

**1996 CENSUS:
LABOUR FORCE STATUS**

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SUMMARY

Within this paper, various aspects of the quality of labour force data collected in the 1996 Census of Population and Housing have been examined. The effects of various changes made between the 1991 and 1996 Census labour force components have been analysed, and comparison has also been made with data from the 1996 Census and the August 1996 Labour Force Survey. The changes made to the labour force status questions for the 1996 Census yielded mainly positive results. The main conclusions of the analyses were as follows:

- The changes made to the labour force status questions helped to significantly reduce non-response rates for other related census questions such as 'Hours Worked', 'Method of travel to Work', 'Occupation' and 'Industry'.
- The introduction of the 'Availability to Start Work' question greatly assisted in determining whether or not a person was either unemployed or not in the labour force as well as improving the comparability of Census Labour Force data and Monthly Labour Force Survey (MLFS) data
- Changing the 'Hours Worked' question so that it asked for the number of hours worked in all jobs (rather than just the main job) helped to reduce the non-response rate for this question as well as improving the comparability of Census Labour Force data and MLFS data.
- The 1996 Census non-response rate for Labour Force Status was comparable to the 1991 Census (2.4% in 1996 compared to 2.3% in 1991). The non-response rate for male respondents rose slightly from 2.1% to 2.6% and declined slightly for female respondents from 2.6% to 2.2%.
- The addition of the Limited Liability component to the 1996 Census 'Job Last Week' question resulted in the 1996 Census overstating the number of employees and understating the number of employers and self employed in comparison to the MLFS. This appears to be the result of a significant number of respondents identifying themselves as being employed in a limited liability company (with or without employees) and thus being coded as Employees, when in fact, they were not employed in a limited liability and were thus either Employers or Own Account Workers.
- Evaluation of the labour force component in future censuses will include continued monitoring of the performance of sequencing patterns, question design and non-response rates to establish the most effective sequence. The 1996 Census changes involving limited liability companies do appear to have confused respondents and may not have improved data on status in employment. Alternative approaches to distinguishing people employed in their own businesses are being investigated as part of the 2001 Census Testing program.

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1. INTRODUCTION

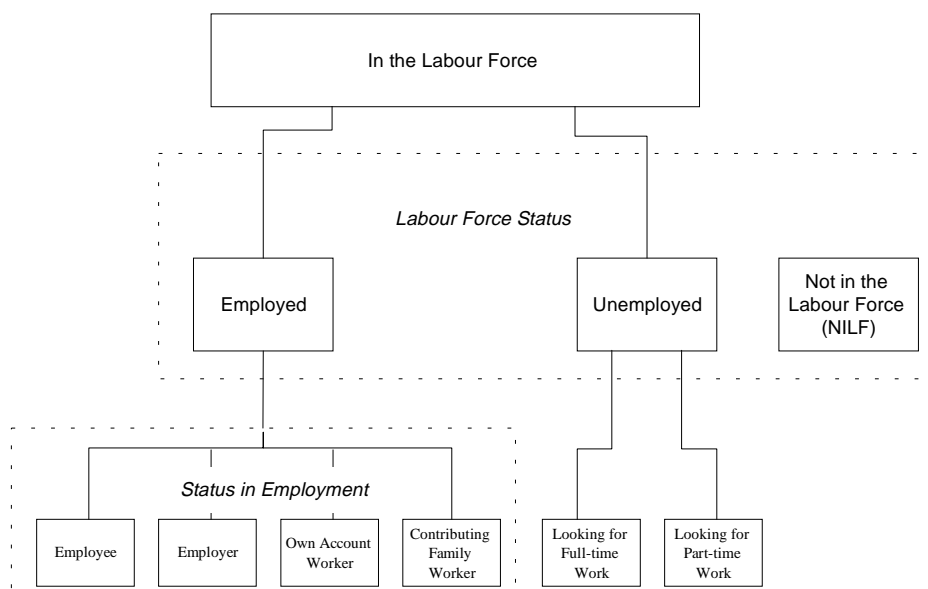
The labour force component of the 1996 Census of Population and Housing represented a substantial revision since 1991 in an attempt to improve data quality and to make the census more comparable to the Australian Bureau of Statistics (ABS) monthly labour force survey - the source of Australia's official labour force estimates for the States and broad geographical regions. The purpose of this paper is to assess the effects of these changes on the data quality of the labour force variables collected in the 1996 Census.

The most important of the labour force variables collected in the census, 'The Core Labour Force Variables', comprise:

- Labour Force Status; and its sub-category
- Status in Employment (previously known as Status of Worker);
- Hours Worked; and
- Full-time/Part-time Status.

Labour Force Status (LFS) is the measure which classifies persons as either in the labour force or not in the labour force (NILF). Those in the labour force are then classed as employed or unemployed. The LFS classification further sub-classifies employed people into Status in Employment categories: employee, employer, own account worker and contributing family worker. Unemployed persons are classed as either looking for full-time or part-time work (see Figure 1). Information on hours worked by employed people, is also used as a cross-classifier to determine their full-time/part-time status (ABS, 1996a).

Figure 1: Labour Force Classifications



While the labour force survey provides the official estimates of employment and unemployment for Australia, States and selected regions, the census supplements this by providing labour force information for small population groups and within small geographic areas. For example, labour force participation rates can be determined for

small groups of the population, such as the Aboriginal and Torres Strait Islander peoples, migrants and detailed age groups. The census also supplies small area information about the characteristics of persons not in the labour force.

Major uses of labour force data from the census include the monitoring of labour market policies and the planning and provision of training programmes aimed at particular population groups within a local community. Many businesses also use labour force data when planning the ideal location of new premises. Status in Employment data provide another dimension for these uses.

Finally, the inclusion of questions concerning the core labour force variables in the census also allows for the collection of small area level information on the related variables of occupation and industry of employment. These variables are not directly commented upon in this paper and it is intended that separate working papers will be produced for each of these variables.

2. QUESTIONS USED TO DETERMINE LABOUR FORCE STATUS

2.1 *Questions in 1991 and Previous Censuses*

Questions on Labour Force Status have been asked in every Australian census since 1911. Since 1966, the census labour force component has evolved gradually for a variety of reasons, including concerns over space and non-response rates and the desire for greater conceptual consistency across ABS collections concerning labour force information. In line with this goal, International Labour Organisation (ILO) definitions of the economically active population were adopted for the 1966 Census and for all subsequent censuses. Efforts have been made since the 1986 Census to make the concepts and instructions used in the core labour force questions more consistent with those used in the monthly labour force survey (MLFS). A series of changes were implemented:

A person was classified as unemployed if he or she actively looked for work in the *last four weeks*, rather than last week as in the 1981 Census.

Unemployed persons were further classified as looking for full-time or part-time work.

Unpaid workers in a family business who *worked at least one hour* in the reference week were included in the labour force (as recommended by the ILO at the 1982 International Conference of Labour Statisticians), whereas the previous cut-off had been 15 hours (*ABS, 1991b*)

The wording of the core labour force questions remained almost unchanged between the 1986 and 1991 Censuses. Changes to the appearance of the questions were required for the new processing technology adopted by the ABS, Optical Mark Recognition (OMR), and some changes to the formatting and location of instructions were implemented (see Appendix 1).

2.2 *1996 Census Questions*

While greatly simplified, the self-enumeration questions and decision table for the 1996 Census have achieved greater comparability with international and MLFS concepts.

Four core questions and two non-core questions were used to derive labour force status in the 1996 Census. The core labour force questions concerned 'Full/Part-time Job', 'Job Last Week', 'Looking for Work' and a new question 'Availability to Start Work'. The two additional questions used in the derivation process when responses to the core questions were missing were 'Hours Worked' and 'Method of Travel to Work'.

Several changes were also made to the order and sequencing instructions of the labour force questions since 1991, partly in order to facilitate the inclusion of the availability to start work question. The new order involved moving the hours worked and looking for work questions to the end of the employment related questions.

Test results indicated that the placement of the looking for work question within the labour force questions reduced the non-response rates for the other labour force questions and, together with the introduction of the new question concerning availability to start work, improved the measurement of unemployment (ABS, 1996b - see section 23.2). As a consequence of these tests, it was decided to place the looking for work and availability to start work questions at the end of the labour force questions for the 1996 Census. The order in which the questions were asked in 1991 and 1996 are listed below.

<u>Order of Questions 1991</u>	<u>Order of Questions 1996</u>
Full/Part-time Job	Full/Part-time Job
Looking for Work	Job Last Week
Job Last Week	Occupation
Hours Worked	Tasks or Duties
Occupation	Employer's Business Name
Tasks or Duties	Employer's Address
Employer's Business Name	Industry of Employer
Employer's Address	Hours Worked
Industry of Employer	Transport to Work
Transport to Work	Looking for Work
	Availability to Start Work

Further discussion of the rationale for these changes can be found in the Census Working Paper 96/2, *1996 Census Form Design Testing Program (ABS 1996b)*. The 1996 Census labour force questions are listed overleaf.

