(a), 2001 Census**

<i>Proficiency in English</i>	<i>Number of not stated responses</i>	<i>Percent of not stated</i>	<i>Proportion of Proficiency in English category</i>
Very well	73,166	9.5	5.7
Well	41,029	5.3	6.0
Not well	22,777	3.0	6.2
Not at all	5,895	0.8	8.1
Not stated	106,942	13.9	42.7
Not applicable (English speaking)	517,807	67.5	4.4
Total	767,616	100.0	5.3

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

There is some evidence that proficiency in English may contribute to the Non-response rate. Nearly 19% of the population that speak a language other than English at home did not state their Income, compared to 4.4% that did not speak a language other than English at home.

In conclusion, the majority of persons who did not state their Income were not attending an educational institution (65.8%). Nearly half (47.7%) were 'Not in the labour force'. The Non-response rate increased as proficiency in English decreased, from 5.7% (Very well) to 8.1% (Not at all). Those that stated English as their main language spoken at home had a Non-response rate of 4.4%.

## 5.4 Analysis of multiple response

Research conducted on the 2% DQI Sample (see Section 4.6), found that 0.3% multi-marked the Income question in 2001 (see Table 11). This is an increase from 0.2% in the 1996 Census. From the sample of 294,349 people enumerated on the Household and Personal forms, 837 respondents provided multiple responses to the income question. The majority of multiple marks (648) involved people marking two or more of the \$ amount categories. As found in the Census Working Paper 00/04 *1996 Census Data Quality: Income*, a possible interpretation of such multiple responses includes people were unsure of their income and chose the two most appropriate categories; they had two jobs; or their income varied from week to week.

**Table 11: MULTI-RESPONSE, Income question(a), 2001 DQI Sample**

<i>Response 1</i>	<i>Subsequent Response/s</i>	<i>Count 1996</i>	<i>Count 2001</i>
\$ amount	Negative Income	4	43
\$ amount	Nil Income	20	112
\$ amount	\$ amount	101	648
Nil Income	Negative Income	16	34
Invalid	-	7	3
Total	-	159	840
Total in sample	-	79,950	294,349

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Of the multiple response recorded in the sample, 189 were marked either Negative Income or Nil Income. There was some concern that respondents would mark both a \$ amount category and the Negative Income category in an effort to convey the magnitude of their loss. Only 43 people of the 189 (0.01% of the 294,349 people in the 2% sample) marked their form in this way.

## 5.5 Nil and Negative Income

### 5.5.1 Nil and Negative Income categories

The two categories of Nil and Negative Income were included in the 1996 and 2001 Censuses in an attempt to better enumerate low income earners, and to bring the data into line with the revised ABS Income Classification Standard. Nil Income comprised approximately 5.9% of total income responses in 2001. The Negative Income category contained much less, around 0.6% in both 1996 and 2001. Although this is a very small amount, because of the nature of Negative Income and what it indicates about the population as a whole, it is important it be included.

The following analysis deals with the characteristics of people who reported Nil or Negative Income.

## 5.5.2 Nil Income analysis

### 5.5.2.1 Nil Income by Age and Sex

Almost 50% of people responding with Nil Income were in the 15-24 year old age bracket (see Table 12). This reflects the large number of students within this age group with 27.2% of full-time students and 3.9% of part-time students answering this way (see Table 13).

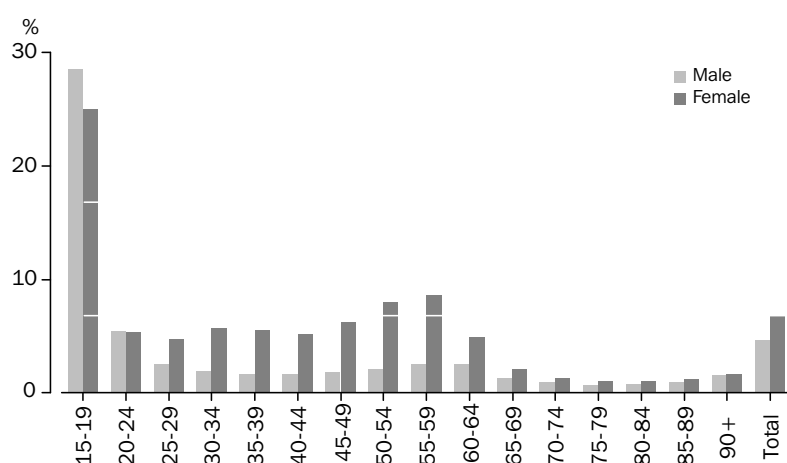
**Table 12: NIL INCOME, by Age and Sex(a), 2001 Census**

Age	Number of Nil income responses	Percent of total Nil income	Proportion of age category	Male Nil Income responses	Female Nil Income responses
15-24	420,063	49.5	16.8	225,167	194,896
25-34	101,360	11.9	3.8	29,021	72,339
35-44	101,543	12.0	3.6	23,559	77,984
45-54	115,019	13.6	4.6	24,330	90,689
55-64	81,878	9.6	4.8	21,835	60,043
65-74	17,853	2.1	1.4	6,822	11,031
75-84	7,792	0.9	1.0	2,558	5,234
85-94	2,842	0.3	1.2	750	2,092
95 and over	460	0.1	2.4	148	312
Total	848,810	100	5.9	334,190	514,620

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Other than this group, Nil Income was distributed fairly similar between the ages of 25 to 64, however after this, rates drop markedly with only 1.2% of respondents in the group aged 85 years and over.

