



# MANUFACTURING PRODUCTION

AUSTRALIA

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## CONTENTS

	Page
Notes .....	2
TABLE	
1 Commodity production .....	3
ADDITIONAL INFORMATION	
Explanatory notes .....	5
Appendix: Clarification of terms .....	9

- For more information about these and related statistics, contact Frank Orton on Sydney 02 9268 4541 or refer to the back cover of this publication.

## NOTES

### FORTHCOMING ISSUES

ISSUE	RELEASE DATE
June quarter 1999	11 August 1999
September quarter 1999	11 November 1999
December quarter 1999	11 February 2000

### IN THIS ISSUE

This publication presents quarterly 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 as a special data service, as are monthly or quarterly series for a limited number of the data items contained in this publication. These data items are listed in paragraph 20 of the Explanatory Notes on page 7.

### EFFECTS OF ROUNDING

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.

### SYMBOLS AND OTHER USAGES

ABARE	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
ADC	Australian Dairy Corporation
DISR	Department of Industry, Science and Resources
n.a.	not available
n.p.	not publishable
n.y.a.	not yet available
p	preliminary
r	figure or series revised since previous issue
—	nil or rounded to zero

W. McLennan  
Australian Statistician

QUARTERLY COMMODITY PRODUCTION: **All series**(a)