<p>30 Last week, did the person have a full-time or part-time job of any kind?</p> <ul style="list-style-type: none"> • Mark one box only. • A job means any type of work including casual or temporary work or part-time work, if it was for one hour or more. 	<ul style="list-style-type: none"> <input type="checkbox"/> Yes, worked for payment or profit <input type="checkbox"/> Yes, but absent on holidays, on paid leave, on strike or temporarily stood down <input type="checkbox"/> Yes, unpaid work in a family business <input type="checkbox"/> Yes, other unpaid work ➤ Go to 39 <input type="checkbox"/> No, did not have a job ➤ Go to 39
<p>31 In the main job held last week, was the person:</p> <ul style="list-style-type: none"> • Mark one box only. • If the person had more than one job last week then 'main job' refers to the job in which the person usually works the most hours. 	<ul style="list-style-type: none"> <input type="checkbox"/> A wage or salary earner? <input type="checkbox"/> A helper not receiving wages? <p>Conducting own business in a limited liability company</p> <ul style="list-style-type: none"> <input type="checkbox"/> With employees? <input type="checkbox"/> Without employees? <p>Conducting own business which is not a limited liability company</p> <ul style="list-style-type: none"> <input type="checkbox"/> With employees? <input type="checkbox"/> Without employees?
<p>39 Did the person actively look for work at any time in the last four weeks?</p> <ul style="list-style-type: none"> • Examples of actively looking for work include: being registered with the Commonwealth Employment Service; checking or registering with any other employment agency; writing, telephoning or applying in person to an employer for work; or advertising for work. 	<ul style="list-style-type: none"> <input type="checkbox"/> No, did not look for work ➤ Go to 41 <input type="checkbox"/> Yes, looked for full-time work <input type="checkbox"/> Yes, looked for part-time work
<p>40 If the person had found a job, could the person have started work last week?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Yes, could have started work last week <input type="checkbox"/> No, already had a job to go to <input type="checkbox"/> No, temporarily ill or injured <input type="checkbox"/> No, other reason

In the 'Job Last Week' question wage/salary earners and persons employed in a limited liability company with or without employees were coded to the Labour Force Status category of 'Employee'. Helpers not receiving a wage were coded to the Labour Force Status category of 'Contributing family worker'. Persons employed in a business which was not a limited liability company with employees were coded to the Labour force Status category of 'Employer'. Persons employed in a business which was not a limited liability company without employees were coded to the Labour force Status category of 'Own account worker'.

2.2.1 Changes made to the Census Labour Force Questions since 1991

The 'Full/Part-time Job' question (Q.30) remained largely unchanged between 1991 and 1996. Additional instructions were included on the 1996 Census form to clarify some issues for respondents in order to reduce the incidence of multiple marks (where more than one response is marked for an individual question) and the under-reporting of persons working in casual, temporary or part-time employment. There were no instructions on the 1991 Census form for this question.

There was a major change to the 'Job Last Week' question (Q.31) as the response categories were expanded to allow the separate identification of self-employed persons in limited liability companies. These changes were introduced in an attempt to improve the comparability of status in employment data between the census and the labour force survey. The outcome of this change is discussed in Section 3.1.2.

The Status in Employment descriptors used in 1991 were also reworded for 1996 in accordance with the revised ABS standard. Wage/Salary Earner was changed to Employee, Self Employed to Own Account Worker and Unpaid Helper to Contributing Family Worker.

The 'Looking for Work' question (Q.39) remained unchanged between censuses, but was one of the labour force questions that was re-sequenced. Sequencing changes are further discussed below.

The 'Availability to Start Work' question (Q.40) was introduced to improve the comparability of labour force data between the census and the labour force survey.

In the labour force survey, persons who did not work in the past week and looked for a job but were unavailable to start work would have been classified as not in the labour force. In the 1991 Census, where no question on availability to start work was included, such people would have been classified as unemployed. With the introduction of this question in the 1996 Census, persons who were not available to start work were classified as not in the labour force.

Of the non-core questions, 'Hours Worked' was changed between the 1991 and 1996 Censuses. The question in 1996 asked the number of hours worked last week in All Jobs, whereas in 1991, the question asked the number of hours worked in a person's Main Job. This was done in an attempt to reduce the non-response rate and to better reflect the total hours worked by respondents.

No changes were made to the final non-core labour force question 'Method of Travel to Work' between 1991 and 1996.

Aside from changes to the order and wording of questions, the sequencing of some of the labour force questions was also changed. These changes were adopted in an effort to reduce the non-response problems associated with people incorrectly following sequencing instructions in 1991. In the 1991 Census, a large number of persons who should not have answered the looking for work question did so, partly because the question could easily have been seen as relevant by employed persons and persons aged less than 15 years. Approximately two percent of all employed persons made the mistake of, after responding Yes to full/part-time job, not following the sequencing instruction

and unnecessarily responded to looking for work. They then followed that sequencing instruction and skipped the remaining employment related questions. Thus, although a code of Employed was allocated for these respondents, their data on Occupation, Industry etc was lost (ABS, 1991b).

As one consequence of this, the 1996 Census asked all respondents (aged 15 years and over), regardless of their answer to Q.30, if they looked for work in the previous week. This resulted in improved response rates for other labour force related variables, including occupation and industry of employment (see Section 3.2).

2.3 Derivation of Labour Force Status

2.3.1 Derivation in the 1991 Census

In 1991, the derivation of labour force status was fully automated using a decision table. There were three main phases in the data processing of LFS in the 1991 Census. The first stage involved the initial derivation of LFS, based on the three core questions of: 'Full/Part-time Job', 'Looking for Work' and 'Job last Week'. When the core questions did not provide sufficient information, another two questions: 'Hours Worked' and 'Method of Travel to Work' were used. If none of the five questions were answered, a code of Not stated was assigned.

Following this initial derivation, an edit was run to recode persons who had been coded as Not stated and were probably not in the labour force (women aged 60 years and older, men aged 65 years and older and full-time students) to NILF. In the final stage of processing, persons who had been coded as employed or Not stated but who gave non-market occupations, such as housewives/husbands, students and pensioners, which were considered to be out of scope, were recoded as NILF.

2.3.2 Derivation in the 1996 Census

The changes in the order and sequencing of questions together with the introduction of the 'Availability to Start Work' question, and subsequent changes to derivation table tests, were in accord with ILO recommendations concerning the ordering of the economic activity tests.

In 1996, the derivation of LFS was based on a similar process to that used in 1991. As in 1991, if the core questions did not provide sufficient information, the questions 'Hours Worked' and 'Method of Travel to Work' were used. If none of the six questions were answered, a code of Not stated was assigned. At this stage, edits were run to exclude persons aged under 15 years from the labour force, and to recode those persons whose LFS had been coded as Not stated and were probably not in the labour force (women aged 60 years and older, men aged 65 years and older and full-time students) to NILF.

Also, persons who reported themselves to be in the labour force or whose LFS was coded as Not stated but whose occupation was deemed to be not within the labour force (ie. housewives/ husbands, students, children, pensioners, retired or unemployed) were

recoded to NILF. Such codes were only assigned when the information provided, including information on tasks and duties, indicated that the person was not in the labour force.

The 1996 derivation process is summarised in a decision table, as outlined in Appendix 2. A comparison table showing the differences between the 1991 and 1996 decision tables is also shown in Appendix 3.

2.3.3 Comparison of Derivation in the 1991 and 1996 Censuses

In 1991, if a person answered Q.32 'Job last Week' as unpaid helper, this was considered to be weaker evidence of the person's LFS than other stated responses to the question. This was despite the difference established in Q.30 'Full/Part-time Job' which differentiated between Unpaid family workers, who are by definition in the workforce, and Other unpaid workers who are not in the labour force. This situation was amended in 1996 and hence all stated responses to job last week had equal weight.

The introduction of the availability to start work question in 1996 reduced the usage of the non-core variables, hours worked and method of transport to work.

In 1991 there were a number of derivation rules for which, when insufficient information had been provided, the LFS code was allocated between some or all of the LFS categories. This was done by a program which imputed a category, with the probability of selection of each category based on the distribution of responses in 1986. The only imputation done in 1996 was within the status in employment categories.

The edits used in the 1996 Census were mainly unchanged from 1991. The exception to this involved the edit where females aged greater than 60 and males aged greater than 65 with a derived LFS of Not stated were automatically edited to the NILF. This edit was applied more successfully in 1996 than it had been in 1991 (see Section 3.2.2).

2.3.4 Relative Importance of Labour Force Questions

In order to determine the relative importance of each of the questions in deriving Labour Force Status a two per cent sample of 1996 Census data was analysed. This analysis revealed that labour force status could be derived for 87.9% of respondents in the sample based solely on their responses to the first two questions, 'Full/Part-time Job' and 'Job Last Week'. Answers to the remaining core questions, 'Looking for Work' and 'Availability to Start Work', and non-core questions were further used to determine a labour force status for a further 9.7%. Furthermore, the introduction of the 'Availability to Start Work' question had the effect of improving the measurement of unemployment and brought census figures closer to those from the labour force survey (see Section 3.1.4).

Further analysis of the two percent sample applied the 1991 decision table to 1996 data in order to compare the effects of the differences in derivation with 1996 data. The following table shows the results from coding the 1996 Census two percent sample to the 1991 decision table compared to the actual 1996 count (see Appendices 2 and 3).

**Table 1: Labour Force Status by 1991 and 1996 Derivation Rules, Australia,
Two Per Cent Sample of the 1996 Population Census**

Labour Force Status	1991 Derivation Rules		1996 Derivation Rules	
	Count	Per cent	Count	Per cent
Employed	137,330	55.4	136,719	55.2
Unemployed	22,103	8.9	13,948	5.6
Unemployed/Empl oyed (insufficient information)	31	0	-	-
NILF	82,310	33.2	91,244	36.8
NS	6,106	2.5	5,969	2.4
Total	247,880	100	247,880	100.0

Source: 2% Sample Data Set, Australia

The most discernible differences are evident in the larger numbers of persons classified as unemployed (and the correspondingly smaller number of persons not in the labour force) when the 1996 data was recoded according to 1991 derivation rules (22,103 respondents were classified as unemployed, compared to a 1996 count of 13,948). In proportional terms this amounted to a difference of 3.3 percentage points (8.9% according to 1991 rules, 5.6% in 1996).

Analysis of movements between categories revealed that of the 8,934 persons who were recoded from NILF according to 1996 rules, over 90% were recoded to unemployed by applying 1991 rules. The introduction of the new question concerning availability to start work was a major reason for these differences.

