



MANUFACTURING PRODUCTION

AUSTRALIA

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

NOTES

FORTHCOMING ISSUES

<i>ISSUE</i>	<i>RELEASE DATE</i>
March quarter 1999	12 May 1999
June quarter 1999	11 August 1999
September quarter 1999	11 November 1999

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
DPIE	Department of Primary Industries and Energy
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

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QUARTERLY COMMODITY PRODUCTION: All series(a)

No.	Item and unit/Series										Percentage changes between latest quarter shown and....			
		1996..	1997.....			1998.....					prev.	same quarter		
		Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	quarter	prev. year		
1	Red meat ('000 tonnes)													
	Original	668	674	742	732	729	722	731	r745	753	1.1	3.2		
	Seasonally adjusted	663	690	731	731	724	736	719	r745	749	0.6	3.5		
	Trend	659	693	720	732	731	728	731	739	746	0.9	2.1		
2	Chicken meat ('000 tonnes)													
	Original	127	122	125	135	139	138	139	r143	141	-1.1	1.7		
	Seasonally adjusted	124	122	127	135	136	138	142	r142	139	-2.7	1.7		
	Trend	123	124	128	133	137	139	141	141	141	-0.4	2.9		
3	Cheese (tonnes)													
	Original r	95 264	75 575	56 004	63 692	100 629	79 433	56 221	58 397	n.y.a.	3.9	-8.3		
	Seasonally adjusted r	68 743	73 447	77 690	73 461	72 805	77 238	77 638	67 339	n.y.a.	-13.3	-8.3		
	Trend	70 046	73 338	75 041	74 763	75 154	75 576	74 493	71 738	n.y.a.	-3.7	-4		
4	Butter (tonnes)													
	Original	58 082	35 352	21 665	r33 195	63 243	32 655	24 636	36 192	n.y.a.	46.9	9.0		
	Seasonally adjusted	36 454	34 741	36 223	r41 895	39 681	32 172	41 145	45 643	n.y.a.	10.9	8.9		
	Trend	36 879	35 744	37 671	38 951	37 949	37 513	39 657	43 418	n.y.a.	9.5	11.5		
5	Beer (megalitres)													
	Original	507	432	398	406	526	428	397	403	517	28.5	-1.6		
	Seasonally adjusted	428	447	435	435	441	445	434	430	439	2.0	-0.6		
	Trend	434	437	439	439	440	440	437	434	434	0.1	-1.4		
6	Tobacco and cigarettes (tonnes)													
	Original	5 575	4 802	5 523	5 708	4 821	4 919	5 809	5 904	4 555	-22.9	-5.5		
	Seasonally adjusted	5 577	5 494	5 523	5 056	4 779	5 701	5 788	5 181	4 598	-11.3	-3.8		
