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Australian Bureau of Statistics

Information Paper

Forthcoming Changes to Labour Force Statistics

2003

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Information Paper

Forthcoming Changes to Labour Force Statistics

2003

Dennis Trewin
Australian Statistician

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INQUIRIES

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INTRODUCTION

THE LABOUR FORCE SURVEY

The Australian Bureau of Statistics (ABS) collects a range of data on the labour market. These labour statistics are important economic and social indicators. They provide insight into the economy and the effects of labour market policy settings, and they also provide information about people's lives — their participation in the labour force, success in finding employment, type of work and working hours.

The monthly Labour Force Survey (LFS) is one of the most important ABS labour collections, providing timely information on labour market activity within Australia. The statistics of most interest each month are estimates of the number of employed and unemployed, the unemployment rate, and the labour force participation rate.

CHANGES TO THE LFS

The ABS intends to introduce a number of changes to the LFS over the next few months.

The first of these changes, to be introduced with the release of December 2003 LFS data, relates to the seasonal adjustment process used to produce LFS estimates. The second group of changes involves revisions to detailed original data at the unit record level which will flow through to published aggregated data. These changes will be introduced with the release of February 2004 LFS data.

THIS INFORMATION PAPER

This paper provides users of LFS data with information about these changes, and the impact the changes may have on previously published LFS estimates. The two main sections of the paper are:

- seasonal adjustment processes
- revisions to unit record data.

Seasonal Adjustment Processes

This section of the information paper covers two separate changes to the seasonal adjustment process used in the LFS. These changes are:

- implementation of concurrent seasonal adjustment
- introduction of an adjustment for survey proximity to holiday periods.

These changes will result in better quality seasonally adjusted and trend estimates. The changes will not impact on original estimates, but will cause revisions to previously published seasonally adjusted and trend LFS estimates.

The first issue of *Labour Force, Australia* (cat. no. 6202.0) to incorporate these changes will be the December 2003 issue, to be released on 15 January 2004.

Revisions to Unit Record Data

This section of the information paper provides details of five separate changes, all of which will result in revisions to unit record data. All of these revisions will flow through to published original series and some will flow through to seasonally adjusted and trend estimates. These changes are:

- implementation of revised population benchmarks
- the introduction of regional population benchmarks
- the revision of historical unit record data, from September 1997 to March 2001, for definitional changes introduced with the new LFS questionnaire in April 2001
- a change in the treatment of future starters not actively looking for work
- a change to coding of industry and occupation.

Revisions to Unit Record Data continued

All of these changes will be introduced with the February 2004 issue of *Labour Force, Australia* (cat. no. 6202.0), to be released on 11 March 2004. At this time, a full set of LFS products, including data revisions up to January 2004, will also be released.

SEASONAL ADJUSTMENT PROCESSES

BACKGROUND

Seasonal adjustment is a means of removing the estimated effects of normal seasonal variation from a time series so that the effects of other influences on the series can be recognised more clearly. Seasonal adjustment does not remove the irregular or non-seasonal influences which may be present in any particular month. For a fuller explanation of seasonal adjustment see the article *Using the Unemployment Rate Series to Illustrate the Seasonal Adjustment Process* published in both the April 2000 issue of *Labour Force, Australia* (cat. no. 6203.0), and the May 2000 issue of *Australian Economic Indicators* (cat. no. 1350.0).

Many international time series experts have recommended the use of concurrent adjustment over the forward factor method currently used by the ABS to seasonally adjust labour force statistics. Now that technological advances have made it possible to calculate seasonal factors relatively easily and with great speed, timeliness is no longer a reason for relying on an annual reanalysis to produce seasonal factors for use over the following year.

Most of the seasonal adjustment done by major statistical organisations such as the Bureau of the Census in the United States (US), Statistics Canada and the Office for National Statistics in the United Kingdom (UK) use the concurrent adjustment method. The US Bureau of Labour Statistics uses half-yearly reanalyses to update seasonal factors for the US monthly Labour Force Survey and recently introduced concurrent adjustment for the employer based Current Employment Statistics Survey.

The ABS considers that concurrent adjustment is superior to forward factor adjustment in most instances. A number of ABS surveys, including the monthly Retail Trade Survey and the quarterly Business Indicators Survey, use the concurrent adjustment method.

The use of concurrent seasonal adjustment would have reduced the volatility in some LFS statistics in recent years.

