# MANUFACTURING PRODUCTION 

EMBARGO: 11:30AM (CANBERRA TIME) TUES 11 MAY 2004
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## I N Q U I R I E S

- For further information about these and related statistics, contact Graeme Thomas on Adelaide (08) 82377536 or the National Information and Referral
Service on
1300135070.


## NOTES

CHANGES IN THIS ISSUE This issue contains revisions to the Clay bricks series of data.

FORTHCOMING ISSUES

ABBREVIATIONS AND SYMBOLS

DATA N OTES

EFFECTS OF ROUNDING


| ISSUE (Quarter) | RELEASE DATE |
| :--- | :--- |
| June 2004 | 12 August 2004 |
| September 2004 | 11 November 2004 |

September 2004

This publication presents estimates of selected major indicators of manufacturing production for Australia.

More detailed and other commodity items are collected by the Australian Bureau of Statistics (ABS) and are available to users on request and for a charge, as are monthly series for a limited number of data items. These data items are listed in paragraph 21 of the Explanatory Notes.

Estimates of change shown in this publication have been calculated using unrounded estimates and may be different from, but are more accurate than, movements obtained from the rounded estimates.

| ABARE | Australian Bureau of Agricultural and Resource Economics |
| :--- | :--- |
| ABS | Australian Bureau of Statistics |
| DITR | Department of Industry, Tourism and Resources |
| n.a. | not available |
| n.p. | not publishable |
| n.y.a. | not yet available |
| r | figure or series revised since previous issue |
| - | nil or rounded to zero |

[^0]
(a) Users should note that the seasonally adjusted and trend estimates have been revised. Generally, the most recent trend estimates published in this release are likely to be improved (revised) when next quarter's seasonally adjusted estimates become available. For more information, users should refer to paragraphs 12-16 of the Explanatory Notes.
(b) Due to an abnormal movement in the original series for September quarter 2001, the trend has been modified to remove the effect. See also paragraphs 15-17 of the Explanatory Notes.
(c) The volatility in the original series over the last two years due to the introduction of the Goods and Services Tax and the First Home Owners Grant means that the seasonally adjusted and trend figures should be interpreted with caution.
(d) A trend break for December quarter 2001 has been included in this series, due to an abnormal movement in the original series for that quarter. The large downward movement in the original series has caused some uncertainty in the trend estimates from June quarter 2003. A longer span of data is required before the effects of the changes in this industry, and hence the final trend for this series, can be determined.