Percentage changes between latest quarter shown and....												
1997..... 1998..... 1999..												
No.	Item and unit/Series	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	prev. quarter	same quarter prev. year
<hr/>												
1	Red meat ('000 tonnes)											
	Original r	677	745	735	733	725	734	748	753	726	-3.6	0.2
	Seasonally adjusted r	692	734	735	728	740	722	748	750	742	-1.0	0.4
	Trend	696	723	735	734	731	735	741	746	748	0.3	2.3
2	Chicken meat ('000 tonnes)											
	Original	122	125	135	139	138	139	143	r142	141	-0.1	2.6
	Seasonally adjusted	122	127	135	136	138	142	142	139	142	2.0	2.6
	Trend	124	128	133	137	139	141	141	141	141	-0.2	1.0
3	Cheese (tonnes)											
	Original	75 575	56 004	63 692	r100 634	79 433	r56 203	r58 631	107 779	n.y.a.	83.8	7.1
	Seasonally adjusted	73 447	77 690	73 461	r72 809	77 238	r77 613	r67 609	78 080	n.y.a.	15.5	7.2
	Trend	73 338	75 041	74 766	75 138	75 184	74 697	73 878	73 801	n.y.a.	-0.1	-1.8
4	Butter (tonnes)											
	Original	35 352	21 665	r33 119	63 243	32 655	r24 632	r35 638	64 118	n.y.a.	79.9	1.4
	Seasonally adjusted	34 741	36 223	r41 799	39 681	32 172	r41 139	r44 945	40 223	n.y.a.	-10.5	1.4
	Trend	35 739	37 643	38 912	37 961	37 616	39 423	41 931	43 306	n.y.a.	3.3	14.1
5	Beer (megalitres)											
	Original	432	398	406	526	428	397	403	517	430	-16.9	0.3
	Seasonally adjusted	447	435	435	441	445	434	430	439	442	0.7	-0.7
	Trend	437	439	439	440	440	436	434	436	440	0.8	-0.1
6	Tobacco and cigarettes (tonnes)											
	Original	4 802	5 523	5 708	4 821	4 919	5 809	5 904	4 555	5 198	14.1	5.7
	Seasonally adjusted	5 494	5 523	5 056	4 779	5 701	5 788	5 181	4 598	5 922	28.8	3.9
	Trend	5 564	5 321	5 102	5 169	5 463	5 490	5 268	5 167	5 328	3.1	-2.5
7	Newsprint ('000 tonnes)											
	Original	104	105	104	96	100	102	105	100	95	-4.9	-5.3
	Seasonally adjusted	101	103	105	98	100	100	104	103	94	-8.2	-5.3
	Trend	104	103	102	101	100	101	102	101	98	-2.4	-1.3
8	Wood pulp ('000 tonnes)											
	Original	239	235	233	250	235	240	225	223	209	-6.5	-11.2
	Seasonally adjusted	237	234	239	248	232	240	231	221	206	-7.0	-11.3
	Trend	236	238	239	241	240	236	229	220	211	-4.0	-11.8
9	Undressed sawn timber ('000 m³)											
	Original	777	898	937	890	888	935	r934	849	n.y.a.	-9.1	-4.6
	Seasonally adjusted	822	888	879	911	939	925	r875	870	n.y.a.	-0.6	-4.5
	Trend	843	862	892	917	926	915	891	864	n.y.a.	-3.0	-5.7
10	Hardwood woodchips ('000 tonnes)											
	Original	1 106	1 325	1 402	1 362	1 428	1 473	1 233	1 125	1 179	4.8	-17.4
	Seasonally adjusted	1 131	1 317	1 363	1 382	1 455	1 468	1 199	1 142	1 200	5.0	-17.6
	Trend	1 214	1 280	1 348	1 424	1 443	1 383	1 271	1 181	1 135	-3.9	-21.4
11	Automotive gasoline (megalitres)											
	Original	4 455	4 655	4 622	4 745	4 430	4 795	4 632	4 475	n.y.a.	-3.4	-5.7
	Seasonally adjusted	4 545	4 583	4 555	4 752	4 583	4 712	4 511	4 584	n.y.a.	1.6	-3.5
	Trend	4 509	4 568	4 620	4 658	4 664	4 627	4 583	4 566	n.y.a.	-0.4	-2.0
12	Fuel oil (megalitres)											
	Original	455	485	460	416	412	385	422	429	n.y.a.	1.6	3.0
	Seasonally adjusted	457	472	443	445	413	374	408	458	n.y.a.	12.4	3.1
	Trend	459	463	455	434	406	398	411	434	n.y.a.	5.7	0.1
13	Aviation turbine fuel (megalitres)											
	Original	1 412	1 230	1 370	1 407	1 411	1 235	1 330	1 315	n.y.a.	-1.1	-6.6
	Seasonally adjusted	1 377	1 334	1 365	1 344	1 369	1 346	1 325	1 256	n.y.a.	-5.2	-6.5
	Trend	1 351	1 358	1 354	1 356	1 361	1 344	1 314	1 282	n.y.a.	-2.4	-5.4
14	Automotive diesel oil (megalitres)											
	Original	3 362	3 253	3 186	3 392	3 323	3 282	3 059	3 324	n.y.a.	8.7	-2.0
	Seasonally adjusted	3 440	3 256	3 182	3 337	3 364	3 285	3 087	3 274	n.y.a.	6.1	-1.9
	Trend	3 302	3 291	3 269	3 301	3 318	3 262	3 203	3 192	n.y.a.	-0.4	-3.3

(a) Trend estimates shown may have been revised. See paragraph 15 of the Explanatory Notes on page 6.