In addition, recent investigations by the ABS have found that the proximity of the survey reference period to holiday periods can also have an impact on LFS estimates of labour market activity. For this reason a specific adjustment for Easter and January holiday periods will be introduced to coincide with the introduction of concurrent seasonal adjustment.

CONCURRENT SEASONAL ADJUSTMENT

This section describes the seasonal adjustment process currently used in the LFS; explains how concurrent seasonal adjustment works; gives a comparison of estimates produced using concurrent seasonal adjustment and the existing processes; discusses the implications of introducing concurrent seasonal adjustment; and gives details of the forthcoming implementation of concurrent seasonal adjustment.

Existing Seasonal Adjustment Process

In the LFS, seasonal factors are currently estimated using the forward factor method, which reviews the factors annually to take account of each additional year's original data and to examine series for trend breaks, seasonal breaks and outliers. Seasonally adjusted estimates for previous periods are revised, and the new forward adjustment factors are projected and then used for the following 12 months. For example, the most recent seasonal reanalysis for the LFS incorporated data from February 2002 to January 2003 for the first time, and produced forward adjustment factors for use in the months February 2003 to January 2004.

Concurrent Seasonal Adjustment

Concurrent seasonal adjustment uses original data up to and including the current time period to estimate seasonal factors, and then produce seasonally adjusted and trend series. Concurrent seasonal adjustment is technically superior to the forward factor method of reanalysing seasonal patterns once each year, because it uses all available data to fine tune the estimates of the seasonal component each month. With concurrent adjustment, monthly seasonally adjusted series are subject to revisions each month as the estimates of the seasonal factors are improved. It eliminates the need to use projected seasonal factors, and results in improvements in accuracy and consistency of the seasonally adjusted series. In most instances, the only noticeable revisions will be to the estimates for the previous month and for the same month in the preceding year.

In concurrent seasonal adjustment, an annual reanalysis is still conducted, but is limited to examining series for trend breaks, seasonal breaks and outliers.

Comparing Concurrent Adjustment with Forward Factors

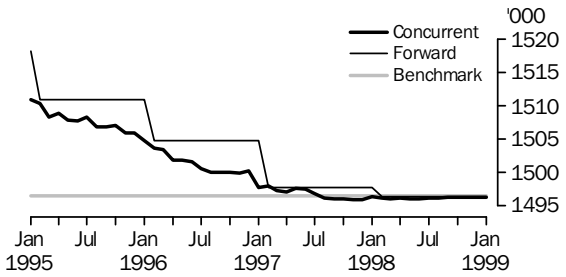
Analysis of ABS labour force data has shown that concurrent seasonal adjustment generally performs better than the forward factor method. Concurrent adjustment generally produces a more accurate initial seasonally adjusted estimate, has less revision over time, and converges more quickly to the final estimate.

Graphs 1 to 3 show simulated revision histories for a selection of seasonally adjusted series using both the concurrent and forward factor methods. Each graph shows how the estimate for a particular month would have changed over time, from when it was first published until 48 months later. The straight grey line is the 'historical benchmark', which is essentially a stable final estimate (only available at least five years after initial estimation) against which the performance of the two methods can be compared. The thick line is the concurrent estimate and the thin line is the forward factor estimate.

Graphs 1 and 2 are examples of the typical situation where the initial concurrent estimate is closer to the benchmark than the initial forward factor estimate, moving in a series of small revisions that converge on the benchmark earlier than the forward factor estimate. Graph 3 provides an example where concurrent adjustment doesn't provide a better estimate consistently over time, but still shows that the concurrent method converges on the benchmark earlier than the forward factor method.

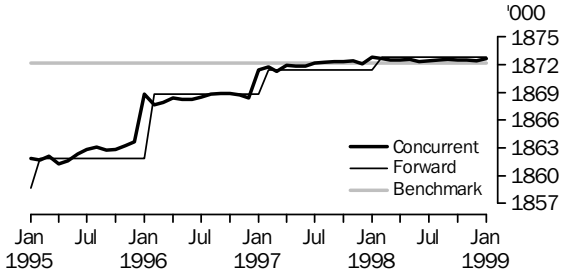
It must be noted that while concurrent estimates will generally be closer to the benchmark than the forward factor estimate, this does not mean that all concurrent estimates will be closer to the benchmarks. It means only that they are closer to the benchmarks on average.