# Percentage changes <br> between latest <br> 2002.. <br> 2003. <br> 2004..... quarter shown and... 

| No. | Item and unit/Series | Mar | Jun | Sep | Dec | Mar | Jun | Sep | Dec | Mar | prev. quarter |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 14 | Automotive diesel oil (megalitres) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 3241 | 3206 | 3356 | 3396 | 3280 | 3303 | 2983 | 3305 | n.у.a. | 10.8 | -2.7 |
|  | Seasonally adjusted | 3272 | 3235 | 3400 | 3281 | 3367 | 3337 | 2963 | 3230 | n.у.a. | 9.0 | -1.6 |
|  | Trend | 3232 | 3274 | 3326 | 3346 | 3343 | 3306 | 3265 | 3225 | n.y.a. | -1.2 | -3.6 |
| 15 | Portland cement ('000 tonnes)(b) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 1729 | 1992 | 2030 | 1978 | 1617 | 1892 | 2227 | 2329 | 2224 | -4.5 | 37.6 |
|  | Seasonally adjusted | 1915 | 1946 | 1944 | 1915 | 1785 | 1850 | 2137 | 2280 | 2417 | 6.0 | 35.4 |
|  |  | 1881 | 1952 | 1941 | 1870 | 1834 | 1905 | 2084 | 2273 | 2423 | 6.6 | 32.1 |
| 16 | Clay bricks (million) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | r345 | r405 | r417 | r420 | r387 | r415 | r439 | r412 | r403 | -2.1 | 4.3 |
|  | Seasonally adjusted | 382 | 397 | 391 | 413 | 426 | 413 | 409 | 410 | 435 | 6.1 | 2.3 |
|  | Trend | 385 | 391 | 400 | 411 | 418 | 415 | 412 | 416 | 427 | 2.4 | 2.1 |
| 17 | Ready mixed concrete ('000 m ${ }^{3}$ ) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 4523 | 5148 | 5570 | 5433 | 4787 | 5213 | 5903 | 5541 | 5320 | -4.0 | 11.1 |
|  | Seasonally adjusted | 4982 | 5093 | 5214 | 5359 | 5215 | 5199 | 5537 | 5495 | 5723 | 4.1 | 9.7 |
|  | Trend | 4966 | 5114 | 5232 | 5261 | 5262 | 5298 | 5418 | 5566 | 5691 | 2.2 | 8.2 |
| 18 | Alumina ('000 tonnes) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 4077 | 4072 | 4161 | 4072 | 4013 | 4161 | 4125 | 4224 | n.y.a. | 2.4 | 3.7 |
|  | Seasonally adjusted | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. |
|  | Trend | 4128 | 4102 | 4074 | 4081 | 4095 | 4111 | 4138 | 4162 | n.y.a. | 0.6 | 2.0 |
| 19 | Zinc ('000 tonnes) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 139 | 142 | 140 | 144 | 146 | 140 | 141 | 126 | n.y.a. | -10.6 | -12.5 |
|  | Seasonally adjusted | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. |
|  | Trend | 143 | 141 | 141 | 144 | 146 | 142 | 135 | 130 | n.у.a. | -4.0 | -9.7 |
| 20 | Silver (tonnes) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 147 | 159 | 159 | 179 | 179 | 155 | 159 | 158 | n.y.a. | -0.6 | -11.7 |
|  | Seasonally adjusted | 150 | 157 | 162 | 174 | 181 | 155 | 162 | 153 | n.y.a. | -5.6 | -12.1 |
|  | Trend | 154 | 156 | 166 | 173 | 172 | 165 | 158 | 153 | n.y.a. | -3.0 | -11.3 |
| 21 | Copper ('000 tonnes) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 142 | 137 | 123 | 143 | 127 | 139 | 121 | 108 | n.у.a. | -10.7 | -24.5 |
|  | Seasonally adjusted | 148 | 132 | 121 | 145 | 132 | 134 | 119 | 109 | n.y.a. | -7.8 | -24.6 |
|  | Trend | 141 | 140 | 140 | 140 | 138 | 129 | 120 | 112 | n.y.a. | -7.0 | -20.3 |
| 22 | Lead ('000 tonnes)(c) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 69 | 71 | 58 | 70 | 69 | 70 | 69 | 62 | n.у.a. | -10.1 | -11.4 |
|  | Seasonally adjusted | 70 | 70 | 59 | 69 | 70 | 69 | 70 | 61 | n.y.a. | -12.2 | -11.5 |
|  | Trend | 70 | 69 | 68 | 69 | 70 | 69 | 67 | 65 | n.y.a. | -3.9 | -6.0 |
| 23 | Tin (tonnes) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 193 | 183 | 218 | 197 | 136 | 157 | 166 | 138 | n.у.a. | -16.9 | -29.9 |
|  | Seasonally adjusted | 185 | 161 | 217 | 228 | 129 | 134 | 165 | 169 | n.y.a. | 2.6 | -25.7 |
|  | Trend | 184 | 165 | 153 | 142 | 135 | 142 | 156 | 168 | n.y.a. | 7.8 | 18.4 |
| 24 | Gold (tonnes)(d) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 86 | 88 | 84 | 92 | 114 | 96 | 101 | 100 | n.y.a. | -1.0 | 8.7 |
|  | Seasonally adjusted | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. | n.p. |
|  | Trend | 85 | 86 | 89 | 91 | 95 | 99 | 101 | 102 | n.y.a. | 0.7 | 11.8 |
| 25 | Electricity (million kWh) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 45814 | 46650 | 48462 | 46459 | 46159 | 46128 | 48641 | 46261 | 48362 | 4.5 | 4.8 |
|  | Seasonally adjusted | 46385 | 46781 | 46875 | 47545 | 46622 | 46303 | 47126 | 47194 | 48354 | 2.5 | 3.7 |
|  | Trend | 46619 | 46815 | 47026 | 47052 | 46801 | 46610 | 46881 | 47472 | 48118 | 1.4 | 2.8 |
| 26 | Gas (petajoules) |  |  |  |  |  |  |  |  |  |  |  |
|  | Original | 166 | 204 | 228 | 186 | 172 | 204 | 232 | 188 | 173 | -7.9 | 0.4 |
|  | Seasonally adjusted | 190 | 194 | 199 | 199 | 197 | 195 | 203 | 201 | 198 | -1.1 | 0.5 |
|  | Trend | 194 | 195 | 197 | 198 | 198 | 198 | 200 | 200 | 200 | - | 1.4 |