3. 1996 CENSUS LABOUR FORCE STATUS DATA

3.1 Distribution of Derived Labour Force Status Data

3.1.1 1996 Census Results

The 1996 Census reveals that, of those persons aged 15 years and over, 7,636,308 were employed, 771,970 were unemployed and 5,174,181 were classified as not in the labour force on Census night, 6 August 1996. Similarities and changes between the two census years are discussed in the following pages.

Table 2: Labour Force Status of Persons Aged 15 and Over, Australia, 1991 and 1996 Censuses

<i>Labour Force Status</i>	<i>1991 Census</i>		<i>1996 Census</i>	
	Count	Percent	Count	Percent
<i>Employee</i>	5,788,086	72.2	6,921,395	82.3
<i>Employer</i>	483,950	6.0	194,622	2.3
<i>Own account worker</i>	751,811	9.4	442,386	5.3
<i>Contributing family worker</i>	62,328	0.8	77,905	0.9
Employed	7,086,175	88.4	7,636,308	90.8
<i>Looking for full-time work</i>	748,443	9.3	609,982	7.3
<i>Looking for part-time work</i>	180,814	2.3	161,988	1.9
Total unemployed (Unemployment Rate)	929,257	11.6	771,970	9.2
Total labour force	8,015,432	100.0	8,408,278	100.0
In labour force (Participation Rate)	8,015,432	61.6	8,408,278	60.4
Not in labour force	4,699,571	36.1	5,174,181	37.2
Not stated	302,687	2.3	332,427	2.4
Total Persons aged 15 and over	13,017,690	100.0	13,914,897 ¹	100.0

¹ This includes 11 people who do not appear in Table 2, above, due to randomisation.

As outlined previously, there were a number of changes made between the 1991 and 1996 Censuses, which had the following broad effects:

1. The introduction of the Limited Liability component resulted in the 1996 Census overstating the number of employees and understating the number of employers and self-employed, when compared with the labour force survey. As a result, the movements shown between these categories since 1991 are distorted and are not a good indication of real change for the period (See Section 3.1.2).
2. The change from measuring hours worked in one's main job to all jobs reduced the non-response rate for this question and improved the coverage of people working casual jobs and those who worked longer hours in one job or worked in more than one job (multiple job holders) (See section 3.1.3).
3. The introduction of the new (core) question 'Availability to Start Work' improved distinction of the number of unemployed and of persons not in the labour force, making census data more comparable to Labour Force Survey data (See Section 3.1.4).

Apart from the distorting impact of the limited liability component these changes, together with the other changes outlined in Section 2, generally resulted in improved data quality and reduced the non-response rates for most labour force and related variables.

3.1.2 Impact of Limited Liability on Status in Employment

In 1996 additional categories were included in the 'Job Last Week' question to differentiate between persons conducting their own business which was a limited liability company and those whose business was not a limited liability company. This was to improve the conceptual comparability between the census and labour force survey and reduce discrepancies between results, as in the survey, persons who worked in their own business which was a limited liability company are coded as wage or salary earners, for comparability with National Accounts concepts and measures. This treatment conforms with ILO definitions.

Evaluation of 1991 Census data had found that the census overstated the number of employers and understated the number of employees, compared to the August 1991 Labour Force Survey. This was because in the 1991 Census, people who were employed in a limited liability company with no other employees were simply coded to self employed.

Rather than just bringing the Census into line with the Labour Force Survey, however, the introduction of the limited liability categories seems to have reversed the original problem. Compared to the August 1996 Labour Force Survey, the 1996 Census overstated the number of employees and understated the number of employers and self-employed (See Table 3).

Table 3: Status in Employment, Australia, 1996 Census and August 1996 Labour Force Survey (rounded figures)

Status in Employment	Aug 96 LF Survey ¹		1996 Census		Diff between counts (Survey - Census)	Diff between counts (Survey - Census)
	Count	Percent	Count	Percent		
Employee	7,081,500	85.1	6,921,395	90.6	160,105	2.3
Employer	338,600	4.1	194,622	2.5	143,978	74.0
Own account worker	821,500	9.9	442,386	5.8	379,114	85.7
Contributing family worker	78,100	0.9	77,905	1.0	195.0	0.3
Total Employed	8,319,700	100.0	7,636,308	100.0	683,392	8.9

¹ Please note that the survey figures have not been adjusted for differences in scope, coverage, timing, underlying labour force concepts or collection methodology. Section 4 reconciles the two collections and Sub-section 4.4.2 gives adjusted labour force survey figures.

More importantly for users of census labour force data, movements between 1991 and 1996 Censuses were distorted such that there were more people identified as employees in 1996 than in 1991 (90.6% and 81.7% of all employed people respectively), while there were fewer people identified as employers or own account workers (2.5% and 5.8% respectively in 1996, 6.8% and 10.6% in 1991) (see Table 5 overleaf). The large decrease in employers occurred because of the coding of persons working in their own business, which was a limited liability company, as employees.

To be able to compare the 1991 and 1996 Censuses one needs to first look at the breakdown of 1996 labour force data by job last week data. This is shown in Table 4 below.

Table 4: Status in Employment by Job Last Week, Australia, 1996 Census

Status in Employment	<i>For Wages, salary</i>		<i>Ltd Liab with Employees</i>		<i>Ltd Liab with no Employees</i>		<i>Own Bus¹ with Employees</i>		<i>Own Bus¹ with no Employees</i>		<i>Not stated</i>	<i>Total</i>
		<i>Helper</i>										
Employee	6,229,668	–	307,523	256,593	–	–	127,611	6,921,395				
Employer	–	–	–	–	188,627	–	5,995	194,622				
Own account worker	–	–	–	–	–	427,926	14,460	442,386				
Contributing family worker	–	57,971	–	–	–	–	19,934	77,905				
Total Employed	6,229,668	57,971	307,523	256,593	188,627	427,926	168,000	7,636,308				

¹ Business

By adjusting this table for 1991 categories, that is putting the 256,593 persons from 'Employee, Limited Liability no employees' into the Own Account Worker category and the 307,523 from 'Employee, Limited Liability with Employees' into the Employer category, the 1996 Census figure becomes more comparable with the 1991 Census. This is demonstrated in Table 5.

Table 5: Status in Employment, Australia, 1991 and 1996 Censuses

<i>Status in Employment</i>	<i>1991 Census count</i>		<i>1996 Census (not adjusted for limited liability)</i>		<i>Change between counts¹</i>	<i>1996 Census (adjusted for limited liability)</i>		<i>Change between counts²</i>
	Count	Percent	Count	Percent	Percent	Count	Percent	Percent
Employee	5,788,086	81.7	6,921,395	90.6	19.6	6,357,279	83.3	9.8
Employer	483,950	6.8	194,622	2.5	-59.8	502,145	6.6	3.8
Own account worker	751,811	10.6	442,386	5.8	-41.2	698,979	9.2	-7.0
Contributing family worker	62,328	0.9	77,905	1.0	25.0	77,905	1.0	25.0
Total Employed	7,086,175	100.0	7,636,308	100.0		7,636,308	100.0	

1 Difference between 1991 and unadjusted 1996 Census counts.

2 Difference between 1991 and adjusted 1996 Census counts.

Adjusting for limited liability also brings 1996 Census figures closer to those from the 1996 Labour Force Survey for employees and own account workers (see Table 6).

Table 6: Status in Employment, Australia, 1996 Census (Adjusted) and August 1996 Labour Force Survey (rounded figures)

<i>Status in Employment</i>	<i>Aug 96 Survey¹</i>		<i>1996 Census (Adjusted for Limited Liability)</i>		<i>Diff between counts (Survey-Census)</i>	<i>Diff between counts (Survey-Census)</i>
	Count	Percent	Percent	Percent	Count	Percent
Employee	7,081,500	85.1	6,357,279	83.3	724,221	11.4
Employer	338,600	4.1	502,145	6.6	-163,545	-32.6
Own account worker	821,500	9.9	698,979	9.2	122,521	17.5
Contributing family worker	78,100	0.9	77,905	1.0	195	0.3
Total Employed	8,319,700	100.0	7,636,308	100.0	-683,392	8.9

1 Please note that the survey figures have not been adjusted for differences in scope, coverage, timing, underlying labour force concepts or collection methodology. Section 4 reconciles the two collections and Sub-section 4.4.2 gives adjusted labour force survey figures.

It is not possible to know whether the adjustments shown above offset all of the impact of the form design changes on comparability of status in employment data. Accordingly, caution should be exercised when interpreting the apparent shifts between categories.

Alternative approaches to distinguishing people employed in their own incorporated businesses are currently being investigated as part of the Census Testing program. Testing of the job last week question prior to the 1996 Census indicated some confusion among respondents operating their own business. In an attempt to gauge the extent of this problem, an investigation of census responses to this question from a sample of 150 Collector Districts (CDs) was carried out. This involved comparing the responses to job last week with responses to business name (Q.34), from 34,876 employed respondents counted in 18,676 dwellings. Where possible business names were also matched to the

Business Register to ascertain the full name. Unfortunately, due to the limitations in identifying limited liability companies even with the assistance of the Business Register the results of this investigation were largely inconclusive. Nevertheless, the number of people who clearly supplied incompatible responses to these two questions was small.

Another investigation carried out on the same 150 CD sample looked at the frequency of multiple responses to the job last week question. It was found that only 0.3% of people in the sample provided multiple responses to this question. However, of these people 53% marked Wage and Salary earner as their first response and either 'Limited liability with employees' or 'Limited liability without employees' as a second response. In the 1996 Census, the first response would have been accepted. The potential for multiple responses was probably higher in the 1996 Census, given that the two categories mentioned were not mutually exclusive.