**Graph 6: NIL INCOME, by Age and Sex(a), 2001 Census**



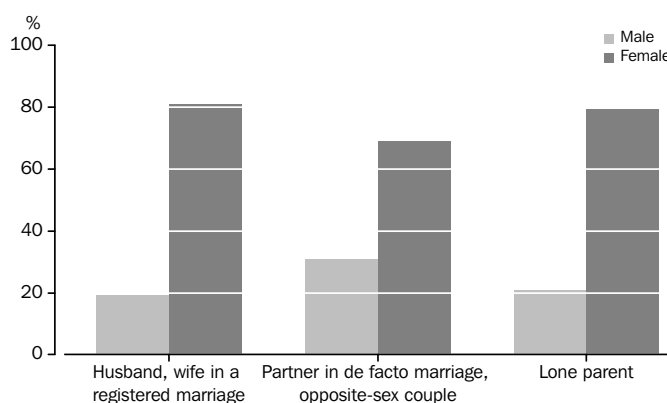
(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.



There is a large difference between males and females in response to the Income question (see Graph 6) with the Nil Income category. Of all females aged 15 years and over, 6.9% responded Nil Income to the Income question compared with 4.7% of males.

The 15-19 year age group has the highest proportion of Nil Income responses. All other age groups ranged between 0.7% (75-79 years) and 5.4% (20-24 years) for males and 1.2% (85-59 years) and 8.6% (55-59 years) for females.

**Graph 7: NIL INCOME, by Relationship(a), 2001 Census**



(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

It is interesting to note that this gap widens within partnerships (See Graph 7). That is, 81% of persons in a registered marriage who reported Nil Income were female compared with 19% male. Females also accounted for 69% of persons in de-facto marriages (opposite-sex couples) who reported Nil Income compared with 31% of males. Of the lone parents that reported a Nil Income (8,965 persons), 79% were female. As noted previously, 83.3% of lone parents are female.

#### 5.5.2.2 Nil Income by Student Status

For the purpose of analysis, the variable Student Status has been restricted to persons 15 years and over, for comparability with Income data.

The percentage of those who reported Nil Income was greatest for the category 'Not attending' an educational institution. This is to be expected since the majority of the population aged 15 years and over were in this category.

**Table 13: NIL INCOME, by Student Status(a), 2001 Census**

<i>Student status</i>	<i>Number of people</i>	<i>Total Nil Income responses</i>	<i>Percent of people with Nil Income</i>	<i>Proportion of Student Status Category</i>
Not attending	12,166,772	448,953	52.9	3.7
Full-time student	1,346,282	365,923	43.1	27.2
Part-time student	714,523	27,951	3.3	3.9
Not stated	258,189	5,983	0.7	13.7
Total	14,485,766	848,810	100.0	5.9

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

The percentage of Nil Income for students (19.1%) (number of Nil Income responses for full-time and part-time students (393,874) divided by total number of respondents in full-time and part-time student categories (2,060,805)) was much higher than the percentage for non-attendees (3.7%). The percentage of Nil Income for those attending full-time study (27.2%), however, was much higher than those studying part-time (3.9%) (see Table 13), since it is more likely that those studying part-time might also be employed.

### 5.5.2.3 Nil Income by Labour Force Status

The majority (81.6%) of Nil Income respondents were 'Not in the labour force'. This reinforces the view that the question was misunderstood by those who may be living on government benefits, or on receipts from investments.

**Table 14: NIL INCOME, by Labour Force Status (LFS)(a), 2001 Census**

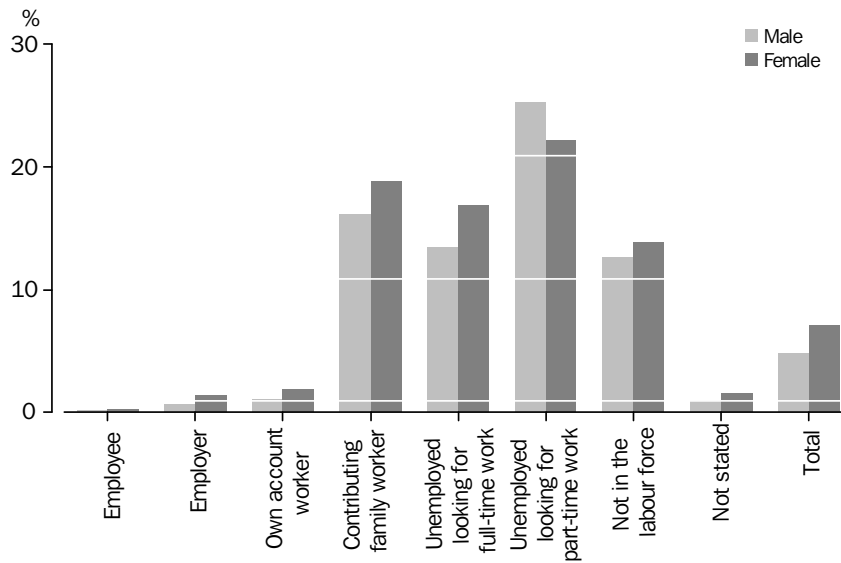
<i>Labour Force Status</i>	<i>Number of respondents in LFS category</i>	<i>Number of Nil Income responses</i>	<i>Percent of total Nil Income</i>	<i>Proportion of LFS Category</i>
Employee	6,823,554	14,379	1.7	0.2
Employer	578,050	5,400	0.6	0.9
Own account worker	836,770	11,209	1.3	1.3
Contributing family worker	60,232	10,659	1.3	17.7
Unemployed looking for full-time work	472,513	67,031	7.9	14.2
Unemployed looking for part-time work	188,196	44,055	5.2	23.4
Not in the labour force	5,242,337	692,598	81.6	13.2
Not stated	284,114	3,478	0.4	1.2
Total	14,485,766	848,810	100.0	5.9

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Of persons that were 'Contributing family workers', 17.7% responded Nil Income to the Income question as did 16.8% of those who were 'Unemployed' (unemployed looking for part-time and full-time work (111,086) divided by the total respondents in labour force categories (660,709)) and 13.2% of those who were 'Not in the labour force'. Those who were employees had the lowest Non-response rate at 0.2%.