	Trend	5 618	5 564	5 321	5 102	5 169	5 463	5 539	5 247	4 797	-8.6	-7.2		
7	Newsprint ('000 tonnes)													
	Original	102	104	105	104	96	100	102	105	100	-4.4	4.5		
	Seasonally adjusted	107	101	103	105	98	100	100	104	103	-1	4.5		
	Trend	106	104	103	102	101	100	101	102	103	0.7	2.5		
8	Wood pulp ('000 tonnes)													
	Original	244	239	235	233	250	235	240	225	223	-0.5	-10.7		
	Seasonally adjusted	241	237	234	239	248	232	240	231	221	-4	-10.7		
	Trend	238	236	238	239	241	240	235	230	226	-1.8	-6.3		
9	Undressed sawn timber ('000 m ³)													
	Original r	809	777	898	937	890	888	935	930	n.y.a.	-0.5	-0.7		
	Seasonally adjusted r	827	822	888	879	911	939	925	871	n.y.a.	-5.8	-0.9		
	Trend	837	843	862	892	917	924	915	892	n.y.a.	-2.5	0.1		
10	Hardwood woodchips ('000 tonnes)													
	Original	1 220	1 106	1 325	1 402	1 362	1 428	1 473	1 233	1 125	-8.7	-17.4		
	Seasonally adjusted	1 236	1 131	1 317	1 363	1 382	1 455	1 468	1 199	1 142	-4.7	-17.3		
	Trend	1 157	1 214	1 280	1 348	1 424	1 443	1 384	1 269	1 144	-9.9	-19.7		
11	Automotive gasoline (megalitres)													
	Original	4 378	4 455	4 655	4 622	4 745	4 430	4 795	4 632	n.y.a.	-3.4	0.2		
	Seasonally adjusted	4 440	4 545	4 583	4 555	4 752	4 583	4 712	4 511	n.y.a.	-4.3	-1		
	Trend	4 503	4 509	4 568	4 620	4 658	4 663	4 627	4 573	n.y.a.	-1.2	-1		
12	Fuel oil (megalitres)													
	Original	422	455	485	460	416	412	385	422	n.y.a.	9.7	-8.2		
	Seasonally adjusted	450	457	472	443	445	413	374	408	n.y.a.	9.0	-8		
	Trend	445	459	463	455	434	411	396	391	n.y.a.	-1.2	-14		
13	Aviation turbine fuel (megalitres)													
	Original	1 383	1 412	1 230	1 370	1 407	1 411	1 235	1 330	n.y.a.	7.6	-2.9		
	Seasonally adjusted	1 320	1 377	1 334	1 365	1 344	1 369	1 346	1 325	n.y.a.	-1.5	-2.9		
	Trend	1 314	1 351	1 358	1 354	1 356	1 356	1 346	1 336	n.y.a.	-0.7	-1.3		
14	Automotive diesel oil (megalitres)													
	Original	3 277	3 362	3 253	3 186	3 392	3 323	3 282	3 059	n.y.a.	-6.8	-4		
	Seasonally adjusted	3 196	3 440	3 256	3 182	3 337	3 364	3 285	3 087	n.y.a.	-6	-3		
	Trend	3 260	3 302	3 291	3 269	3 301	3 322	3 260	3 171	n.y.a.	-2.8	-3		