(a) Users should note that the seasonally adjusted and trend estimates have been revised. Generally, the most recent trend estimates published in this release are likely to be improved (revised) when next quarter's seasonally adjusted estimates become available. For more information, users should refer to paragraphs 12-16 of the Explanatory Notes.
(b) The large upward movement in the original series driven by an increase in demand in the building industry has caused some uncertainty in the trend estimates from September quarter 2003. A longer span of data is required before the effects of the changes in this industry, and hence the final trend for this series, can be determined.
(c) Due to abnormal movements in the original series for December quarter 2000 and June quarter 2001, the trend has been modified to remove these effects. See also paragraphs 15-17 of the Explanatory Notes.
(d) Due to an abnormal movement in the original series for June quarter 2001, the trend has been modified to remove the effect. See also paragraphs 14-16 of the Explanatory Notes.

1 This publication presents quarterly estimates of production of selected major manufacturing commodities for Australia.

SCOPE AND COVERAGE
2 Data presented in this publication are collected from a number of different sources. The prime source is the ABS surveys of manufacturing production. Data are also obtained from surveys undertaken by the Department of Industry, Tourism and Resources (DITR), the Australian Bureau of Agricultural and Resource Economics (ABARE), Dairy Australia and from ABS agriculture collections. Scope and coverage varies slightly depending on the source of the information.

3 Production statistics sourced from ABS manufacturing production surveys are not collected from single establishment manufacturing businesses with fewer than four persons employed, nor from establishments predominantly engaged in non-manufacturing activities but which may carry out some manufacturing in a minor way. However, in general, the contribution of these small producers to statistical aggregates is only marginal and data contained in this publication provide reliable information for the evaluation of movements in commodity production.
4 The statistics on meat production include data collected from abattoirs and other major slaughtering establishments, plus estimates of animals slaughtered for human consumption on farms and by country butchers and other small slaughtering establishments. Further information about this series, including more detail, is available in the monthly publication Livestock and Meat, Australia-Electronic Publication (cat. no. 7218.0.55.001) and in the quarterly publication Livestock Products, Australia (cat. no. 7215.0).

5 The statistics on chicken meat production have been collected from commercial poultry slaughtering establishments. Many very small producers and Tasmanian producers are excluded from the collection; however, the statistics represent a high level of coverage. Further information about this series, including more detail, is available in the quarterly publication Livestock Products, Australia (cat. no. 7215.0).
6 Data on the production of base metals and sawn timber are obtained from the ABARE publications Mineral Statistics and Australian Forest and Wood Products Statistics.