Females recorded higher levels of Nil Income across all labour force categories except for 'unemployed looking for part-time work' (Graph 8).

**Graph 8: NIL INCOME, by Labour Force Status and Sex(a), 2001 Census**



(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

### 5.5.3. Negative Income analysis

The ABS definition of Negative Income as found in the 2001 Census Guide, refers to a situation in a self-employment business (including farming) or rental property where operating expenses exceed income or profits, and where this loss is greater than any other income, benefits or allowances received. This definition may however, be interpreted differently by respondents who may not read the Guide.

#### 5.5.3.1 Negative Income by Age and Sex

A large proportion (29.1%) of 15-24 year olds reported that they had Negative Income. This is significant, as a large proportion (54%) of 15-24 year old are students (see Appendix B). It is possible that students may perceive their HECS debt or Student loans as Negative Income.

**Table 15: NEGATIVE INCOME, by Age and Sex(a), 2001 Census**

<i>Age</i>	<i>Males</i>	<i>Females</i>	<i>Male Negative Income</i>	<i>Female Negative Income</i>	<i>Male Negative Income (%)</i>	<i>Female Negative Income (%)</i>	<i>Total Negative Income (%)</i>
15-24	1,268,369	1,229,029	14,290	11,580	1.1	0.9	29.1
25-34	1,298,193	1,346,411	5,180	5,397	0.4	0.4	11.9
35-44	1,368,900	1,425,136	6,598	7,460	0.5	0.5	15.8
45-54	1,244,068	1,265,041	8,053	9,729	0.6	0.8	20.0
55-64	864,487	856,885	6,569	6,956	0.8	0.8	15.2
65-74	599,886	648,814	2,283	2,026	0.4	0.3	4.8
75-84	338,386	473,582	924	1,111	0.3	0.2	2.3
85-94	75,290	164,463	203	399	0.3	0.2	0.7
95 and over	4,905	13,921	101	91	2.1	0.7	0.2
Total	7,062,484	7,423,282	44,201	44,749	0.6	0.6	100.0

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Unlike 'Non-response' and Nil Income responses to the Income question, the Negative Income response received equal proportions (0.6%) for males and females overall.

Table 15 shows a significantly higher proportion of males that had Negative Income in the '95 year and over' category, when compared to other age brackets. A closer examination of the 101 members of this population, looking at the combination of characteristics of the group, confirmed that this data is of dubious value to users. For example, 29% reported that they were involved in some type of employment, 33% were studying at an educational institution, 41% never went to school, 84% live in an occupied private dwelling, 47% were in the labour force and 26% could speak English not well or not at all.

### 5.5.3.2 Negative Income by Student Status

Students were more likely to reply with Negative Income (1.2%), compared with 0.5% of those 'Not attending an educational institute'. Considering the majority of the population aged 15 or over were more likely to be employed than studying, it is interesting to note that 27% of Negative Income responses were from students.

**Table 16: NEGATIVE INCOME, by Student status(a), 2001 Census**

<i>Student Status</i>	<i>Total Negative Income responses</i>	<i>Percent of Negative Income</i>	<i>Proportion of student status category</i>
Student (Full-time/part-time)	23,966	27.0	1.2
Not attending	63,888	71.8	0.5
Not stated	1,096	1.2	0.4
Total	88,950	100.0	0.6

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

### 5.5.3.3 Negative Income by Labour Force Status (LFS)

The majority of Negative Income responses were from persons 'Not in the labour force'. This, however, represents only 1.0% of those 'Not in the labour force' (57.7%).

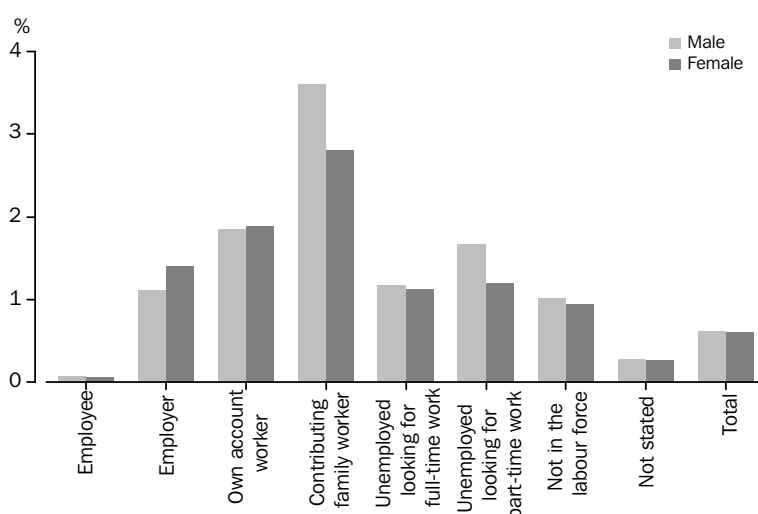
**Table 17: NEGATIVE INCOME, by Labour Force Status(a), 2001 Census**