1 FEMALES EMPLOYED PART TIME,
Revision history for January 1995

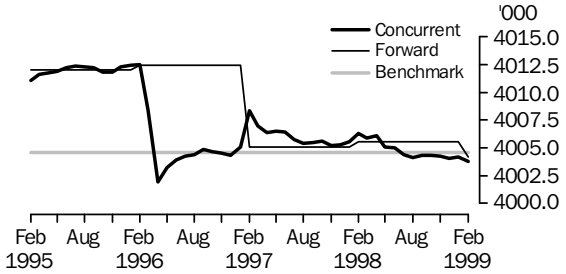


Comparing Concurrent Adjustment with Forward Factors continued

2 ADULT FEMALES EMPLOYED FULL TIME, Revision history for January 1995

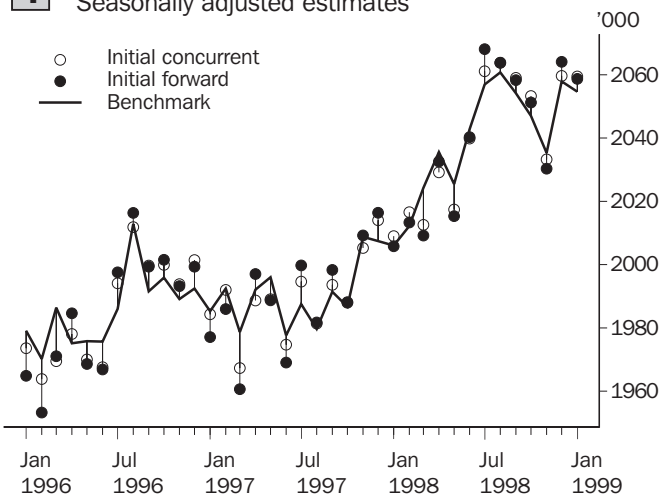


3 ADULT MALES EMPLOYED FULL TIME, Revision history for February 1995



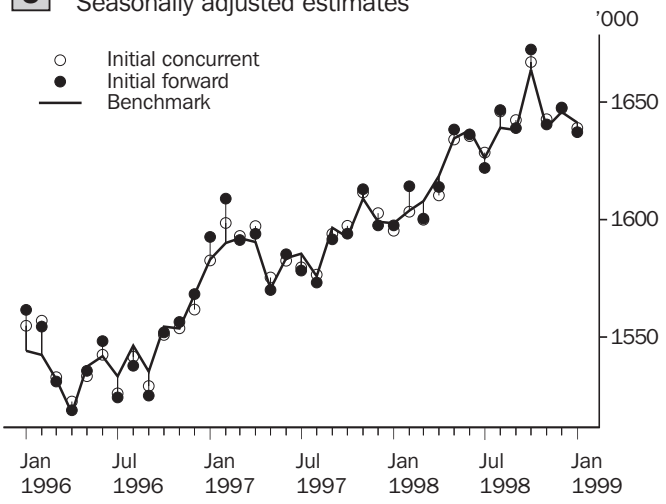
While the examples above demonstrate how the seasonally adjusted estimate for a particular month is revised over time, they do not give a good indication of how the two estimation methods compare over the length of any series. Graphs 4 and 5 display initial seasonally adjusted estimates and the benchmark series for the most recent years that a reliable benchmark can be estimated. This type of analysis is particularly useful for seeing how the two methods would compare for months with large movements when initially released. The thick line is the benchmark series, the circles are the initial concurrent estimates of the seasonally adjusted series, and the solid dots are the initial forward factor estimates of the adjusted series. The concurrent and forward factor seasonally adjusted methods display comparable patterns over time. Most of the time, however, initial concurrent seasonally adjusted estimates are closer to the benchmark series than the initial forward factor estimates.

4 ADULT FEMALES EMPLOYED FULL TIME, Seasonally adjusted estimates



Comparing Concurrent Adjustment with Forward Factors continued

5 FEMALES EMPLOYED PART TIME, Seasonally adjusted estimates



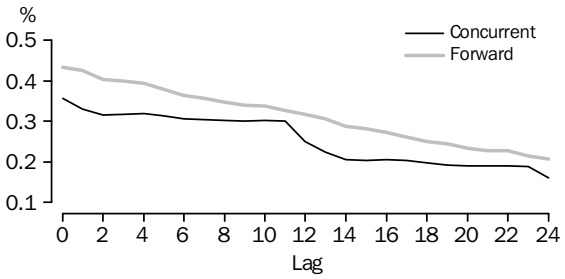
A recent illustration of the improvements that can flow from using concurrent adjustment occurred with the release of labour force figures for January 2003. For total employed persons, the initial seasonally adjusted monthly movement (based on forward factors) was +111,000. Had concurrent adjustment been in use at the time, the initial movement estimate would have been +94,000. Although a benchmark estimate for January 2003 will not be available for several years, it is clear from comparisons with recent trend data that the concurrent adjusted movement of +94,000 is likely to be closer to the benchmark than the figure of +111,000 that was released at the time.