7 Data on the production of fuels are obtained from the DITR Petroleum and International Energy Division publication Australian Petroleum Statistics.
8 Data on the production of cheese and butter are obtained from Dairy Australia as unpublished data.

## COMPARABILITY WITH OTHER ESTIMATES

9 The quarterly production statistics presented in this publication account, in total, for less than one-fifth of the output of the manufacturing sector. For information on general trends in the manufacturing sector, refer to the publications shown in paragraphs 10,11 and 19 .

10 Details of the value of manufacturers' sales and inventories are published quarterly in Business Indicators, Australia (cat. no. 5676.0) (which has replaced Inventories and Sales, Selected Industries, Australia (cat. no. 5629.0)). Information about the manufacturing sector's contribution to the Australian economy is published quarterly in Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0).
11 Details from the annual manufacturing collection are published in Manufacturing Industry, Australia (cat. no. 8221.0) and corresponding state publications.

## SEASONALLY ADJUSTED AND TREND ESTIMATES

12 In the seasonal adjustment process, account has been taken not only of normal seasonal factors but also, where appropriate, of 'working day' effects (arising from the varying numbers of Sundays, Mondays, Tuesdays, etc. in the quarter) which may, in successive years, affect figures for different quarters. Details of the methods used in seasonally adjusting these series are available on request.
13 Seasonal adjustment procedures do not aim to remove the irregular or non-seasonal influences which may be present in any particular quarter, such as the non-systematic effect of strikes, holiday shutdowns, providers' inconsistent reporting periods (where, for example, a 'quarter' may variously represent 13 or 14 weeks production), or other factors which vary with the prevailing demand for products. Irregular influences that are highly volatile can make it difficult to interpret the movement of the series even after seasonal adjustment. Seasonally adjusted estimates of production for the series 8 Wood pulp, 14 Automotive diesel oil, 20 Silver, 21 Copper, 22 Lead and 23 Tin are more volatile than other series. Seasonally adjusted estimates for 7 Newsprint, 10 Hardwood woodchips, 18 Alumina and 19 Zinc are not sufficiently reliable to be published, while those for 12 Fuel oil and 24 Gold do not exhibit sufficient seasonal behaviour to be published.

14 From September quarter 2003, the seasonally adjusted estimates are produced by the concurrent seasonal adjustment method which takes account of the latest available original estimates. The concurrent method improves the estimation of seasonal factors, and therefore, the seasonally adjusted and trend estimates for the current and previous quarters. As a result of this improvement, revisions to the seasonally adjusted and trend estimates will be observed for recent periods. The estimates that will improve the most will be for the current quarter, previous quarter and the same quarter one year ago. The concurrent seasonal adjustment methodology replaces the forward factor methodology previously used to adjust Manufacturing Production series, where seasonal factors were only revised following an annual reanalysis.
15 The smoothing of seasonally adjusted series to create trend estimates is a means of reducing the impact of the irregular component of the series. The trend estimates have been derived by applying a 7 -term moving average to the quarterly seasonally adjusted series. The 7-term Henderson averages (like all Henderson averages) are symmetric but, as the end of a time series is approached, asymmetric forms of the average are applied. Unlike the weights of the standard 7-term Henderson moving average, the surrogate weights employed with the quarterly data have been tailored to suit the particular characteristics of individual series.

16 While the asymmetric weights enable trend estimates for recent quarters to be produced, it does result in revisions to the estimates for the most recent quarters as additional observations become available. Generally, subsequent revisions become smaller and after two quarters have little impact on the series. There will also be revisions as a result of changes to the original estimates and annual reviews of seasonal and 'working day' factors.
17 More detailed up-to-date information on smoothing of seasonally adjusted time series data is available in unpublished form. Interested users should contact the ABS's Time Series Analysis section, on Canberra 0262526345 or by email to [timeseries@abs.gov.au](mailto:timeseries@abs.gov.au).

## ACKNOWLEDGEMENT

## RELATED PUBLICATIONS

18 ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the Census and Statistics Act 1905.