<i>Labour Force Status</i>	<i>Number of Negative Income responses</i>	<i>Percent of total Negative Income</i>	<i>Proportion of LFS category</i>
Employee	4,435	5.0	0.1
Employer	6,949	7.9	1.2
Own account worker	15,543	17.5	1.9
Contributing family worker	1,861	2.1	3.1
Unemployed looking for full-time work	5,466	6.1	1.2
Unemployed looking for part-time work	2,599	2.9	1.4
Not in the labour force	51,316	57.7	1.0
Not stated	781	0.9	0.3
Total	88,950	100.0	0.6

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Employers only represent 7.9% of Negative Income responses, being 1.2% of all employers.

A high proportion of Negative Income responses were from 'Own account workers' (17.5%); the definition in the Census Guide explains that farmers and business owners were to deduct expenses, which may lead to Negative Income.

**Graph 9: NEGATIVE INCOME, by Labour Force Status and Sex (a), 2001 Census**

(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Males were more likely to report that they had Negative Income (See Graph 9). This pattern is shown in most labour force categories. This is particularly evident in the 'Contributing Family Workers' and 'Unemployed, looking for part-time work' categories.

More females responded as having Negative Income in the 'Contributing Family Workers' and 'Unemployed, looking for part-time work' categories. However, in proportion to the amount of males in these labour force categories, males are more likely to state Negative Income. Further investigation into the characteristics of these males showed that there are no significant attributes.

In conclusion, the Negative Income and Nil Income brackets in 2001 show similar patterns to the 1996 Census. The majority of persons who had Negative Income were 15-24 years old (29.1%). 'Persons not in the Labour Force' were more likely to have Negative Income (57.7%) but of those in the labour force, 'Own Account Workers' were more likely to have Negative Income (17.5%).

The majority of persons who had Nil Income were female (60.6%) (Table 12). Nearly half (49.5%) were 15-19 years old (Table 12) and of those 'Not in the labour force', 13.2% had Nil Income (Table 14).

## **6. COMPARISONS WITH NON CENSUS DATA**

### ***6.1 Issues to consider when comparing with Non-Census data***

Census Income data can be compared carefully against some other measures of Income collected from other sources.

Although the Census and ABS population surveys such as the Survey of Income and Housing Costs collect similar data, they are not strictly comparable due to differences in scope, coverage, timing, measurement of underlying labour force concepts and collection methodology.

In this Census Paper, to enable analyses of census data and Labour Force Survey (LFS) benchmarks, their scopes have been reduced to a common population. Therefore, the following population groups have been excluded from census data:

- Members of the Australian permanent defence forces, civilian personnel employed by the defence forces, personnel employed by government units mainly engaged in defence administration, (ANZSIC Classification 8200 - Defence).
- Persons aged under 15.
- Overseas visitors.
- Jervis Bay Territory.

#### ***6.1.1 Comparing Taxation Data***

The 1999-2000 Taxation Statistics data are compiled by the Australian Tax Office (ATO). These data are collected by Tax Return Forms, combined with administrative data output from the process of Income Tax payments. There are certain limitations associated with this, as some persons may misrepresent their true income for taxation purposes. There is no way of estimating the size of error or variability, however, at an aggregated level, tax data provides fairly robust figures.

#### ***6.1.2 Comparing with the Survey of Income and Housing Costs***

The Survey of Income and Housing Costs (SIHC) was conducted as part of the ABS Monthly Population Survey (MPS). Respondents were a sub-sample of those in the MPS during the 1999-2000 financial year. The survey was interviewer-based and collected information on income, housing costs and the characteristics of households in private dwellings. Results of the survey are contained in the ABS publication Income Distribution, Australia, (1999-2000) (Cat. no.6523.0) released in February 2001.

It is very important to note the differences in methodology underlying the three collections. There are explained further in 6.2 and 6.3 below. Nevertheless, comparisons with Tax and SIHC data can be used to check certain benchmarks for income data, as long as these comparisons are performed in an appropriate manner.

### ***6.2 Comparison with 1999-2000 Taxation data***

This section compares income data from the 2001 Census with income data collected by the Australian Taxation Office (ATO) for the 1999 - 2000 period (the most recent data available). There are significant differences in the methodological approach taken by each entity. The following are the main differences between the two sets of data:

- the 2001 Census has a broader in-scope population of 13,631,600 persons (i.e. those aged 15+) than taxation data that recorded only 10,412,593 persons who filled out a Tax Return Form (excluding those persons with income under the minimum taxable Income bracket);
- tax data are based on taxable income reported, not gross income usually received each week as collected in the census;
- Census captures data for pensions and allowances for persons aged 15 and above and for persons not in the labour force, whereas taxation data does not always capture these payments;
- income tax data were collected for the financial year ended June 2000, whereas Census income data were collected on Census night, 6 August 2001 for the whole weekly income. The results may differ due to the two different reference periods.

Even so, for the purpose of this paper, 2000 Taxation Statistics were compared with the 2001 Census income data at the broad level.