Whereas graphs 1, 2 and 3 show the seasonally adjusted estimates for a particular point in time at various 'lags', graphs 6 and 7 show the average (over the period of study) of the absolute per cent revisions of lagged seasonally adjusted estimates for both the concurrent and forward factor methods. The average of the absolute per cent revisions of lagged estimates is a global measure of the revision size and convergence speed of the seasonally adjusted estimates. It is calculated using all estimates at a specific lag. That is, the lag zero (0) average revision uses all initial estimates over the period under study; the lag 1 average revision uses the second estimate available for all months of the period under study; and so on. (For example, the lag zero January 1995 estimate is the initial estimate using data up to January 1995; the lag 1 estimate is the second estimate of January 1995 using data up to February 1995.)

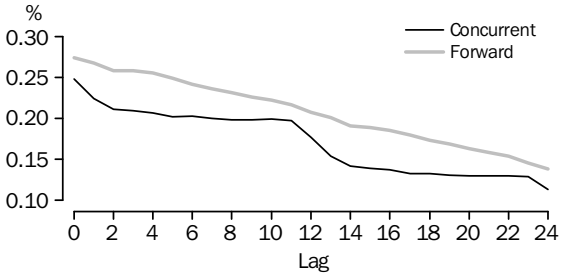
It is clear from graphs 6 and 7 that, on average, the concurrent seasonally adjusted estimates have less revision at each lag than the forward factor estimates, and converge to the benchmark more quickly. These patterns are typical of all the national component series of employment and unemployment.

Comparing Concurrent Adjustment with Forward Factors continued

6 FEMALES EMPLOYED PART TIME, Seasonally adjusted revisions



7 ADULT FEMALES EMPLOYED FULL TIME, Seasonally adjusted revisions



Implications of Introducing Concurrent Seasonal Adjustment

In the LFS, original data (i.e. data that is not seasonally adjusted) is usually only revised at the five-yearly re-benchmarking to population estimates based on the latest census, and occasionally following definitional changes. As a result, revisions to seasonally adjusted data generally occur only once a year when the annual reanalysis of seasonal factors is conducted.

Under concurrent seasonal adjustment, all seasonal factors will be subject to revision every month — consequently, all seasonally adjusted and trend estimates may also be revised every month. However, significant revisions will generally only occur for the previous one or two months, as well as one year prior to the current month.

The monthly revisions will require users of LFS seasonally adjusted and trend series to access more data each month in order to ensure that they possess the latest data for all time periods. Currently, for all releases other than February, users need only access the latest month's seasonally adjusted estimates, and the last seven months' trend estimates (February is the month when revisions to seasonally adjusted labour force series resulting from the annual seasonal reanalysis are released). The move to monthly revisions (under concurrent adjustment) should not adversely affect the use of seasonally adjusted data, as users generally access an entire time series at once rather than adding the current month's data only. Recent changes to LFS products have facilitated this use of complete time series.

SURVEY PROXIMITY TO HOLIDAY PERIODS

Both forward factor and concurrent seasonal adjustment methods are able to remove the effect of events which occur at the same time in the survey every year. However, there are some events, like holidays, which are not always at the same time in the survey cycle or which are not at the same time across Australia.

SURVEY PROXIMITY TO HOLIDAY PERIODS *continued*

The effects of these types of events on LFS estimates cannot in all cases be removed, because the pattern of their effects cannot be determined. However, two events which have been identified, and can be adjusted for in the estimates, are the January interview start date and the timing of Easter.

Interviews for the LFS generally start on the Monday which falls between the 6th and the 12th of each month, except in January, where interviews start on the Monday which falls between the 8th and the 14th, to deal with operational difficulties involved with collecting and processing the LFS around the Christmas and New Year Holiday period. If interviews start at the beginning of this bracket, as they did in 2001, then the survey reference period (i.e. the calendar week prior to interview) would include New Year's Day. Alternatively, if interviews start at the end of this bracket, as they did in 2002, then the reference period will start on 7 January.