19 Other ABS publications which may be of interest are:

- Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0) Quarterly
- Business Indicators, Australia (cat. no. 5676.0) Quarterly
- Electricity, Gas, Water and Sewerage Industries, Australia, 1999-2000 (cat. no. 8208.0)
- Experimental Estimates, Australian Industry, a State Perspective (cat. no. 8156.0)
- Livestock and Meat, Australia-Electronic Publication (cat. no. 7218.0.55.001) Monthly
- Livestock Products, Australia (cat. no. 7215.0) Quarterly
- Manufacturing, Australia, 2002 (cat. no. 8225.0)
- Manufacturing Industry, Australia, 2000-2001 (cat. no. 8221.0)
- Manufacturing Industry, Australia, Preliminary, 2000-01 (cat. no. 8201.0)
- Mining Operations, Australia, 2000-2001 (cat. no. 8415.0)
- Information Paper: Availability of Statistics Related to Manufacturing, 1997 (cat. no. 8205.0)


## OTHER PUBLISHED STATISTICS

20 Some annual manufacturing production series which mainly relate to textiles, clothing and footwear are now published in the September quarter issues of this publication. Selected annual food series (which are now collected less frequently) were last published in the September quarter 2000 issue.

21 More detailed and other commodity items are collected by the ABS and are available to users on request and for a charge. Items for which additional production data are available are:

```
beer
cars and station wagons
clay bricks (for structural purposes)
clay bricks (for other than structural purposes)
commercial office furniture
concrete bricks, blocks and pavers
cotton broadwoven fabric
hosiery
knitted sweatshirts and sloppy-joes
knitted underwear
malt
man-made fibre broadwoven fabric
men's and boys' long trousers
men's and boys' shirts
men's and boys' woven coats
mowers
other clothing (excluding those listed here)
plasterboard
Portland cement and cement clinkers
ready mixed concrete
roofing tiles
semi-trailers
synthetic fibre yarn
textile floor coverings
water heaters
women's knitted briefs and panties
women's shirts and blouses
women's footwear
wool broadwoven fabric
wool yarn
```

For further information, please contact Graeme Thomas on Adelaide 0882377536.
22 The value of sales for commodities produced (classified in accordance with the Manufacturing Input-Output Commodity Classification) is collected in the annual manufacturing industry survey, and is available to users on request and for a charge. For further information, please contact John Ridley on Sydney 0292684541.

## CURRENT PUBLICATIONS

23 Current publications and other products released by the ABS are listed in the Catalogue of Publications and Products (cat. no. 1101.0). The Catalogue is available from any ABS office or the ABS web site [http://www.abs.gov.au](http://www.abs.gov.au). The ABS also issues a daily Release Advice on the web site which details products to be released in the week ahead.

## APPENDIX CLARIFICATION OF TERMS



FOR MORE INFORMATION...

INTERNET www.abs.gov.au the ABS web site is the best place to start for access to summary data from our latest publications, information about the ABS, advice about upcoming releases, our catalogue, and Australia Now-a statistical profile.

LIBRARY A range of ABS publications is available from public and tertiary libraries Australia-wide. Contact your nearest library to determine whether it has the ABS statistics you require, or visit our web site for a list of libraries.

CPI INFOLINE For current and historical Consumer Price Index data, call 1902981074 (call cost 77c per minute).

DIAL-A-STATISTIC For the latest figures for National Accounts, Balance of Payments, Labour Force, Average Weekly Earnings, Estimated Resident Population and the Consumer Price Index call 1900986400 (call cost 77c per minute).

## INFORMATION SERVICE

Data which have been published and can be provided within five minutes are free of charge. Our information consultants can also help you to access the full range of ABS information-ABS user-pays services can be tailored to your needs, time frame and budget. Publications may be purchased. Specialists are on hand to help you with analytical or methodological advice.

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