**Table 18: COMPARISON OF 2001 CENSUS DATA, with 1999-2000 Taxation Statistics**

<i>Weekly Income Bracket</i>	<i>1999-2000 Taxation statistics (a)</i>		<i>2001 Census (b)</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Negative Income	147,397	1.4	88,950	0.6
Nil Income	18,589	0.2	848,810	6.2
\$1-119	903,419	8.7	987,476	7.3
\$120-159	428,627	4.1	732,888	5.3
\$160-199	497,253	4.8	1,364,845	9.9
\$200-299	1,222,263	11.7	1,867,866	13.6
\$300-399	1,062,147	10.2	1,278,582	9.3
\$400-499	1,048,336	10.1	1,210,497	8.8
\$500-599	1,015,893	9.8	1,149,467	8.4
\$600-699	897,484	8.6	880,830	6.4
\$700-799	775,777	7.5	737,338	5.4
\$800-999	1,061,225	10.2	979,839	7.1
\$1,000 - \$1,499	918,161	8.8	1,019,106	7.4
\$1,500 or more	416,022	4.0	571,656	4.2
Total	10,412,593	100.0	13,718,150	100.0

(a) Includes taxpayers age 15 years and over. Statistics are sourced from 2000 income tax return forms processed before 12 August 2002. Taxable income = Total income-total deductions-primary production prior year losses-non-primary production prior year losses.

(b) Table excludes: Persons under 15 years of age, SCR's ,Overseas Visitors and Non-response.

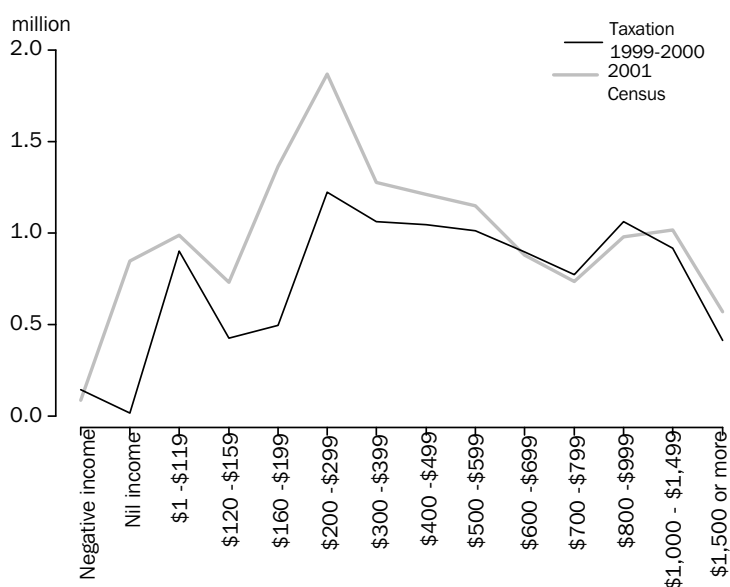
Despite methodological differences, the trends are similar for both sets of data. The most significant difference in the data is in the Nil Income brackets. Taxation shows that 0.2% persons had Nil Income compared to 6.2% in Census data. The tax-free threshold is \$5,400, therefore persons with a total income of under \$5,400 may not submit a tax return.



Persons were more likely to report Negative Income on their Tax Return than in the Census. This result may be influenced by the perception of the importance of a tax return and the consequences of reporting their income incorrectly compared to filling in a Census form incorrectly. It also may be more beneficial for persons to claim a Negative Income (e.g. capital loss) as they can claim back against the loss in subsequent years.

Another anomaly (see Graph 10) is that the respondents in the categories below the \$600-699 Income bracket stated in taxation data that they have a proportionally lower income, and above this bracket, a slightly higher income (up to \$900) than Census results. This anomaly could possibly be due to respondents with incomes less than \$600 per week overstating their income in the census, or understating their income on their tax return. Another possibility is that the underlying methodologies of the two collections differ too widely (for those on lower incomes) to enable comparisons of the two collections. On the other hand, both Tax and Census appear to have reasonable coverage of those with incomes of \$600 per week or greater.

**Graph 10: COMPARISON OF 1999-2000 TAXATION STATISTICS, with 2001 Census(a)**



(a) Graph excludes: Persons under 15 years of age, SCR's and Overseas Visitors.

Overall, it can be concluded that the data are comparable. Similar patterns were shown in the comparison of Census 1996 data and 1994/95 Taxation data (Census Working Paper 00/04 ).

### 6.3 Comparison with 1999-2000 Survey of Income and Housing Costs data

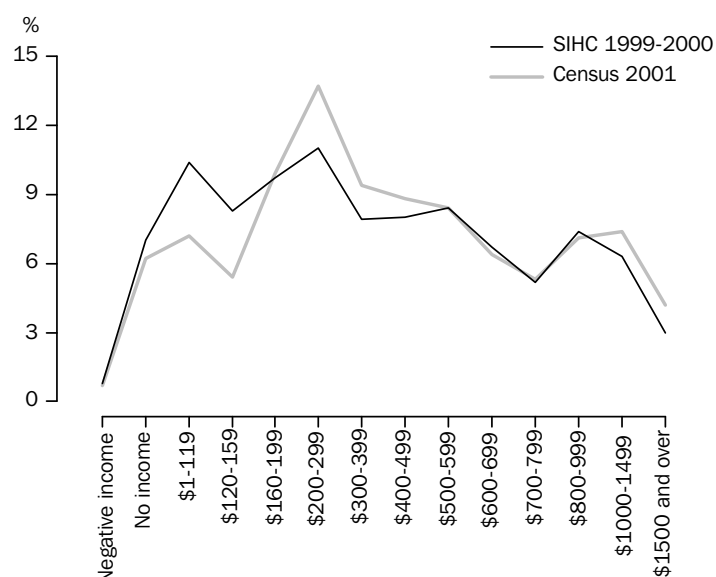
It is important to note the differences between the methodology and sampling techniques used by this data source, as compared to the Census. A census is a complete enumeration of the population, whereas the SIHC is a survey that produces estimates using information from a sample of the population. Consequently, SIHC produces estimates that are subject to sampling variability (the error innate in collections which use only a part, rather than the whole, of a population).