3.1.3 Availability to Start Work

The availability to start work question was introduced to improve the comparability of labour force data between the census and the labour force survey. In the labour force survey, persons who did not work in the past week and looked for a job but were unavailable to start work would have been classified as not in the labour force. In the 1991 Census, where no question on availability to start work was included, such people would have been classified as unemployed. With the introduction of this question in the 1996 Census, persons who were not available to start work were classified as not in the labour force. This did have the effect of bringing 1996 Census data closer to those from the survey, whereby the 1996 Census recorded an unemployment rate of 9.2% compared to the August 1996 Survey estimate of 8.5% (11.6% and 9.5% respectively in 1991). Similarly, while the Census recorded 37.2% of respondents aged 15 years and over to be not in the labour force, the Survey estimate was 36.8% (36.2% and 37.4% in 1991).

Analysis of 1996 Census data revealed that a LFS of either unemployed or NILF was derived for 12.1% of all respondents aged 15 years and over using a combination of answers from all four core questions. While the looked for work question assumed the more significant role of assigning the respondent to a particular category, the availability to start work appears to have had the effect of shifting many persons from the category of Unemployed to NILF.

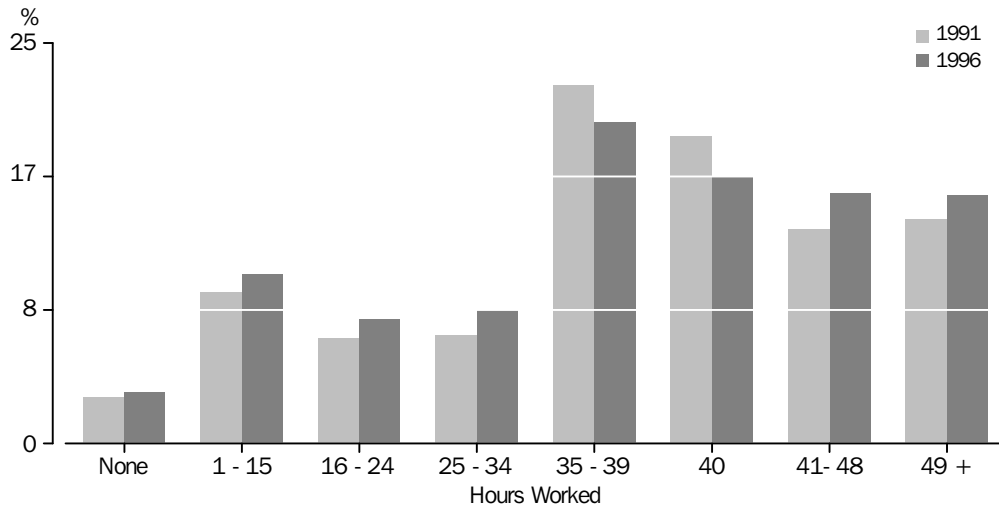
Section 2.3.4 applied the 1991 decision table to a two percent sample from the 1996 Census to reveal the effects of the changes that were made to the decision table, including that of the introduction of the new core question. While 5.6% of respondents from this sample were coded as unemployed and 36.8% were coded NILF according to the 1996 decision table, approximately 8.9% of respondents would have been coded as unemployed while 33.2% would have been coded as NILF according to the 1991 table.

3.1.4 Change to Hours Worked

Between 1991 and 1996 the question on hours worked last week was reworded to collect information about hours worked in all jobs rather than in the main job only. This was done to conform with the ABS standard and to provide greater consistency with the labour force survey (alth. This change had the expected effect of reducing the

non-response rate (particularly for respondents who worked only a small number of hours) and increasing the number of respondents who stated that they worked longer hours. During testing the new question appeared to work well (ABS, 1996b). A comparison of responses from the 1991 and 1996 Censuses is depicted in Figure 2.

Figure 2: Hours Worked (Employed Persons), Australia, 1991 and 1996 Censuses



The proportion of people in each hours worked category was relatively stable between 1991 and 1996, with both census years peaking at the '35-39' hour range. 1996 Census proportions were lower than their 1991 equivalents only for the '35-39' and '40 hour' categories, although the 1991 trend dropped off more sharply for the remaining two categories compared to 1996.

There was a corresponding higher proportion of respondents in the '41-48' and '49 hours or more' categories in 1996, a result which is consistent with the broader concept of hours worked in all jobs. This reversal in trends observed in the latter four categories may have been partly due to the rewording of the question and the fact that people were able to report the number of hours worked in all jobs rather than their main job only.

Figure 2 reflects that in the 1996 Census a higher proportion of people worked casual and part-time hours, that is between 1 and 34 hours, than in the 1991 Census. However, it is possible that this was partially due to instructions included with the first of the labour force questions, which clarified that a job was any type of work including casual or temporary work or part-time work, if it was for one hour or more. In 1991, there was no such instruction and some respondents who worked only casual or part-time hours may have stated that they had no job and would therefore have been sequenced past the hours worked question.

The introduction of Intelligent Character Recognition for the 2001 Census may result in respondents being able to write in the actual number of hours worked, thereby providing more detailed information for this variable.

3.2 Non-Response Analysis

In the 1996 Census, 2.39% of the applicable population were coded as Not stated for labour force status, compared to 2.33% in 1991. A comparison between the non-response rates for the 1991 and 1996 Censuses is shown in Table 7.

Table 7: Labour Force Status Non-Response Rates, Australia, 1991 and 1996 Censuses

<i>Year</i>	<i>Not stated Codes</i>		<i>Applicable Population</i>
	Count	Percent	
1991	302,687	2.3	13,017,690
1996	332,427	2.4	13,914,897

Not stated codes were assigned in 1996 when no responses were provided to the core questions and when labour force status could not be derived using other information. The slight increase in non-response rates between 1991 and 1996 was partially due to an unexpected rise in the non-response rate for men (see Section 3.2.2 for further discussion of this).

This increase masks other improvements to labour force data quality, however, as outlined in Section 3.1. The labour force changes made between 1991 and 1996 also helped improve non-response rates for other labour force-related variables: hours worked (from 5.2% in 1991 to 2.2% in 1996), method of travel to work (from 4.6% to 1.8%), occupation (from 5.5% to 1.7%) and industry (from 7.0% to 2.0%) (1996 Census Fact Sheet 10, *Non-Response Rates*).

Furthermore, test results indicated that the placement of the looked for work question within the labour force questions helped reduce non-response rates for the other labour force questions and together with the introduction of the new question, 'Availability to Start Work', improved the measurement of unemployment.

Table 8: Non-Response Rates to Labour Force Questions, Australia, 1996 Census

<i>Question</i>	<i>Non-response Rate (%)</i>
Q.30 Full/Part-time Job	5.7
Q.31 Job Last Week	2.2
Q.37 Hours Worked	2.2
Q.38 Transport to Work	1.8
Q.39 Looking for Work	12.1
Q.40 Availability to Start Work	8.3

This reflects an improvement in response rates for individual questions, and in particular for 'Job Last Week'. In 1991, this question had a relatively high non-response rate due to

many respondents incorrectly answering the 'Looking for Work' question after responding 'yes they did have a job last week' in the previous question despite the sequencing instruction. They then followed the sequencing instruction for looking for work and skipped the job last week question and remaining employment related questions.

Of those who were non-respondents to the looking for work question in 1996, 40.1% also did not answer the question concerning full/part-time job, implying that the labour force 'block' of questions was seen not to be relevant to them. The remaining 59.9% had answered the full/part-time job question but had not answered the looking for work question, perhaps because they weren't looking for a job and didn't see that particular question to be relevant to them. The non-response rate to looking for work had a flow-on effect for the response rate for 'Availability to Start Work', whereby 97.1% of non-respondents to looking for work were also non-respondents to availability to start work.

3.2.1 Effect of Dummy Records on the Non-Response Rate

Dummy census forms are created by census collectors for dwellings from which no completed forms could be obtained. Collectors were instructed to record the total numbers of males and females for these dwellings, if known. They were also instructed to complete any known details for questions concerning age, sex and marital status. The average number of males and females in non-dummy private dwellings in the same CD was used as a basis for dummy forms which required the number of persons present to be imputed. Where necessary age, marital status and State of usual residence were also imputed. All other fields were set to Not stated or Not applicable.

In the 1996 Census, 246,192 persons were enumerated on dummy forms. This represents 1.38% of the total census person count. Historically, dummy records have been shown to account for up to 50 per cent of the not stated rate for certain variables (*ABS, 1991b* - see p.7).

The impact of dummy records on the 1996 Census labour force status non-response rate is demonstrated in Table 9. When dummy records were excluded, the non-response rate was reduced by almost half.

Table 9: Effect of Dummy Records on Labour Force Status Non-Response Codes, Australia, 1996 Census

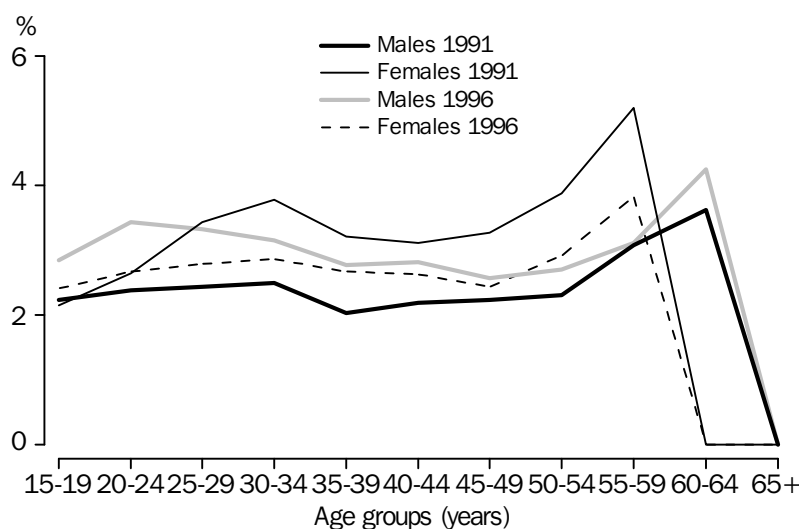
<i>Response</i>	<i>Count</i>	<i>Per cent</i>
Stated	13,551,863	97.4
Not Stated		
Dummy record	160,940	1.2
Not a Dummy record	171,487	1.2
<i>Total Not stated</i>	332,427	2.4
Total persons aged 15 and over ¹	13,914,897	100.0

¹ Total includes responses provided on dummy records and those dummy records which were Not stated but were imputed to Not in the Labour Force based on respondents' age. Neither of these groups are shown in the table but accounts for 0.22% of applicable population.