The timing of Easter varies from late March to late April. As a result, Easter may fall between the March and April interview periods, during the April interview period, or after the April interview period.

Analysis has shown that the proximity of LFS interviewing to holidays can have an effect on both people's availability for the survey and on their labour market involvement.

A specific adjustment for this effect in respect of the January interview start date and the timing of Easter will be introduced to coincide with the introduction of concurrent seasonal adjustment.

For more information on the effect of the survey proximity to holiday periods on labour force estimates, please refer to the feature article *Volatility of Labour Force Estimates* in the December 2002 issue of *Labour Force, Australia* (cat. no. 6203.0).

INTRODUCTION OF SEASONAL ADJUSTMENT PROCESS CHANGES

The first estimates to incorporate concurrent adjustment and the holiday effect changes to the seasonal adjustment process will be those published in the December 2003 issue of *Labour Force, Australia* (cat. no. 6202.0), to be released on 15 January 2004. The introduction of these two changes will mean that some estimates in seasonally adjusted and trend series may be revised as far back as February 1978.

If users have any queries regarding technical details of either of these changes, they should contact Craig McLaren on Canberra (02) 6252 6540, or via email at <craig.mclaren@abs.gov.au>.

If users have any queries regarding the implementation of either of these changes to the LFS, they should contact Peter Bradbury on Canberra (02) 6252 6565, or via email at <peter.bradbury@abs.gov.au>.

REVISIONS TO UNIT RECORD DATA

BACKGROUND

Every five years, LFS estimates are revised when updated civilian population estimates (benchmarks) become available from the Census of Population and Housing. The latest such revision, incorporating results from the 2001 census, is currently underway, and revised LFS estimates will be available with the release of the next February issue of *Labour Force, Australia* (cat. no. 6202.0) on 11 March 2004. From February 2004, LFS estimates will be compiled using the revised population benchmarks. At the same time, the ABS is taking the opportunity to make several other changes to detailed original data at the unit record level.

These changes include:

- introduction of regional population benchmarks
- revision of historical unit record data for definitional changes introduced in April 2001
- implementation of a change in the treatment of future starters not actively looking for work
- a change to coding of industry and occupation.

These changes include revision of historical LFS data back to various dates, depending on the nature of the change. This section of the information paper provides further information on each change and any impact the changes may have on LFS estimates.

IMPLEMENTATION OF REVISED POPULATION BENCHMARKS

LFS estimates of persons employed, unemployed and not in the labour force are calculated in such a way as to add up to independent estimates, or 'benchmarks' for the civilian population aged 15 years and over.

The benchmarks are based on Census of Population and Housing data, adjusted for differences in scope, under-enumeration in the census, and updated monthly for births, deaths, interstate and intrastate migration, and net permanent and long-term overseas migration. Benchmarks are classified by state/territory of usual residence, part of state of usual residence (capital city/balance of state), age and sex. Each cross-classification of these benchmark variables is known as a benchmark cell.

Expansion factors or weights are applied to the survey's sampled respondents to derive estimates that relate to the whole population in the scope of the survey each month. Each sample respondent is allocated a weight depending on their benchmark cell and state/territory of enumeration.

LFS estimates for each characteristic of interest are formed by summing the weights of the respondents in the sample with that characteristic. The weighting procedure reduces sampling variability by ensuring that estimates conform to the benchmark distribution of the usually resident civilian population by age, sex and geographic area, while simultaneously compensating and adjusting for any under-enumeration or non-response in the survey.

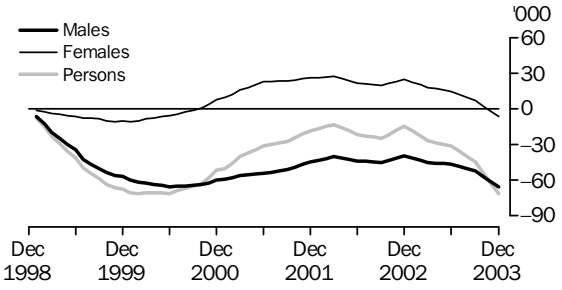
Beginning with the February 2004 survey, LFS estimates will be calculated using population benchmarks based on the 2001 Census of Population and Housing.