One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied because only a sample of dwellings were included. Sampling variability can also be measured by the relative standard error (RSE) which is obtained by expressing the SE as a percentage of the estimate to which it refers. The RSE is a useful measure in that it provides an immediate indication of the percentage standard errors likely to have occurred due to sampling, and avoids the need to refer also to the size of the estimate.

In SIHC publications, all data are published with their relevant RSE; however at the aggregated Australian level, the RSE is low and of no concern for data users (see the *Explanatory Notes: Income Distribution (6523.0)* for further information).

The SIHC employs different collection procedures, using interviewer-based methodology rather than the self enumeration method of the census. This different methodology influences the results; for instance, there are no 'not stated' responses in SIHC data, as interviewers can probe for answers and clarify definitions. SIHC also uses imputation techniques to compensate for any data that are still missing.

**Graph 11: COMPARISON OF 2001 CENSUS DATA(a),  
with 1999-2000 SIHC data**



(a) Graph excludes: Persons under 15 years of age, SCR's, Overseas Visitors and non-response

The distribution of income for the 2001 Census excluding 'Non-Response', was similar to that of the 1999-2000 SIHC. In the 2001 Census, 4.2% of the population reported themselves as being in the top income bracket. This compares to SIHC data in which 3.0% of the population were reported to be in the top income bracket.

The differences in the Negative Income and Nil Income brackets and also in the upper ranges (more than \$599), are small. For the Negative Income and Nil Income brackets, these minor differences could be due to the changes made to the definition of inclusions in these ranges in the Census Guide.

However, in the table below, when compared in a percentage difference basis there is a significant difference in data. In the \$1-\$119 and \$120-\$159 per week Income bracket, Census figures were 30.7% and 35.5% lower respectively. In the middle Income bracket of \$200-\$299 per week, Census data increased in relation to SIHC data and were 23.9% higher (See Table 19).

**Table 19: COMPARISON OF 2001 CENSUS DATA, with 1999-2000 SIHC data**

<i>Weekly Income Bracket</i>	<i>1999-2000 SIHC</i>		<i>2001 Census (a)</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
Negative Income	11,310	0.8	88,526	0.7
Nil Income	1,027,527	7.0	845,821	6.2
\$1-119	1,532,133	10.4	983,375	7.2
\$120-159	1,222,134	8.3	728,189	5.4
\$160-199	1,429,567	9.7	1,351,053	9.9
\$200-299	1,621,028	11.0	1,860,747	13.7
\$300-399	1,167,868	7.9	1,272,897	9.4
\$400-499	1,181,895	8.0	1,202,706	8.8
\$500-599	1,238,841	8.4	1,141,307	8.4
\$600-699	988,121	6.7	871,191	6.4
\$700-799	762,979	5.2	723,502	5.3
\$800-999	1,088,063	7.4	959,538	7.1
\$1,000 - \$1,499	936,270	6.3	1,000,638	7.4
\$1,500 or more	448,069	3.0	565,357	4.2
Total	14,756,605	100.0	13,594,847	100.0

(a) Table excludes: Persons under 15 years of age, SCR's, Overseas Visitors and non-response

Another potential difficulty in comparing the two collections involves the rate of inflation from July 2000 to August 2001, the period between the collections. However, previous analysis in the Census Working Paper 00/4, *1996 Census Data Quality: Income*, has shown that inflation had little effect on the differences in distribution. The comparisons in this paper do not include such adjustments.



## 7. CONCLUSIONS

The analysis of the income data presented in this paper shows several areas of concern (for the 2006 Census), in particular the Non-response rate. Following the significant decrease in Non-response rates between 1991 and 1996 Censuses, the trend reversed in 2001 with a slight increase in Non-response rates. While most of the Non-response rate can be explained by overall increased non-contact and subsequent increased imputation, the balance may indicate increased concerns in the community regarding confidentiality of responses.

Analysis showed that the distribution of income has changed slightly since the 1996 Census. Although some of these differences are anticipated due to inflation, there has been some considerable movement upwards in the income distribution. These changes are demonstrated by the mode for income moving from the \$120-\$159 per week Income bracket in 1996 to the \$200-\$299 per week Income bracket in 2001.

Comparison between SIHC data and Census data showed similar patterns of income distribution. The major difference in the data was in the \$1000-\$1499 per week category, where there was a 8.1% difference.

Taxation data, although collected using a different methodology from the Census, proved to be comparable to Census data at higher income levels. Significant differences were shown in the Nil Income category and in the \$160-199 and \$200-299 categories. In the Nil Income bracket, the figures are lower for taxation data as these respondents may not be required to submit a tax return.

In 1996, the two categories Nil Income and Negative Income were introduced, and again were included on the 2001 Census form. By definition Negative Income should only have been reported by the owners of unincorporated businesses (the self-employed, own account workers, employers and partners) (Census Working Paper 00/4, *1996 Census Data Quality: Income*). This response option should not have been used by employed persons or any other labour force category. However, from investigations into the characteristics of the respondents in the Negative Income category, it can be concluded that this category was misunderstood by the respondents.