3.2.2 Characteristics of Persons with Labour Force Status of Not stated

The exclusion of dummy records better enables the analysis of the characteristics of persons for whom a labour force status of Not stated was assigned. Figure 3 illustrates the distribution of Not stated codes by age and sex.

Figure 3: Distribution of Labour Force Non-Response Codes by Age and Sex, Australia



The non-response rates in 1996 for males and females were similar between the ages of 30 to 50. In the younger age groups males had a slightly higher non-response rate while females recorded slightly higher non-response rates in the older age groups (see Figure 3).

In both the 1991 and 1996 Censuses the non-response rate peaked in the older age groups. Previous testing also showed that most non-respondents were elderly, although some may have been unpaid helpers. There were no Not stated codes for females aged 60 years and over or males 65 years and over in 1996 as they were edited to NILF. As was noted earlier, this edit was applied less successfully in 1991. As a consequence a very small number of people in these age groups were allocated a code of Not stated in 1991. The changes to the ordering and sequencing of this edit is the most likely explanation for the improvement in the performance of this edit in 1996.

Analysis by sex also revealed a reversal of trends in non-response since 1991 in that there was a slight increase in the non-response rate for males (from 2.1% in 1991 to 2.6% in 1996) and a slight decrease for females (from 2.6% in 1991 to 2.2% in 1996). The decrease was most apparent for women aged between 25 to 64 years, while the increase for males was most apparent in the younger age groups, from 15 to 44 years.

4. RECONCILIATION WITH LABOUR FORCE SURVEY DATA

4.1 *Introduction*

The purpose of this section is to highlight the differences in the collection of labour force data between the labour force survey and the census, to outline the steps taken to reconcile these two data collections and to present the findings from this reconciliation. This section draws heavily on an internal paper prepared by the Research and Development Group, Labour Force Section.

Although the census and labour force survey both collect data on Labour Force Status, they are not strictly comparable due to differences in the scope, coverage, timing, measurement of underlying labour force concepts and collection methodology. Factors contributing to differences in estimates include under-enumeration in the census for which census labour force estimates have not been adjusted, the use in the labour force survey of population benchmarks derived from incomplete information about population change, the inclusion of permanent defence force in census estimates, differing methods of adjustment for non-response to the survey or census, the personal interview approach adopted in the survey as opposed to self-enumeration in the census and differing questions used to determine labour force characteristics.

The following analysis is based on the Labour Force Survey of August 1996 and the 1996 Census of Population and Housing (to be referred to as the MLFS and the Census respectively) unless otherwise specified. To assist in the comparison between the MLFS and the Census unadjusted MLFS data is based on 1991 Estimated Resident Population (ERP) counts whilst adjusted MLFS data is based on 1996 ERP counts. Census and MLFS data presented in this section have been rounded to the nearest hundred.

4.2 *Quantifiable Differences*

4.2.1 *Scope and Coverage*

The coverage of the census differs from that of the survey in that there is no adjustment of labour figures for under-enumeration in the census. While the census data on the labour force represents counts of people enumerated in the census, the data from the labour force survey are obtained by weighting the responses of a sample of the population to a 'benchmark' figure obtained from the current estimated resident population (ERP). The ERP count is based on the census count by usual residence, with adjustments made for births and deaths prior to census night, and upward adjustments made for census underenumeration and for the number of Australian residents who have been estimated to be temporarily overseas for August 1996. Weights are then calculated for 'benchmark cells' which are determined by data for age, sex and part of State of usual residence and smoothed to reduce monthly variation.

The collections also differ (slightly) in their scope. The MLFS scope is broadly similar to that of the Census but excludes residents of Jervis Bay, Cocos (Keeling) Islands and

Christmas Island, members of the permanent defence forces and members of non-Australian defence forces (and their dependants) stationed in Australia.

4.2.2 *Adjusting for Non-Response*

A further difference between the two collections lies in their treatment of non-response. While the census records a code of Not stated for respondents who could not be coded to a labour force status category, the survey has no such category. Partial non-response in the survey is automatically compensated for by the weighting process.

The cases in the census where a Not stated code would be assigned is shown in Table 10, which is an extract from the 1996 Census decision table. A decision table is used when more than one question is needed to determine an item, in this case labour force status.

Table 10: Abbreviated Decision Table for Labour Force Status of Not stated¹, Australia, 1996 Census

<i>FT/PT job (Q.30)</i>	<i>Looked for work (Q.39)</i>	<i>Job last week (Q.31)</i>	<i>Available to start work (Q.40)</i>	<i>Hours worked (Q.37)</i>	<i>Travel to work (Q.38)</i>	<i>Derived LFS</i>
Not stated	Not stated	Not stated	*	2-8, NS	NS	Not stated
Not stated	Not stated	Not stated	*	*	Std	Not stated

¹ Please see Appendix 2 for complete decision table and explanation of codes

4.2.3 *Definition of labour force status*

Differences in the underlying definition of the LFS categories between the two collections should also be borne in mind when comparing figures. While the census aims to derive LFS on a basis comparable with the labour force survey, the census questions are not as detailed, nor as comprehensive. This is largely due to space limitations on the census form, as well as constraints imposed by self-enumeration. As a result, the survey and census defined persons who were employed, unemployed and not in the labour force differently. These differences are outlined below.

Employed

The differences in definition of employed related specifically to absences from work. To determine if a person was employed when they were absent from work, the survey applies a test of duration of absence from work and for long-term absences, a further test of payment is applied. Therefore, a respondent who had been away from work for four weeks or more without pay is regarded as not employed. By contrast, the census does not apply tests of duration of absence from work, and as a result, all persons away from work are most likely to be classified as employed, this of course being dependent on how the respondent completed the census form.

For instance, a census respondent who was absent from work would most likely answer 'Yes, but absent on holiday, on paid leave, on strike or temporarily stood down' to Q.30. A respondent who was absent from work for reasons other than those listed (eg. own

illness or injury without pay, no work or insufficient work) may have (erroneously) ticked the same answer or ignored the question completely because no answer seemed to fit their particular situation.

If the respondent did not answer the question it has been assumed that they would complete the next question (main job last week). If this was the case then the respondent would be classified as employed in the census.

This is demonstrated in the abbreviated 1996 Census decision table for labour force status (see Table 11).

Table 11: Abbreviated Decision Table for Labour Force Status of Employed¹, Australia, 1996 Census

<i>FT/PT job (Q.30)</i>	<i>Looked for work (Q.39)</i>	<i>Job last week (Q.31)</i>	<i>Available to start work (Q.40)</i>	<i>Hours worked (Q.37)</i>	<i>Travel to work (Q.38)</i>	<i>Derived LFS</i>
1, 2, 3, Not stated	*	Stated	*	*	*	Employed
1, 2, 3	*	Not stated	*	*	*	Employed

¹ Please see Appendix 2 for complete decision table and explanation of codes

The census derivation methodology takes into account answers to these questions to derive the most appropriate labour force status. A respondent is classified as employed in the census if they provided a response to the questions concerning full/part-time job and job last week. That is, they worked for payment or profit, or as an unpaid helper in a family business, during the week prior to census night, or had a job from which they were temporarily absent, or were on strike or stood down. How the other questions were completed was not relevant.

To demonstrate the differences in derivation between the survey and census, Table 12 lists the conditions under which a person in the survey may have been away from work in the previous week but still have been employed and how the same person was likely to have responded to the census. MLFS estimates of the number of persons absent from work and their labour force status are shown in the last column.

The reasons for absence from work of: Own illness or injury, No work/insufficient work and Other, are not covered by any of the labour related questions on the census form. For the purpose of this reconciliation, assumptions were made that the respondent in this situation would complete the census form to enable them to be classified as employed.

Upon further examination of the answer provided in the survey to Other, it was found that most were personal in nature and thus would have been coded to: leave, holiday or flexitime/personal reasons. As a result, it was assumed that respondents completing the census form would also state they had a full-time or part-time job but were absent on holidays, on paid leave, on strike or temporarily stood down.