These updated benchmarks will also be used to revise previously published estimates for the period January 1999 to January 2004. Revisions will not be made prior to January 1999 because the effects on survey estimates are too small to warrant revision.

IMPLEMENTATION OF REVISED POPULATION BENCHMARKS *continued*

The updated population benchmarks have resulted in the total civilian population aged 15 years and over being revised for the period January 1999 to December 2003 by no more than 0.5%. The total population has been revised downward for the entire period, by a maximum of 71,400 in February 2000, as shown in the following graph.

8 REVISION TO POPULATION BENCHMARKS



Male population benchmarks have been revised downward for the entire period (to a maximum of 0.9%), falling by a minimum of 6,100 in January 1999 and by a maximum of 65,300 in December 2003. In contrast, the female population benchmarks have been predominantly revised upward (to a maximum of 0.3%). The female population benchmarks have been revised upward by a maximum of 27,400 in March 2002 and revised downward by a maximum of 10,600 in January 2000. Population benchmarks for ages less than 30 years old have decreased, while benchmarks for older ages have generally increased.

REGIONAL POPULATION BENCHMARKS

While the LFS is designed primarily to produce reliable estimates at national, state and territory levels, it also delivers estimates for employed persons and unemployed persons for a number of regions (Labour Force Statistical Regions) within states.

The population benchmarks currently used by the LFS are classified by state/territory of usual residence, capital city/rest of state, age and sex. In addition to these population benchmarks, from February 2004 the LFS will use population benchmarks for labour force region by sex.

Historically, estimates at this regional level have shown a high degree of variability relative to state and part of state level estimates. This is because regional estimates are subject to larger impacts of sampling variability, in that the weighted estimates reflect both the distribution of the sample selected (and not an independent population benchmark) and the characteristics of the sample selected. The larger impact of sampling variability leads to larger month to month variation and higher standard errors for these regional estimates.

Implementing population benchmarks for statistical regions will improve the reliability, but not remove all the variability, in regional estimates. By implementing statistical region benchmarks, some of the variability in estimates relating to distribution of the sample will be removed, but not the variability relating to the small sample selected.

REGIONAL POPULATION BENCHMARKS *continued*

LFS estimates at the regional level will be revised based on population benchmarks for Labour Force Statistical Regions for the period January 1999 to January 2004. This revision is expected to reduce the month to month variation for regional estimates over that period without compromising the quality of LFS estimates at national, state and territory levels.

APRIL 2001 DEFINITIONAL CHANGES

In April 2001, the ABS revised historical estimates for core labour force series resulting from two definitional changes made during the introduction of the new LFS questionnaire. The two definitional changes made were:

- people on short term unpaid leave initiated by the employer (that is, people stood down for less than four weeks without pay) were classified as employed rather than as unemployed
- people who were unavailable to start work in the reference week due to temporary illness were classified as not in the labour force rather than as unemployed.

While core labour force series were revised in 2001 for these two definitional changes, the revisions were not made at the unit record level. This has meant that other aggregates produced from unit record data do not reconcile with the core series that were directly revised.

To address this anomaly, for the period September 1997 to March 2001, unit record data will be revised for these definitional changes. The revised estimates will be included in products released from the February 2004 survey onwards. Core series that were revised in April 2001 will not be affected as a result of this change.

For more information on these definitional changes refer to *Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire* (cat. no. 6295.0).

DEFINITIONAL CHANGE FOR FUTURE STARTERS

In February 2004, the ABS will introduce a minor change to the definition of unemployed persons. The change relates to a small group of persons ('future starters') who had not actively looked for work because they were waiting to start a new job within four weeks from the end of the survey reference week, and would have started in the reference week if the job had been available then. These persons are currently classified as 'not in the labour force'. From February 2004 they will be classified as unemployed, in line with International Labour Organisation guidelines.

Data to support this change has been available since the new LFS questionnaire was introduced in April 2001. However, the ABS announced then that, due to concerns that such a change could result in a break in some core labour force series, implementation of the change would be deferred until February 2004 (see *Information Paper: Implementing the Redesigned Labour Force Survey Questionnaire* (cat. no. 6295.0) which was released on 3 May 2001). This timing coincides with the five-yearly revision of population benchmarks.

LFS estimates will be revised back to April 2001 to reflect this change. Revised estimates will be available with the release of the February 2004 issue of *Labour Force, Australia* (cat. no. 6202.0) on 11 March 2004.