Through investigation of the respondents in the Nil and Negative categories, it was established that the majority of the contributors are aged 15-24 years old, female and 'Not in the labour force'. Reasons for this may include concerns about revealing sensitive financial information, or the misconception that those 'Not in the labour force' were not required to answer the Income question. Due to these elements, further investigation is required into the respondents understanding of Negative Income.

Multiple responses to the Income question can be an issue when analysing data quality. Research on multiple response was conducted using a 2% sample of Collection Districts. As in 1996, the results verified that in the census a small proportion of the population answered the Income question this way and should be of little concern for data users.

Therefore, form design changes made in the 2001 Census continue to provide better quality income data. However, the quality of data is continually affected as respondents become more concerned about privacy and the ability of the data to be compared to other data sources such as taxation data. Despite these limitations, the income information collected in the census is a valuable information source for those in social research.

## 8. RECOMMENDATIONS

Based on the findings of this paper, it is recommended that:

- Due to the issue of high Non-response by those 'Not in the labour force' or unemployed, consideration should be given to including a brief statement before the question that the question is applicable to all persons aged 15 years or over. Currently, the notification at the top of the page 'Only continue for persons aged 15 years or more' does not appear to reinforce the importance of response to the Income question (Non-response by age, section 5.3.1).
- Other measures could also be used to assist respondents in identifying that the question is applicable to them. This may remind respondents to include any benefit or pension that they receive in their income.
- In 2001, the list of sources was too long and not well read, and could be redesigned. Some very common and important sources were placed near the bottom, and almost certainly not well read. For example, the majority of Negative Income responses came from students, yet many businesses and farmers operate at a loss. These persons would have calculated a large figure without deducting expenses, hence reporting an incorrect response. Broader categories could replace the more specific, e.g. by stating 'any payment from Centrelink'. Wages and Salaries are considered by most people to be the same thing and could be presented as 'Salary (including overtime)'. Superannuation should not be repeated to reduce the information in the question. If persons believe that they understand the question, they will not continue to read the additional information. Hence, any significant details need to be obvious (Negative and Nil Income, section 5.5).
- It would also be informative to test the community's perception of Negative Income, since it appears that a large proportion of persons may have responded with this inappropriately. Farmers and small business owners who do have a Negative Income once expenses are deducted (as they are required to do) may have correctly responded with Negative Income but have not done so. (Negative Income, section 5.5.3 and Comparison with Taxation data, section 6.2).
- Review of the categories/ranges provided should be undertaken to ensure the relevancy of the ranges to 2006 incomes.





## GLOSSARY

**Australian Bureau of Statistics (ABS)** Australia's official statistical organisation.

**Classification** - grouping arrangement, often a hierarchy such as the ASCCEG.

**Census Guide** - an explanatory booklet that provides advice and background information on how to complete a Census Form (see *Appendix A*). A Guide was distributed with each Form.

**CD** See Collection District (CD).

**Census Inquiry Service (CIS)** - a phone-based (13 number) facility set up to provide translation and other information services relating to the 2001 Census.

**Collection District (CD)** The smallest geographic area defined in the Australian Standard Geographical Classification (ASCC). It has been designed for use in the Census of Population and Housing as the smallest unit for collection, processing and output of data.

**Consumer Price Index (CPI)** A measure of changes, over time, in retail prices of a constant basket of goods and services representative of consumption expenditure by resident households in Australian metropolitan areas.

**Data Capture (DC)** - the process that ensures all marks on the Form (mark box or writing) are reproduced on an image. DC registers and codes mark box responses.

**Data Processing Centre (DPC)** The central site where the capture and data entry of census takes place. After census forms have been completed on census night, they are collected and returned to the state distribution offices or sent directly to the DPC.

**Data Quality Investigation (DQI)** A DQI team operated within the DPC, conducting non-standard coding exercises to investigate data quality issues.

**Discrepancy Rate** - the rate at which Quality Management and subsequent Adjudication coding differed from that of an individual human or system coding. It is expressed as a percentage and is regarded as the error rate within final data.

**Dwelling** In general terms, a dwelling is a structure which is intended to have people live in it, and which is habitable on census night. Some examples of dwellings are houses, motels, flats, caravans, prisons, tents, humpies and houseboats. All occupied dwellings are counted in the census. *See also* Dwelling Location (DLOD), Dwelling Structure (STRD), Dwelling Type (DWTD), Household.

**Intelligent Character Recognition (ICR)** The 2001 Census data were processed using Intelligent Character Recognition (ICR) technology. Specialised computer software is used to interpret the handwriting on images taken of each page of the census form. Once recognised, answers to the questions were then coded to the appropriate category of the relevant classification. The 1996 Census was processed using Optical Mark Recognition (OMR) technology which was not capable of processing handwritten responses.

**Mark boxes** - invite the respondent to place a dash within at least one of a possible series of selection boxes on the Census Form. The ICR system then identified marked boxes during the Data Capture process.

**Quality Management** - (in this paper) the process of regular review of a percentage of a coding work, though also a term for broader DPC-wide ongoing reviews.

**Relative Standard Error (RSE)** The error innate in collections which use only a part, rather than the whole population, expressed as a percentage of the figure. Only estimates with RSEs less than 25% are considered sufficiently reliable for most statistical purposes and for those with an RSE greater than 25% caution should be exercised in their use. *See also* Sampling Error (SE).