Percentage changes between latest quarter shown and....												
1997..... 1998..... 1999..												
No.	Item and unit/Series	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	prev. quarter	same quarter prev. year
<hr/>												
15	Portland cement ('000 tonnes)											
	Original	1 511	1 785	1 826	1 830	1 719	1 861	1 956	2 067	1 737	-16.0	1.1
	Seasonally adjusted	1 652	1 764	1 718	1 827	1 854	1 839	1 862	2 050	1 886	-8.0	1.7
	Trend	1 687	1 720	1 763	1 808	1 828	1 866	1 907	1 944	1 960	0.8	7.3
16	Clay bricks (million)											
	Original	330	390	416	383	339	394	412	391	383	-2.0	13.1
	Seasonally adjusted	369	377	390	383	374	380	392	388	428	10.4	14.3
	Trend	371	379	384	383	380	379	387	400	416	3.9	9.5
17	Ready mixed concrete ('000 m³)											
	Original	3 534	4 099	4 252	4 390	4 298	4 472	4 887	4 848	4 266	-12.0	-0.7
	Seasonally adjusted	3 810	4 102	4 039	4 307	4 624	4 481	4 641	4 759	4 585	-3.7	-0.8
	Trend	3 918	3 990	4 139	4 329	4 478	4 596	4 638	4 664	4 679	0.3	4.5
18	Basic iron, spiegeleisen and sponge iron ('000 tonnes)											
	Original	1 804	1 891	1 966	2 025	1 950	1 987	1 951	1 834	1 841	0.4	-5.6
	Seasonally adjusted	1 834	1 897	1 926	2 028	2 001	1 997	1 889	1 856	1 869	0.7	-6.6
	Trend	1 822	1 884	1 953	2 000	2 011	1 972	1 913	1 871	1 846	-1.4	-8.2
19	Blooms and slabs of iron or steel ('000 tonnes)											
	Original	1 948	1 954	2 108	2 075	2 083	2 090	2 024	r1 890	1 864	-1.4	-10.5
	Seasonally adjusted	1 981	1 980	2 044	2 082	2 112	2 120	1 960	r1 900	1 888	-0.6	-10.6
	Trend	1 946	1 994	2 042	2 089	2 113	2 074	1 993	1 918	1 869	-2.6	-11.6
20	Alumina ('000 tonnes)											
	Original	3 201	3 370	3 429	3 385	3 319	3 405	3 405	3 430	n.y.a.	0.7	1.3
	Seasonally adjusted	3 295	3 346	3 366	3 406	3 361	3 378	3 400	3 421	n.y.a.	0.6	0.4
	Trend	3 310	3 340	3 370	3 383	3 379	3 382	3 397	3 417	n.y.a.	0.6	1.0
21	Zinc ('000 tonnes)											
	Original	77	79	73	78	74	79	81	78	n.y.a.	-3.7	—
	Seasonally adjusted	79	77	73	77	76	77	81	77	n.y.a.	-4.8	-0.1
	Trend	79	77	75	75	77	78	79	79	n.y.a.	—	4.4
22	Silver (tonnes)											
	Original	84	87	58	51	49	69	r101	100	n.y.a.	-1.0	96.1
	Seasonally adjusted	86	76	60	56	50	60	r105	110	n.y.a.	5.4	96.9
	Trend	85	75	63	52	53	70	92	109	n.y.a.	17.9	108.4
23	Copper ('000 tonnes)											
	Original	62	76	75	60	r71	r80	r61	73	n.y.a.	19.7	21.7
	Seasonally adjusted	69	72	68	64	r79	75	r55	78	n.y.a.	41.6	21.8
	Trend	76	70	67	71	72	71	69	68	n.y.a.	-1.2	-4.4
24	Lead ('000 tonnes)											
	Original	52	56	50	46	46	43	39	45	n.y.a.	15.4	-2.2
	Seasonally adjusted	51	54	53	46	45	41	41	45	n.y.a.	8.3	-1.9
	Trend	52	53	52	48	44	42	42	43	n.y.a.	1.6	-10.1
25	Tin (tonnes)											
	Original	160	175	145	125	175	205	150	125	n.y.a.	-16.7	—
	Seasonally adjusted	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.y.a.	n.p.	n.p.
	Trend	156	155	150	155	168	170	160	145	n.y.a.	-9.2	-5.9
26	Gold (tonnes)											
	Original	85	80	85	92	83	89	r131	106	n.y.a.	-19.1	15.2
	Seasonally adjusted	84	80	84	95	82	89	r129	109	n.y.a.	-15.6	15.2
	Trend	82	83	85	88	87	87	(b)93	(b)100	n.y.a.	8.2	14.6
27	Electricity (million kWh)											
	Original	41 011	42 901	45 521	43 169	43 241	44 281	46 084	43 235	45 084	4.3	4.3
	Seasonally adjusted	42 110	42 760	43 367	44 372	44 381	44 136	43 916	44 439	46 263	4.1	4.2
	Trend	42 161	42 762	43 511	44 131	44 311	44 095	44 179	44 784	45 675	2.0	3.1
28	Gas (petajoules)											
	Original	135	171	183	151	141	174	191	157	145	-7.9	2.8
	Seasonally adjusted	160	162	157	162	166	165	164	169	171	1.0	2.7
	Trend	160	160	161	162	164	165	166	168	170	1.5	3.8

(a) Trend estimates shown may have been revised. See paragraph 15 of the Explanatory Notes on page 6.