Table 12: Reasons for Absence from Work, Australia, 1996 Census and August 1996 Labour Force Survey

<i>Labour Force Survey Reason for absence from work last week</i>		<i>Conditions</i>	<i>Census</i>	<i>No. of persons by Labour Force Status</i>
1	Own illness or injury	Not on workers compensation and has been away from work for 4 weeks or more and was not or will not be paid for any part of the last 4 weeks, OR On workers compensation and will not be or does not know if returning to work for employer	No equivalent Census question. Have assumed that respondent will tick: Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 843 NILF: 19,313
2	Leave, holiday or flexitime/ personal reasons	Has been away from work for 4 weeks or more and was not paid or will not be paid for any part of the last 4 weeks	Did have a full-time or part-time job but was absent on holidays , on paid leave, on strike or temporarily stood down	Unemployed: 432 NILF: 30,860
3	Bad weather/ breakdown	Has been away from work for 4 weeks or more and was not paid or will not be paid for any part of the last 4 weeks	Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 0 NILF: 0
4	Stood down	Stood down due to reasons other than bad weather/breakdown and was not paid or will not be paid for any of last week and has been away from work for 4 weeks or more	Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 184 NILF: 0
5	No work/ insufficient work	Was not paid or will not be paid for any of last week	No equivalent Census question. Have assumed respondent will tick question on the basis that they would see themselves as being temporarily stood down: Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 22,260 NILF: 3,494
6	On strike/ locked out	Usually works no hours a week in job	Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 0 NILF: 0
7	Usually works less than one hour a week/began job/lost job		Did have a full-time or part-time job and worked for payment or profit.	Unemployed: 0 NILF: 1,814
8	Other	Has been away from work for 4 weeks or more and was not paid or will not be paid for any part of the last 4 weeks	No equivalent Census question. Have assumed respondent will tick: Did have a full-time or part-time job but was absent on holidays, on paid leave, on strike or temporarily stood down	Unemployed: 919 NILF: 1,611

Unemployed

In the survey a person is classified as unemployed if they were not employed during the reference week, and:

- * had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and;
- * were available for work in the reference, or would have been available except for temporary illness (ie. lasting for less than four weeks to the end of the reference week); or
- * were waiting to start a new job within four weeks from the end of the reference week and would have started in the reference week if the job had been available then; or
- * were waiting to be called back to a full-time or part-time job from which they had been stood down without pay for less than four weeks up to the end of the reference week (including the whole of the reference week) for reasons other than bad weather or plant breakdown. It should be noted that persons who satisfied this condition were reclassified as employed when the census definitions of LFS were applied to the survey (see Section 4.3.2).

In the Census, all persons waiting to start a new job were classed as unemployed and all persons who could not start work last week due to a temporary illness were classified as not in the labour force. Unlike the MLFS, no tests of duration of illness or waiting to start a new job were applied in the Census.

The following table illustrates the conditions under which a person in the survey, who was looking for full-time or part-time work would be classified to either unemployed or NILF upon application of the unemployment criteria used in the census.

Table 13: Reasons for Not Being Able to Start Work Last Week, Australia, 1996 Census and August 1996 Labour Force Survey

<i>Survey: Reasons why could not have started work last week</i>	<i>Conditions</i>	<i>Census response</i>	<i>Number of persons by Labour Force Status in the Survey</i>
Own illness or injury	Ill for less than 4 weeks to the end of the reference week.	If the person had found a job they could not have started work last week due to being temporarily ill or injured. (NILF)	Unemployed: 6,428
Waiting to start a new job	Will be starting a job in less than four weeks from the end of the reference week, but could not have started the job if it had been available last week OR Will be starting a job in 4 weeks or more	The person was actively looking for work in the last four weeks and they found a job to go to in which they did not start in last week. (Unemployed)	NILF: 3,025

4.3 Reconciling Labour Force Survey and Census Data for Labour Force Status

4.3.1 Deriving a Common Population

To enable reconciliation, the scope of the Census and MLFS was first reduced to a common population. Section 4.2 discussed the quantifiable causes of differences between the estimates from the census and survey. These differences were applied to both Census and MLFS populations to adjust for inconsistencies (see Table 14).

Table 14: Number of Persons in each Population Group and how they were Treated in Order to Derive a Common Population, Australia, 1996 Census and August 1996 Labour Force Survey

<i>Population Group</i>	<i>Number</i>	<i>Benchmarks</i>	<i>Survey</i>	<i>Census</i>
Jervis Bay Territory and external territories	2,029			deducted
Visitors to Australia	125,406			deducted
Defence Force Personnel	57,279		added	
Not enumerated in Census	239,200	deducted		
Residents temporarily overseas	270,155	deducted		
Not stated for labour force status	332,370			deducted

The common populations of the Census and MLFS consisted of the civilian resident population aged 15 years and over (except residents of Jervis Bay and external territories)

who were enumerated on Census night and whose response enabled LFS to be derived. Defence Force personnel were within the scope of the Census, but not the MLFS.

As it was not possible to identify Defence Force personnel by occupation in the Census count, it was decided that they would be retained in the Census figures and adjustments made to include them into MLFS estimates, using figures supplied by the Department of Defence.

4.3.2 Differences in definitions

To account for differences in definitions between the two collections, the Census definitions were applied to the MLFS derivations. It was not possible to apply the more complex and detailed derivations of the MLFS to the Census because its questions lack finer level detail.

As discussed in Section 4.2., the differences in definition of employed occur in the area of absences from work. To adjust for these differences, the number of persons who failed the job attachment tests in the MLFS and as a result, were classified as unemployed and not in the labour force, was calculated. Persons who satisfied the conditions listed in the final point were reclassified as employed when the census definitions of LFS were applied to the survey. This figure was added to the employed estimate of the MLFS and the estimates for unemployed and NILF were reduced by the same amount.

The same procedure was applied to adjust for differences in the definition of unemployed and not in the labour force. An estimate of persons who were looking for work in the last four weeks and who were going to start work in more than four weeks from the reference period was calculated and added to the MLFS estimate of unemployed and subtracted from the MLFS estimate for NILF. The MLFS estimate of persons who could not start work due to own illness or injury, which they have had for less than 4 weeks from the end of the reference week, was subtracted from the MLFS estimate for unemployed, and the NILF estimate was increased by the same amount.

As a result, the MLFS employment estimates were inflated by 81,730. The unemployed and NILF estimates were reduced by 28,041 and 53,589, respectively.

4.4 Results

4.4.1 Labour Force Status

The following table shows the estimates for labour force status from the Census and MLFS as published with no adjustments (1) and after adjustments for quantifiable differences, (2) and (3), as well as the differences between the estimates for the two data sets. Estimates by State/Territory, age group and sex are shown in Appendix 4

Table 15: Estimates of Labour Force Status for the Census and Labour Force Survey, Australia, 1996 Census and August 1996 Labour Force Survey

	<i>Employed</i>	<i>Unemployed</i>	<i>NILF</i>	<i>Total</i>
1 Unadjusted				
Survey ¹	8,319,700	771,100	5,293,500	14,384,300
Census	7,636,300	772,000	5,174,200	13,582,500
Difference	683,400	-900	119,300	801,800
Difference between counts (%)	8.9	-0.1	2.3	5.6
2 Adjusted for scope, coverage, underenumeration & 'Not stated'				
Survey ²	7,812,228	716,382	5,051,863	13,580,473
Census	7,634,979	771,865	5,173,630	13,580,474
Difference	177,249	-55,483	-121,767	-1.0
Difference between counts (%)	2.3	-7.2	-2.4	0.0
3 Adjusted for scope, coverage, underenumeration, 'Not stated' & definitions				
Survey ²	7,893,957	688,341	4,998,175	13,580,473
Census	7,634,979	771,865	5,173,630	13,580,474
Difference	258,978	-83,524	-175,455	-1.0
Difference between counts (%)	3.4	-10.8	-3.4	0.0
MLFS 2SE (Standard Error)	<i>49,000</i>	<i>21,000</i>	<i>46,700</i>	–

¹ Based on 1991 ERP counts

² Based on 1996 ERP counts

After adjusting the MLFS and 1996 Census for quantifiable differences, the difference between the estimates of employed persons decreased, whereas the difference between the estimates of unemployed persons and persons not in the labour force increased. The adjusted MLFS recorded a notably lower number of unemployed persons compared to the adjusted 1996 Census, with 1996 Census figures exceeding Survey figures by 83,524 (or 10.8 per cent), followed by NILF (a difference of 3.4 per cent). Adjusted MLFS figures for employed were 3.4 per cent higher than the Census. Furthermore, the 2 Standard Error estimates indicate that the differences between the adjusted data were statistically significant. This means that one can be more than 95% confident that the remaining differences were not merely due to sampling variability in MLFS data.

A similar pattern was observed in the reconciliation of the 1986 and 1991 Censuses with the Labour Force Survey for the estimates of employed and unemployed persons when adjustments were made for quantifiable differences. However, the increase in the difference for the estimate of unemployed persons was considerably smaller than in the current reconciliation (-1.0% in the 1986 Census reconciliation and 1.6% in the 1991 Census reconciliation with the MLFS). Unlike the present reconciliation the difference between the two collections for persons not in the labour force decreased after adjustments were made for scope, Not stated and availability to start work. In this reconciliation, adjustments were made for differences in the definition of employed between the two collections. Comparing Table 15 Part 2 with Table 15 Part 3 shows that after adjusting for differences in definition, the difference between the 1996 Census and MLFS increased for all classifications of labour force status. Adjustments for differences in definitions were not done in past reconciliations which may explain why

the differences in the estimates for persons employed and not in the labour force were quite small after adjusting for scope, coverage, Not stated and availability to start work. If the reconciliation of the 1986 and 1991 Census with the Labour Force Survey had also adjusted for differences in the definition of employed this may have increased the differences between the estimates of persons employed and not in the labour force.

The estimate of the labour force participation rate was quite similar for the two adjusted data sets, however the difference in the unemployment rate was greater, with the rate being 1.2 percentage points higher for the Census than the MLFS (see Table 16).

Table 16: Labour Force Participation Rate and Unemployment Rate, Australia, (Adjusted) 1996 Census and (Adjusted) August 1996 Labour Force Survey

	<i>Census</i>	<i>Survey</i>
Participation Rate	61.9	63.2
Unemployment Rate	9.2	8.0

Variation by age and sex and between the States and Territories is discussed in Appendix 4.

4.4.2 *Status in Employment*

The following table shows the estimates for status in employment from the Census and MLFS as published with no adjustments (1), after adjustments to the two data sets for scope, coverage and Not stated (2).