DEFINITIONAL CHANGE FOR FUTURE STARTERS *continued*

Analysis of data for the period April 2001 to September 2003 has shown that, on average, around 15,300 persons currently classified as not in the labour force will now be classified as unemployed.

This revised treatment will increase the unemployment rate by, on average, 0.1 – 0.2 percentage points. A small break will remain in the unemployed persons and unemployment rate series at April 2001, because data are not available on the new basis prior to then.

CHANGE TO CODING OF INDUSTRY AND OCCUPATION

LFS industry data are currently classified according to the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), 1993 (cat. no. 1292.0) and are coded at the ANZSIC Group (3 digit code) level. Occupation data are currently classified according to *ASCO – Australian Standard Classification of Occupations,* Second Edition (cat. no. 1220.0) and are coded at the ASCO Unit Group (4 digit code) level.

Every three months, respondents to the LFS who are employed or unemployed are asked a series of questions which are used to code industry and occupation. In a small number of cases, responses to these questions are not sufficiently detailed to allow the ABS to code people to the lowest level of these classifications. Since the introduction of computer assisted coding in 2000, these responses have been proportionally distributed to the most detailed level of the classification.

This LFS treatment of these insufficiently detailed responses does not conform to ABS standards for the collection and presentation of data. From February 2004, these responses will be coded to 'not further defined' categories at an appropriate level in both the industry and occupation classifications.

Industry and occupation series will be revised back to August 2000 to include these 'not further defined' categories.

Industry estimates at the Division (1 digit) level and occupation estimates at the Major Group (1 digit) level are unchanged. Tables 1 and 2 at the end of this paper demonstrate the impact this change will have on the May 2003 industry estimates at the Subdivision (2 digit) level, and occupation estimates at the Sub-Major Group (2 digit) level.

FURTHER INFORMATION

LFS estimates incorporating the revisions to unit record data described in this paper will be published for the first time in the February 2004 issue of *Labour Force, Australia* (cat. no. 6202.0) on 11 March 2004. Second release products (cat. no. 6291.0.55.001) with revised estimates will also be released on 11 March 2004, but these products will only include estimates up to January 2004. Second release products, including February 2004 estimates, will be released one week later, on 18 March 2004, in accordance with the standard timetable.

Indicative information on the impact on historical estimates will be included in the January 2004 issue of *Labour Force, Australia* (cat. no. 6202.0) released on 12 February 2004.

If users have any queries regarding the implementation of any of these changes to the LFS, they should contact Peter Bradbury on Canberra (02) 6252 6565, or via email at <peter.bradbury@abs.gov.au>.

1 IMPACT OF CODING CHANGES ON EMPLOYED PERSONS BY INDUSTRY—May 2003

	Currently Published	*Revised*
	'000	'000
Agriculture	326.3	325.6
Services to Agriculture, Hunting and Trapping	20.8	20.8
Forestry and Logging	11.3	11.3
Commercial Fishing	20.3	20.3
Agriculture, Forestry and Fishing nfd	—	0.7
Coal Mining	21.0	20.8
Oil and Gas Extraction	4.3	4.3
Metal Ore Mining	38.0	37.9
Other Mining	9.0	9.0
Services to Mining	17.3	17.3
Mining nfd	—	0.4
Food, Beverage and Tobacco Manufacturing	177.6	174.4
Textile, Clothing, Footwear and Leather Manufacturing	68.4	67.0
Wood and Paper Product Manufacturing	76.0	74.6
Printing, Publishing and Recorded Media	120.4	116.3
Petroleum, Coal, Chemical and Associated Product Manufacturing	109.9	107.5
Non-Metallic Mineral Product Manufacturing	51.2	49.6
Metal Product Manufacturing	164.2	163.2
Machinery and Equipment Manufacturing	254.7	250.3
Other Manufacturing	85.0	85.0
Manufacturing nfd	—	19.6
Electricity and Gas Supply	56.5	56.5
Water Supply, Sewerage and Drainage Services	21.3	21.3
Electricity, Gas and Water Supply nfd	—	—
General Construction	229.6	228.4
Construction Trade Services	507.4	507.4
Construction nfd	—	1.2
Basic Material Wholesaling	103.6	101.3
Machinery and Motor Vehicle Wholesaling	173.2	166.5
Personal and Household Good Wholesaling	182.2	182.2
Wholesale Trade nfd	—	9.1
Food Retailing	567.3	563.5
Personal and Household Good Retailing	657.9	655.2
Motor Vehicle Retailing and Services	267.4	267.4
Retail Trade nfd	—	6.5
Accommodation, Cafes and Restaurants	467.6	467.6
Road Transport	231.6	231.6
Rail Transport	39.3	39.1
Water Transport	12.0	12.0
Air and Space Transport	47.1	47.1
Other Transport	0.7	0.7
Services to Transport	67.6	67.0
Storage	30.2	29.8
Transport and Storage nfd	—	1.2
Communication Services	177.1	177.1
Finance	193.1	192.8
Insurance	64.2	63.7
Services to Finance and Insurance	88.1	88.1
Finance and Insurance nfd	—	0.7
Property Services	159.4	159.1
Business Services	956.8	956.8
Property and Business Services nfd	—	0.3
Government Administration	417.3	417.3
Defence	21.2	21.2
Government Administration and Defence nfd	—	—