(b) Due to an abnormal movement in the production of gold the trend has been modified to remove its effect.

# EXPLANATORY NOTES

## INTRODUCTION

**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, Science and Resources (DISR) (formerly the Department of Primary Industries and Energy), the Australian Bureau of Agricultural and Resource Economics (ABARE), the Australian Dairy Corporation (ADC) and from ABS agriculture collections. Scope and coverage varies slightly depending on the source of the information.

**3** Where production statistics are collected by the ABS manufacturing production surveys, they are not collected from single establishment manufacturing businesses with less 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 and include estimates of animals slaughtered on farms and by country butchers and other small slaughtering establishments for human consumption. Further information about this series, including more detail, is available in the monthly publication *Livestock and Meat, Australia* (Cat. no. 7218.0) and in the quarterly publication *Livestock Products, Australia* (Cat. no. 7215.0).

**5** The statistics on chicken meat 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 Products Statistics*.

**7** Data on the production of fuels are obtained from the DISR Petroleum and Fisheries Division publication *Australian Petroleum Statistics*.

**8** Data on the production of cheese and butter are obtained from the ADC as unpublished data.

## COMPARABILITY WITH OTHER ESTIMATES

**9** The quarterly production statistics referred to in paragraph 1 account, in total, for less than one-quarter of the output of the manufacturing sector. For information on general trends in the manufacturing sector, refer to the publications shown in paragraphs 10 and 11.

**10** Details of manufacturers' sales and stocks are published quarterly in *Stocks and Sales, Selected Industries, Australia* (Cat. no. 5629.0).

## COMPARABILITY WITH OTHER ESTIMATES *continued*

**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 12 Fuel oil, 22 Silver and 23 Copper are more volatile than other series. Seasonally adjusted estimates for 25 Tin are not sufficiently reliable to be published.

**14** 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.

**15** 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.

**16** Users may wish to refer to the ABS's *Information Paper: A Guide to Interpreting Time Series — Monitoring 'Trends', an Overview* (Cat. no. 1348.0) for more detailed information on smoothing of seasonally adjusted time series data.

## ACKNOWLEDGEMENT

**17** 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*.

## RELATED PUBLICATIONS

**18** Other ABS publications which may be of interest are:

- *Australian Mining Industry* (Cat. no. 8414.0) issued annually
- *Information Paper: Availability of Statistics Related to Manufacturing, 1997* (Cat. no. 8205.0), released on 16 January 1998
- *Livestock and Meat, Australia* (Cat. no. 7218.0) issued monthly from July 1998
- *Livestock Products, Australia* (Cat. no. 7215.0) issued quarterly from September quarter 1998
- *Manufacturing, Australia, 1998* (Cat. no. 8225.0) released on 17 December 1998
- *Manufacturing Industry, Australia* (Cat. no. 8221.0) issued annually
- *Manufacturing Industry, Australia, Preliminary* (Cat. no. 8201.0) issued annually
- *Manufacturing Production, Australia: Commodities Produced, 1996–97* (Cat. no. 8365.0), released on 22 February 1999
- *Stocks and Sales, Selected Industries, Australia* (Cat. no. 5629.0) issued quarterly

## OTHER PUBLISHED STATISTICS

**19** Some annual manufacturing production series which mainly relate to textiles, clothing, footwear and food were published in the June quarter 1998 and September quarter 1998 issues of this publication. These series are expected to be next published in the June quarter 1999 and September quarter 1999 issues.