Table 17: Estimates of Status in Employment for the Census and Labour Force Survey, Australia, 1996 Census and August 1996 Labour Force Survey

	<i>Employees</i>	<i>Employers</i>	<i>Own Account Workers</i>	<i>Contributing Family Workers</i>	<i>Total</i>
1 Unadjusted					
Survey ¹	7,081,500	338,600	821,500	78,100	8,319,700
Census	6,921,395	194,622	442,386	77,905	7,636,308
Difference	160,105	143,978	379,114	195.0	683,392
Difference between counts (%)	2.3	74.0	85.7	0.3	8.9
2 Survey and Census adjusted for scope etc, Census not adjusted for limited liability					
Survey ²	6,654,781	316,571	767,551	73,326	7,812,229
Census	6,920,108	194,612	442,360	77,899	7,634,979
Difference	-265,327	121,959	325,191	-4,573	258,980
Difference between counts (%)	-3.8	62.7	73.5	-5.9	3.4

¹ Based on 1991 ERP counts

² Based on 1996 ERP counts

Before adjustments for quantifiable differences were made, as shown in Table 17, the Census overstated the count of employees and understated the numbers of employers and own account workers relative to the MLFS. Adjusting the Census and MLFS for all quantifiable differences had the effect of reducing the differences for employers (from 74.0% to 62.7%) and for own account workers (from 85.7% to 73.5%), but reversed and increased the magnitude of differences for employees (from 2.3% to -3.8%) and contributing family workers (from 0.3% to -5.9%).

4.5 Remaining Differences

After adjusting for quantifiable differences there were still significant differences between the LFS estimates for the Census and the MLFS. The size of this difference was too large to be fully attributable to sampling variability. To a large extent, the difference can be attributed to the different collection methodologies and non-sampling error, but other factors, such as sampling variability in the MLFS and timing of the two collections could also have had an affect, as outlined below:

4.5.1 Collection Methodology

Labour force survey information was obtained from the occupants of selected dwellings by specially trained interviewers, which enabled responses to be more accurately recorded. The survey interview could be answered by any responsible adult (ARA) on behalf of other household members. Census collectors, however, had no role in determining who completed the census questionnaire, and as a result data may be less accurate.

4.5.2 *Non-sampling error*

Both collections were also subject to non-sampling error. Non-sampling error may occur because of imperfections in reporting by respondents, errors made in collection, such as recording and coding data, and errors made in processing the data, such as faulty imputation methods. The non-sampling error is likely to be larger in the Census due, amongst other things, to the bigger scale of the operation and its less frequent nature.

4.5.3 *Non-Response Bias*

There are two main reasons for non-response in the labour force survey. One is the inability of interviewers to contact one or more persons in a household. The other is that some persons refuse to respond. Non-response bias will occur if persons not included in the labour force estimation process have significantly different labour force characteristics to those who do respond.

Any non-response bias will have an effect on data released from the labour force survey, but this effect is minimised the smaller the level of non-response.

Non-response bias is more significant in the census because it does not achieve complete enumeration and some persons refuse to respond or complete the census form.

4.5.4 *Sampling Variability*

Since the estimates in the labour force survey are based on information obtained from occupants of a sample of dwellings, they and the movements derived from them, are subject to sampling variability. That is, they may differ from the estimates that would have been produced if all dwellings had been included in the survey. By contrast, the census aims to enumerate the entire population and results are not subject to sampling variability. When comparing data from the MLFS and the census, the sampling variability of survey data should be taken into account. The numeric difference between the Census count and the corresponding MLFS estimate in Table 16 has the same standard error as the MLFS estimate.

4.5.5 *Timing*

Labour force survey interviews are generally conducted during the two weeks beginning on the Monday between the 6th and 12th of each month. The information obtained relates to the week before the interview (ie. the reference week). About 60 per cent of the interviews are conducted in the first survey week and 40 per cent in the second. In August 1996 the survey weeks were 12 August to 18 August and 19 August to 25 August and the reference weeks were 5 August to 11 August and 12 August to 18 August. Census data refers to the week prior to Census night on 6 August 1996.

5. Conclusion

5.1 *Effect of changes to Labour Force Status Questions in the 1996 Census*

There were many changes made to the ordering, wording and sequencing of labour force questions in the 1996 Census (including an additional core question) since the 1991 Census. The major changes and their effect on data quality were as follows:

- The addition of instructions to the 'Full/Part-time Job' question. This had the apparent effect of reducing the incidence of multiple marks and the under-reporting of persons working in casual part-time employment.
- The change to the 'Job last Week' question to allow the separate identification of self-employed persons in limited liability companies. This change did not improve comparability with labour force survey data. The 1996 differences were somewhat larger but in the opposite direction from the 1991 differences.
- The introduction of the 'Availability to Start Work' question. This affected the classification of persons who were not available to start work, who would have otherwise been classified as unemployed, but were instead classified as not in the labour force. This improved the comparability of labour force data between the census and the labour force survey.
- The change to the 'Hours Worked' question to refer to All Jobs. This further improved the comparability of labour force data between the census and the labour force survey and had the expected effects of reducing the non-response rate and increasing the number of respondents who stated that they worked longer hours.
- Sequencing and ordering changes to the Labour force questions. This generally improved response rates for the labour force-related variables.
- The 1996 Census non-response rate for labour force status was comparable to the 1991 Census (2.39% in 1996 compared to 2.33% for 1991). The non-response rate for male respondents rose slightly (from 2.1% to 2.6%) and declined slightly for female respondents (from 2.6% to 2.2%).

5.2 *Reconciliation of Census and Labour Force Survey for Labour Force Status*

There are several known differences in scope and definition between the data on labour force status collected in the 1996 Census and in the MLFS. For the final reconciliation, adjustments were made for differences in scope, underlying definitional concepts, timing and methodology. After making these adjustments:

- It was found that the differences in the Census counts and MLFS estimates were statistically significant (refer to Part 3 of Table 15).

- The overall labour force participation rate was very similar for the two sources (61.9% for the Census, 63.2% for the Survey). However, the differences in the participation rates tended to be larger in the youngest and oldest age groups, where a large proportion of the people were not in the labour force. For the age groups 15 to 19 years through to 45 to 49 years, the Census participation rates were lower than the MLFS rates. For the 50 years and older age groups, Census participation rates were higher (see Appendix 4 Table A2).
- The Census recorded a higher overall unemployment rate than the MLFS (9.2% compared to 8.0% respectively).
- By age group, Census unemployment rates were consistently higher than MLFS rates for all age groups (see Appendix 4 Table A2).
- The differences for both participation and unemployment rates between the data collections tended to be greater for males than females (see Appendix 4 Table A3).
- There was some variation in the results of the reconciliation between States and Territories (see Appendix 4 Table A1).

APPENDIX 1: 1991 Census Labour Force questions

<p>30 <i>Last week, did the person have a full-time or part-time job of any kind?</i></p>	<p><input type="checkbox"/> Yes, worked for payment or profit. Now go to 32</p> <p><input type="checkbox"/> Yes, but absent on holidays, on paid leave, on strike or temporarily stood down. Now go to 32</p> <p><input type="checkbox"/> Yes, unpaid work in a family business. Now go to 32</p> <p><input type="checkbox"/> Yes, other unpaid work.</p> <p><input type="checkbox"/> No, did not have a job.</p>
<p>31 Did the person actively look for work at any time in the last 4 weeks</p> <ul style="list-style-type: none"> • Actively looking for work means checking or being registered with the Commonwealth Employment Service; writing, telephoning or applying in person to an employer for work; or advertising for work. 	<p><input type="checkbox"/> No, did not look for work. Now go to 40</p> <p><input type="checkbox"/> Yes, looked for full-time work. Now go to 40</p> <p><input type="checkbox"/> Yes, looked for part-time work. Now go to 40</p>
<p>32 In the main job held last week, was the person:</p> <ul style="list-style-type: none"> • Mark one box only. • If the person had more than one job last week then 'main job' refers to the job in which the person usually works the most hours. 	<p><input type="checkbox"/> A wage or salary earner?</p> <p><input type="checkbox"/> Conducting own business but not employing others?</p> <p><input type="checkbox"/> Conducting own business and employing others?</p> <p><input type="checkbox"/> A helper not receiving wages or salary?</p>

APPENDIX 2: 1996 Census Decision Table

FT/PT Job	Job last week	Looked for Work	Available to Start Work	Hours Worked	Travel to Work	Labour Force Status
1,2,3,NS	Stated	*	*	*	*	Employed
1,2,3	NS	*	*	*	*	Employed
4,5	*	1,NS	*	*	*	NILF
4,5	Stated	2,3	1,2,NS	*	*	Unemployed
4,5	Stated	2,3	3,4	*	*	NILF
4,5,NS	NS, NA	2,3	3,4	*	*	NILF
4,5,NS	NS,NA	2,3	1,2,NS	*	*	Unemployed
NS	NS,NA	1	*	*	*	NILF
NS	NS	NS	*	1	NS	NILF
NS	NS	NS	*	2-8,NS	NS	Not stated
NS	NS	NS	*	*	Stated	Not stated
NA	NA	NA	NA	NA	NA	Not Applicable
V	V	V	V	V	V	Overseas Visitor

NS Not stated
 NA Not applicable
 V Overseas Visitor
 * Stated or no response

Full/Part-time job:

1=Had a job, 2=Had a job but absent, 3=Unpaid work in a family business, 4=Other unpaid help, 5=No

Job last week:

1,2,3=W/S earner or self-employed, 4=Unpaid helper

Looked for Work:

1=No, 2=Yes, full-time, 3=Yes, part-time

Available to start work

1 = Yes, 2 = No, had job, 3,4 = No, other reasons

Hours worked:

1=None, >1=One or more hours worked

Travel to Work:

1-9,11=Method of travel stated, 10=Worked at home, 12=Did not go to work

APPENDIX 3: Differences in Decision Tables between 1991 and 1996

FT/PT Job	Looked for work	Job last week	Available to start work	Hours worked	Travel to work	Derived LFS 1991 ¹	Derived LFS 1996 ²
2	2,3	NS	*	Stated	*	Employed/ Unemployed	Employed
1	2,3	NS	*	NS	NS	Unemployed	Employed
2,3	2,3	NS	*	NS	NS	Employed/ Unemployed	Employed
4,5	2,3	1,2,3,NS	*	*	*	Unemployed	Unemployed/ NILF
4,5	2	4	*	*	*	Unemployed	Unemployed/ NILF
4,5	NS	W/S Earner, Self emp	*		at least one stated	Employed	NILF
4,5	NS	W/S Earner, Self emp	*	NS	NS	Unemployed/ NILF	NILF
4,5	NS	Unpaid Helper	*	*	*	Unemployed/ NILF	NILF
NS	1	Unpaid Helper	*	*	*	NILF	Employed
NS	2,3	Unpaid Helper	*	*	*	Unemployed	Employed
NS	2,3	NS	*		at least one stated	Employed	Unemployed/ NILF
NS	2,3	NS	*	NS	NS	Unemployed	Unemployed/ NILF
NS	NS	NS	*	>1	method stated	Employed	NS
NS	NS	NS	*	1,NS	10,12	NILF	NS

¹ Where there were two categories, the outcome was uncertain and was obtained through random allocation between the two categories.