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

No.	Item and unit/Series										Percentage changes between latest quarter shown and....		
		1996..	1997.....			1998.....					prev.	same quarter	
		Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	quarter	prev. year	
15	Portland cement ('000 tonnes)												
	Original	1 699	1 511	1 785	1 826	1 830	1 719	1 861	1 956	2 067	5.7	13.0	
	Seasonally adjusted	1 673	1 652	1 764	1 718	1 827	1 854	1 839	1 862	2 050	10.1	12.2	
	Trend	1 645	1 687	1 720	1 763	1 808	1 828	1 858	1 910	1 984	3.9	9.7	
16	Clay bricks (million)												
	Original	369	330	390	416	383	339	394	412	391	-5.1	2.0	
	Seasonally adjusted	364	369	377	390	383	374	380	392	388	-1.1	1.1	
	Trend	364	371	379	384	383	380	382	386	391	1.2	2.2	
17	Ready mixed concrete ('000 m ³)												
	Original	3 989	3 534	4 099	4 252	4 390	4 298	4 472	r4 887	4 848	-0.8	10.4	
	Seasonally adjusted	3 909	3 810	4 102	4 039	4 307	4 624	4 481	r4 641	4 759	2.6	10.5	
	Trend	3 819	3 918	3 990	4 139	4 329	4 478	4 578	4 642	4 708	1.4	8.8	
18	Basic iron, spiegeleisen and sponge iron ('000 tonnes)												
	Original	1 734	1 804	1 891	1 966	2 025	1 950	1 987	1 951	1 834	-6	-9.4	
	Seasonally adjusted	1 754	1 834	1 897	1 926	2 028	2 001	1 997	1 889	1 856	-1.7	-8.5	
	Trend	1 798	1 822	1 884	1 953	2 000	2 011	1 971	1 912	1 859	-2.8	-7.1	
19	Blooms and slabs of iron or steel (‘000 tonnes)												
	Original	1 877	1 948	1 954	2 108	2 075	2 083	2 090	2 024	1 891	-6.6	-8.9	
	Seasonally adjusted	1 877	1 981	1 980	2 044	2 082	2 112	2 120	1 960	1 901	-3	-8.7	
	Trend	1 922	1 946	1 994	2 042	2 089	2 113	2 071	1 994	1 916	-3.9	-8.3	
20	Alumina ('000 tonnes)												
	Original	3 341	3 201	3 370	3 429	3 385	3 319	3 405	3 405	n.y.a.	—	-0.7	
	Seasonally adjusted	3 308	3 295	3 346	3 366	3 406	3 361	3 378	3 400	n.y.a.	0.7	1.0	
	Trend	3 303	3 310	3 340	3 370	3 383	3 381	3 382	3 387	n.y.a.	0.2	0.5	
21	Zinc ('000 tonnes)												
	Original	81	77	79	73	78	74	79	81	n.y.a.	2.5	11.0	
	Seasonally adjusted	80	79	77	73	77	76	77	81	n.y.a.	4.6	11.0	
	Trend	81	79	77	75	75	77	78	79	n.y.a.	1.3	5.3	
22	Silver (tonnes)												
	Original	85	84	87	58	51	49	69	78	n.y.a.	13.0	34.5	
	Seasonally adjusted	93	86	76	60	56	50	60	81	n.y.a.	34.3	34.8	
	Trend	89	85	75	63	54	55	63	72	n.y.a.	14.4	14.7	
23	Copper ('000 tonnes)												
	Original	83	62	76	75	r60	r70	r79	60	n.y.a.	-24.1	-20	
	Seasonally adjusted	88	69	72	68	r64	r78	r75	54	n.y.a.	-27.4	-20	
	Trend	80	76	70	67	71	72	69	63	n.y.a.	-9.2	-5.8	
24	Lead ('000 tonnes)												
	Original	50	52	56	50	46	46	43	39	n.y.a.	-9.3	-22	
	Seasonally adjusted	49	51	54	53	46	45	41	41	n.y.a.	0.3	-22.1	
	Trend	49	52	53	52	48	44	42	41	n.y.a.	-1.8	-19.6	
25	Tin (tonnes)												
	Original	135	160	175	145	125	175	205	150	n.y.a.	-26.8	3.4	
	Seasonally adjusted	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.y.a.	-8	2.0	
	Trend	141	156	155	150	155	166	171	170	n.y.a.	-0.2	14.0	
26	Gold (tonnes)												
	Original	81	85	80	85	92	83	89	141	n.y.a.	58.4	65.9	
	Seasonally adjusted	83	84	80	84	95	82	89	139	n.y.a.	56.3	66.0	
	Trend	82	82	83	85	87	88	89	(b)90	n.y.a.	1.6	5.3	
27	Electricity (million kWh)												
	Original	40 761	41 011	42 901	45 521	43 169	43 241	44 281	46 084	43 235	-6.2	0.2	
	Seasonally adjusted	41 898	42 110	42 760	43 367	44 372	44 381	44 136	43 916	44 439	1.2	0.2	
	Trend	41 838	42 161	42 762	43 511	44 131	44 311	44 201	44 136	44 203	0.2	0.2	
28	Gas (petajoules)												
	Original	146	135	171	183	151	141	174	191	157	-17.5	4.0	
	Seasonally adjusted	157	160	162	157	162	166	165	164	169	3.1	4.0	
	Trend	158	160	160	161	162	164	165	166	167	0.7	2.9	

(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 Primary Industries and Energy (DPIE), 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 DPIE 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).

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, 1995–96* (Cat. no. 8365.0), released on 20 May 1998
- *Manufacturing Production, Australia: Commodities Produced, 1996–97* (Cat. no. 8365.0), to be 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 John Ridley on Sydney 02 9268 4541 or by email through the Internet to john.ridley@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.