## UNPUBLISHED STATISTICS

**20** Additional manufacturing production data are collected by the ABS through user funded surveys and are available to users as a special data service. These series are:

audio and non-audio compact discs  
 beer  
 brass bars, rods and sections  
 cars and station wagons  
 clay bricks  
 clothes drying machines  
 concrete bricks, blocks and pavers  
 cotton broadwoven fabric  
 cotton yarn  
 domestic clothes washing machines  
 domestic cooking stoves, ovens and ranges  
 domestic deep-freezers  
 domestic refrigerators  
 gas  
 hosiery  
 knitted sweatshirts and sloppy-joes  
 knitted underwear  
 malt  
 man-made fibre broadwoven fabric  
 men's and boys' long trousers and shorts  
 men's and boys' shirts  
 men's complete suits and men's and boys' woven coats

### UNPUBLISHED STATISTICS *continued*

mowers  
other clothing (excluding those listed here)  
plasterboard  
Portland cement  
ready mixed concrete  
roofing tiles  
space heaters  
starches, wheat gluten and glucose  
synthetic fibre yarn  
textile floor coverings  
unlaminated particle board  
water heaters  
women's shirts and blouses  
wool broadwoven fabric  
wool yarn

For further information, please call Frank Orton on Sydney 02 9268 4541 or by email through the Internet to [Frank.Orton@abs.gov.au](mailto:Frank.Orton@abs.gov.au).

### CURRENT PUBLICATIONS

**21** Current publications produced by the ABS are listed in the *Catalogue of Publications and Products* (Cat. no. 1101.0). The ABS also issues, on Tuesdays and Fridays, a *Release Advice* (Cat. no. 1105.0) which lists publications to be released in the next few days. The Catalogue and Release Advice are available from any ABS office.



## APPENDIX CLARIFICATION OF TERMS

1 Red meat	Includes veal, pork and buffalo.
2 Chicken meat	Expressed in the dressed weight of whole birds, pieces and giblets.
3 Cheese	Includes fresh cheeses such as ricotta, cottage, cream and quark.
4 Butter	Includes direct butter oil.
5 Beer	Includes ale and stout; excludes low alcohol beer containing less than 1.15% but more than 0.5%, by volume of alcohol.
6 Tobacco and cigarettes	Includes those containing tobacco substitutes.
7 Newsprint	Excludes directory paper, mechanical and printing paper.
8 Wood pulp	Expressed as air-dried weight.
9 Undressed sawn timber	Expressed in terms of green off saw volumes.
10 Hardwood woodchips	Expressed as greenweight; excludes chips which are not sold or are used in own works.
11 Automotive gasoline	Produced by Australian refineries from imported and indigenous petroleum.
12 Fuel oil	Oils derived from the distillation of petroleum which are generally used for domestic heating or fuelling furnaces; produced by Australian refineries from imported and indigenous petroleum.
13 Aviation turbine fuel	Produced by Australian refineries from imported and indigenous petroleum.
14 Automotive diesel oil	Produced by Australian refineries from imported and indigenous petroleum.
15 Portland cement	Includes blended Portland cement. Excludes both Portland cement clinker and Portland cement used to make blended Portland cement in-house.
16 Clay bricks	Saleable bricks (of all sizes) removed from kiln; excludes firebricks and bricks for other than structural purposes.
17 Ready mixed concrete	Excludes production used or for use within the same business.
18 Basic iron, spiegeleisen and sponge iron	In pigs, blocks and other primary forms; includes pig iron. This item comprises production of BHP Steel only.
19 Blooms and slabs of iron or steel	Continuous cast; includes steel in the molten state. This item comprises production of BHP Steel only.
20 Alumina	Aluminium oxide.
21 Zinc	Primary origin only.
22 Silver	Refined.
23 Copper	Primary origin only.

## APPENDIX CLARIFICATION OF TERMS *continued*

- 24 **Lead** Includes lead content of lead from primary sources.
- 25 **Tin** Primary origin only.
- 26 **Gold** From primary and secondary sources.
- 27 **Electricity** Excludes purchases or transfers in of electricity.
- 28 **Gas** Gas (including natural gas) available for issue through mains, including gas production for distribution via natural gas pipelines which service a single user.



## SELF-HELP ACCESS TO STATISTICS

- DIAL-A-STATISTIC* For current and historical Consumer Price Index data, call 1902 981 074.  
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