— nil or rounded to zero (including null cells)

Note: nfd stands for not further defined.

	Currently Published	*Revised*
	'000	'000
Education	665.4	665.4
Health Services	704.4	704.4
Community Services	218.5	218.5
Health and Community Services nfd	—	—
Motion Picture, Radio and Television Services	55.8	55.8
Libraries, Museums and the Arts	64.0	63.8
Sport and Recreation	115.3	115.3
Cultural and Recreational Services nfd	—	0.3
Personal Services	191.4	191.4
Other Services	183.4	183.4
Private Households Employing Staff	5.0	5.0
Personal and Other Services nfd	—	—
Total	**9 518.6**	**9 518.6**

— nil or rounded to zero (including null cells)

Note: nfd stands for not further defined.

2 IMPACT OF CODING CHANGES ON EMPLOYED PERSONS BY OCCUPATION—May 2003

	Currently Published	*Revised*
	'000	'000
Generalist Managers	136.9	136.9
Specialist Managers	343.2	343.2
Farmers and Farm Managers	197.5	197.3
Managers and Administrators nfd	—	0.2
Science, Building and Engineering Professionals	181.8	181.5
Business and Information Professionals	539.4	538.7
Health Professionals	319.2	319.0
Education Professionals	415.4	415.4
Social, Arts and Miscellaneous Professionals	301.9	301.9
Professionals nfd	—	1.2
Science, Engineering and Related Associate Professionals	130.7	130.7
Business and Administration Associate Professionals	402.1	402.1
Managing Supervisors (Sales and Service)	494.2	494.2
Health and Welfare Associate Professionals	63.1	63.1
Other Associate Professionals	101.6	101.6
Associate Professionals nfd	—	—
Mechanical and Fabrication Engineering Tradespersons	197.1	197.1
Automotive Tradespersons	135.6	135.6
Electrical and Electronics Tradespersons	209.1	208.8
Construction Tradespersons	310.6	309.8
Food Tradespersons	83.7	83.7
Skilled Agricultural and Horticultural Workers	71.8	71.7
Other Tradespersons and Related Workers	212.1	212.0
Tradespersons and Related Workers nfd	—	1.2
Secretaries and Personal Assistants	178.5	178.5
Other Advanced Clerical and Service Workers	203.5	203.5
Advanced Clerical and Service Workers nfd	—	—
Intermediate Clerical Workers	921.0	921.0
Intermediate Sales and Related Workers	157.6	157.6
Intermediate Service Workers	566.6	566.6
Intermediate Clerical, Sales and Service Workers nfd	—	—
Intermediate Plant Operators	188.8	188.8
Intermediate Machine Operators	82.7	82.7
Road and Rail Transport Drivers	297.5	297.2
Other Intermediate Production and Transport Workers	248.2	248.2
Intermediate Production and Transport Workers nfd	—	0.3
Elementary Clerks	70.4	70.4
Elementary Sales Workers	772.6	772.6
Elementary Service Workers	113.4	113.4
Elementary Clerical, Sales and Service Workers nfd	—	—
Cleaners	222.9	222.2
Factory Labourers	208.5	208.0
Other Labourers and Related Workers	439.3	439.3
Labourers and Related Workers nfd	—	1.2
Total	**9 518.6**	**9 518.6**

— nil or rounded to zero (including null cells)

Note: nfd stands for not further defined.

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