For further information about sampling variability refer to the Additional Information contained in *Australian Housing Survey, 1999* (cat. no. 4182.0) or *Income Distribution Australia, 1999-2000* (cat. no. 6523.0).

**Sampling Error (SE)** Estimates derived from information obtained from occupants of a sample of dwellings are subject sampling variability. That is, they may differ from figures that would have been obtained had all households been included in a collection. *See also* Relative Standard Error (RSE).

For further information about sampling variability refer to the Additional Information contained in *Australian Housing Survey, 1999* (cat. no. 4182.0) or *Income Distribution Australia, 1999-2000* (cat. no. 6523.0).

**Special Indigenous Form (SIF)** The standard form used for the enumeration of Indigenous communities. Information was collected via interview.

**Survey of Income and Housing Costs (SIHC)** The survey collected information on income and characteristics of income units and persons resident in private dwellings throughout Australia in 1999-2000.

**System created record (SCR)** A record created during census processing for a person for whom a census form has not been received but where the collector believed the dwelling was occupied on census night. SCRs have values imputed for age, sex, marital status and usual residence only. Values for other variables are set to 'Not Stated' or 'Not Applicable', depending on the imputed value for age.

**Validation** - the checking of all Census variables for signs of any remaining or emerging system problems. This was undertaken by the DPC-based Validation Team, who included aspects of Ancestry in their work

## NOTE

For more information about the terms, definitions and descriptions of categories in this paper refer to the *2001 Census Dictionary* (cat. no. 2901.0).

## Appendix A: Changes in CPI (July 1996 - June 2001)

The inflation rate as measured by the Consumer Price Index (see Consumer Price Index, Australia, Cat No. 6401.0) weighted average of all groups, all capital cities, for the year to the end of the June Quarter (Financial Year):

96-97 = 1.3%

97-98 = 0.0%

98-99 = 1.2%

99-00 = 2.4%

00-01 = 6.0%

This is equivalent to an increase of 11.4 % over the five years from July 1996 (the previous Census was on August 6, 1996) to the end of June 2001.

## Appendix B: Number of students by age group(a)

<i>Age</i>	<i>Not attending</i>	<i>Full-time Students</i>	<i>Part-time Students</i>	<i>Not Stated</i>	<i>Total Persons</i>
15-24	1,116	1,153,412	198,315	29,667	2,497,398
25-34	2,282,708	113,055	217,822	31,019	2,644,604
35-44	2,539,612	48,664	166,108	39,652	2,794,036
45-54	2,362,129	21,429	92,455	33,096	2,809,109
55-64	1,664,282	5,393	27,808	23,889	1,721,372
65-74	1,206,300	1,792	8,911	31,697	1,248,700
75-84	763,771	1,523	2,552	44,122	811,968
85-94	215,991	731	401	22,630	239,753
95 and over	15,975	283	151	2,417	18,826
Total	12,166,772	1,346,282	714,523	258,189	14,485,766

(a) Table excludes: Persons under 15 years of age, SCR's and Overseas Visitors.



## Census Papers

### 2001 Census Papers:

- 03/04 *2001 Census: Income*
- 03/03 *2001 Census: Computer and Internet Use*
- 03/02 *2001 Census: Housing*
- 03/01b *2001 Census: Ancestry - Detailed Paper*
- 03/01a *2001 Census: Ancestry - First and Second Generation Australians*
- 02/03 *2001 Census: Form Design Testing*
- 02/02 *Report on Testing of Disability Questions for Inclusion in the 2001 Census*
- 02/01 *2001 Census: Digital Geography Technical Information Paper*

### 1996 Census Working Papers:

- 00/4 *1996 Census Data Quality: Income*
- 00/3 *1996 Census Data Quality: Industry*
- 00/2 *1996 Census Data Quality: Qualification Level and Field of Study*
- 00/1 *1996 Census Data Quality: Journey to Work*
- 99/6 *1996 Census Data Quality: Occupation*
- 99/4 *1996 Census: Review of Enumeration of Indigenous Peoples in the 1996 Census*
- 99/3 *1996 Census Data Quality: Housing*
- 99/2 *1996 Census: Labour Force Status*
- 99/1 *1996 Census: Industry Data Comparison*
- 97/1 *1996 Census: Homeless Enumeration Strategy*
- 96/3 *1996 Census of Population and Housing: Digital Geography Technical Information Paper*
- 96/2 *1996 Census Form Design Testing Program*

### 1991 Census Working Papers:

- 96/1 *Income*
- 95/1 *Housing*
- 94/4 *Ancestry*
- 94/3 *Disability*
- 94/2 *Education*
- 94/1 *Labour Force Status*
- 93/6 *Aboriginal/Torres Strait Islander Counts*
- 93/5 *Public Communications*
- 93/4 *Comparison of Census and PES Responses*
- 93/3 *Posted-in Forms*
- 93/2 *Self Coding*
- 93/1 *Sequencing Instructions*

These papers are available on the ABS web site at <<http://www.abs.gov.au>>. From the ABS home page, select **Census -> (Census Information) Fact Sheets and Census Papers -> (Other Publications) Census Papers.**

If you have further data quality queries, please contact the Assistant Director, Census Evaluation by telephone: (02) 6252 5611 or email: <[joanne.healey@abs.gov.au](mailto:joanne.healey@abs.gov.au)>.