² Where there were two categories, the outcome was dependant upon the respondent's answer to ATSP.

NS Not stated

* Stated or no response

Full/Part-time job:

1=Had a job, 2=Had a job but absent, 3=Unpaid work in a family business, 4=Other unpaid help, 5=No

Looked for Work:

1=No, 2=Yes, full-time, 3=Yes, part-time

Job last week:

1,2,3=W/S earner or self-employed, 4=Unpaid helper

Hours worked:

1=None, >1=One or more hours worked

Travel to Work:

1-9,11=Method of travel stated, 10=Worked at home, 12=Did not go to work

APPENDIX 4: Reconciliation between Census and Labour Force Survey

Table A1: Reconciliation between Census and Labour Force Survey by State/Territory, 1996 Census and (Adjusted) August 1996 Labour Force Survey

	State/Territory (thousands)								
	<i>NSW</i>	<i>Vic.</i>	<i>QLD</i>	<i>SA</i>	<i>WA</i>	<i>Tas.</i>	<i>NT</i>	<i>ACT</i>	<i>Aust</i>
Employed									
LFS	2634.4	1969.2	1442.4	625.6	797.4	191.8	80.1	153.0	7894.0
Census	2563.3	1898.0	1404.1	597.3	760.7	183.0	78.0	150.7	7635.0
Difference	71.1	71.2	38.3	28.3	36.7	8.8	2.1	2.3	259.0
Unemployed									
LFS	210.5	178.4	139.3	61.3	60.8	20.4	4.4	13.2	688.3
Census	247.6	197.4	150.6	68.9	68.7	22.7	6.3	11.8	771.9
Difference	-37.1	-19.0	-11.3	-7.6	-7.9	-2.3	-1.9	1.4	-83.6
NILF									
LFS	1756.5	1258.8	879.3	434.9	430.7	140.6	35.4	62.0	4998.2
Census	1790.5	1311.0	906.4	455.7	461.5	147.2	35.7	65.6	5173.6
Difference	-34.0	-52.2	-27.1	-20.8	-30.8	-6.6	-0.3	-3.6	-175.4
Per cent									
Labour Force Participation Rate									
LFS	61.8	63.0	64.3	61.2	66.6	60.1	70.5	72.8	63.2
Census	61.1	61.5	63.2	59.4	64.2	58.3	70.3	71.2	61.9
Diff	0.7	1.5	1.1	1.9	2.3	1.9	0.2	1.6	1.3
Unemployment Rate									
LFS	7.4	8.3	8.8	8.9	7.1	9.6	5.2	7.9	8.0
Census	8.8	9.4	9.7	10.3	8.3	11.0	7.5	7.3	9.2
Diff	-1.4	-1.1	-0.9	-1.4	-1.2	-1.4	-2.3	0.7	-1.2

There was considerable variation between the States and Territories, although some consistent trends did emerge. For persons in all States and Territories, the MLFS estimate of employed was greater than the Census count, while the opposite was true for NILF and unemployed (except for the ACT where MLFS estimates slightly exceeded those of the Census). It appears that the remaining differences were most likely due to the different nature of the two collections.

APPENDIX 4 *continued*

Analysis by age and sex also revealed some interesting results (see Table A2 below).

Table A2: Reconciliation between Census and Labour Force Survey by Age Group, Australia, 1996 Census and (Adjusted) August 1996 Labour Force Survey

	Age (years)											Total
	(thousands)											
	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 and over	
Employed												
LFS	569.1	941.5	995.5	996.0	1045.9	1010.4	945.8	659.7	412.7	198.2	119.1	7894.0
Census	487.1	885.3	966.3	970.3	1019.4	985.6	933.1	660.7	408.7	195.1	123.2	7635.0
Diff	82.0	56.2	29.2	25.7	26.5	24.8	12.7	-1.0	4.0	3.1	-4.1	259.0
Unemployed												
LFS	127.4	119.9	85.0	75.8	74.8	55.7	57.8	42.8	35.7	12.2	1.2	688.3
Census	112.6	143.4	102.5	88.6	81.7	69.7	61.6	47.8	42.5	16.8	4.5	771.9
Diff	14.8	-23.5	-17.5	-12.8	-6.9	-14.0	-3.8	-5.0	-6.8	-4.6	-3.3	-83.6
NILF												
LFS	520.1	220.5	231.0	276.0	252.5	213.0	220.2	251.5	323.8	458.9	2030.6	4998.2
Census	616.8	253.2	242.8	288.9	272.1	223.7	229.2	245.5	321.0	457.3	2023.1	5173.6
Diff	-96.7	-32.7	-11.8	-12.9	-19.6	-10.7	-9.0	6.0	2.8	1.6	7.5	-175.4
Per cent												
Labour Force Participation Rate												
LFS	57.2	82.8	82.4	79.5	81.6	83.3	82.0	73.6	58.1	31.4	5.6	63.2
Census	49.3	80.2	81.5	78.6	80.2	82.5	81.3	74.3	58.4	31.7	5.9	61.9
Diff	8.0	2.6	0.9	1.0	1.4	0.8	0.7	-0.6	-0.4	-0.2	-0.3	1.3
Unemployment Rate												
LFS	18.3	11.3	7.9	7.1	6.7	5.2	5.8	6.1	8.0	5.8	1.0	8.0
Census	18.8	13.9	9.6	8.4	7.4	6.6	6.2	6.7	9.4	7.9	3.5	9.2
Diff	-0.5	-2.6	-1.7	-1.3	-0.7	-1.4	-0.4	-0.7	-1.5	-2.1	-2.5	-1.2

The difference between Census and MLFS estimates of the number of employed was greatest for the age group 15-19 years. This was also the only age group for which the MLFS estimate of the number of unemployed was greater than that of the Census. This was partly due to collection differences between the two data sets in that the Census recoded persons who reported themselves to be full-time students to a LFS of NILF, while the MLFS asked the job attachment questions to all 15-19 year olds regardless of their school attendance. Therefore the MLFS recorded lower estimates of NILF and higher estimates of employed than the Census in this age group in particular.

APPENDIX 4 *continued*

Census and MLFS estimates of labour force participation rates were relatively close, although the differences were larger for the younger age groups, 15-19 years and to a lesser extent 20-24. The MLFS estimates were higher than those of the Census for the younger age groups up to and including 45-49 years, while Census figures exceeded survey estimates for the remaining age groups. As the MLFS counted full-time students to be in the labour force, this may partly explain the higher participation rates recorded in the survey for the younger age groups. Census figures may also have been reduced by under-reporting by some respondents (young part-time students for example) not reporting work of a few hours per week. This would have been less likely to occur in the interviewer-based MLFS.

Unlike the estimates of the labour force participation rate, the Census estimate of the unemployment rate was consistently higher than the MLFS estimate across all age groups. This was also the case in 1991, although the introduction of the new question, availability to start work, had the effect of reducing the Census estimate of the unemployment rate.

Analysis by sex (see Table A3 overleaf) also reveals an interesting trend in that the differences between the two collections were consistently greater in magnitude for males than for females, although the proportions of people in each of the LFS categories were similar for males and females between the two collections.

Females recorded a notably lower labour force participation rate than males, and also recorded slightly lower unemployment rates than their male counterparts in both collections. MLFS estimates of labour force participation rates were higher than those from the Census for both males and females, while the reverse was true for unemployment rates (see overleaf).

APPENDIX 4 *continued*

**Table A3: Reconciliation between Census and Labour Force Survey by Sex, Australia
1996 Census and (Adjusted) August 1996 Labour Force Survey**

	Sex (thousands)		
	<i>Male</i>	<i>Female</i>	<i>Aust</i>
Employed			
LFS	4,446.6	3,447.4	7,894.0
Census	4,271.2	3,363.8	7,635.0
Difference	175.4	83.6	259.0
Unemployed			
LFS	408.8	279.6	688.3
Census	467.9	304.0	771.9
Difference	-59.1	-24.4	-83.6
NILF			
LFS	1,780.8	3,217.4	4,998.2
Census	1,897.1	3,276.5	5,173.6
Difference	-116.3	-59.1	-175.4
Per cent (%)			
Labour Force Participation Rate			
LFS	73.2	53.7	63.2
Census	71.4	52.8	61.9
Difference	1.8	0.9	1.3
Unemployment Rate			
LFS	8.4	7.5	8.0
Census	9.9	8.3	9.2
Difference	-1.5	-0.8	-1.2

References

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