

# **Manufacturing, wholesale, retail and service industries**

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# Manufacturing, wholesale, retail and service industries

## Manufacturing

**M**anufacturing, as specified in Division C of the Australian and New Zealand Standard Industrial Classification (ANZSIC), broadly relates to the physical or chemical transformation of materials or components into new products whether the work is performed by power-driven machines or by hand.

Despite a significant increase in the level of manufacturing gross product over the last 20 years, the manufacturing sector's contribution to the gross product of all industry fell considerably over the period. From 21.0% in 1972–73, manufacturing industry (\$59,771 million) accounted for 14.7% of all industry gross product in 1992–93.

Employment in the manufacturing sector has also fallen markedly over the last 20 years. In June 1973 more than 1.3 million persons were employed in manufacturing. This represented 23.9% of employment in the total of all industries. In June 1993 manufacturing employment at 882,500 persons was only 14.6% of employment in the total of all industries.

## Manufacturing trends

Movements in the real level of manufacturing activity described below are based on the quarterly index of industrial production. The estimates relate to movements in manufacturing activity measured by means of constant price movements in Gross Domestic Product at factor cost.

For the year 1994–95, production was 8.4% higher than for 1993–94 which in turn was 7.7% higher than the previous year.

Over the ten year period from 1984–85 to 1994–95, the index of manufacturing production increased by 33% overall. Successive annual growth occurred from 1984–85 to 1988–89 then followed three years of steady decline which were followed by three years of growth.

Most subdivisions of the manufacturing industry demonstrated fairly similar patterns over the ten year period to those demonstrated by total manufacturing. An exception was the Textiles, clothing, footwear and leather manufacturing industry, which remained stable from 1985–86 to 1988–89 and then began a steady decline. The subdivisions which have substantially higher activity levels in 1994–95 than in 1985–86 are non-metallic mineral products manufacturing (up 54%), Machinery and equipment manufacturing (up 45%), and Other manufacturing (up 44%).

### 18.1 Indexes of manufacturing industry gross product at average 1989-90 prices (Reference base year 1989-90 = 100.0)

Industry subdivision	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95
Food, beverages & tobacco mfg	100.0	102.2	102.5	109.3	114.0	120.8
Textiles, clothing, footwear & leather mfg	100.0	97.5	92.1	90.6	84.2	80.5
Wood & paper product mfg	100.0	97.4	98.7	94.6	96.9	104.5
Printing, publishing & recorded media	100.0	97.0	92.0	95.1	107.6	119.0
Petroleum, coal, chemical & associated product mfg	100.0	103.7	101.8	100.7	109.7	116.3
Non-metallic mineral product mfg	100.0	89.9	87.6	96.5	110.0	129.7
Metal product mfg	100.0	99.3	98.5	97.5	103.0	109.3
Machinery & equipment mfg	100.0	96.8	91.5	100.9	113.1	125.2
Other manufacturing	100.0	84.9	81.9	86.8	97.4	114.7
<b>Total manufacturing</b>	<b>100.0</b>	<b>98.1</b>	<b>95.7</b>	<b>99.7</b>	<b>107.4</b>	<b>116.4</b>

Source: Quarterly Indexes of Industrial Production, Australia (8125.0).

### Structure of the manufacturing industry

There were 38,285 manufacturing establishments operating in Australia at 30 June 1993, employing 882,500 persons. During 1992-93, manufacturing establishments paid \$27,311 million in wages and salaries and recorded \$170,100 million in turnover (table 18.2).

The industries with the most persons employed at 30 June 1993 were Machinery and equipment manufacturing (188,400), Food, beverages and tobacco manufacturing

(159,300) and Metal product manufacturing (143,100). Non-metallic mineral products manufacturing (38,400) was the smallest employer, accounting for only 4.4% of manufacturing employment.

Food, beverages and tobacco was the largest contributor to total manufacturing turnover, accounting for 22%, followed by Metal products manufacturing and Machinery and equipment manufacturing (each at approximately 18%).

### 18.2 Summary of operations of the manufacturing industry, 1992-93

Industry subdivision	Establishments operating at 30 June (No.)	Employment at 30 June(a) ('000)	Wages & salaries(b) (\$m)	Turnover (\$m)	Persons employed per establishment (No.)	Turnover per employed (\$'000)
Food, beverages & tobacco mfg	3 327	159 282	4 762	36 999	48	232
Textiles, clothing, footwear & leather mfg	3 623	75 223	1 856	8 849	21	118
Wood & paper product mfg	3 372	57 772	1 741	9 909	17	172
Printing, publishing & recorded media	4 299	84 965	2 720	11 539	20	136
Petroleum, coal, chemical & associated product mfg	2 639	87 428	3 116	27 550	33	315
Non-metallic mineral product mfg	1 586	38 394	1 282	8 362	24	218
Metal product mfg	6 807	143 146	4 738	31 310	21	219
Machinery & equipment mfg	7 483	188 379	5 987	30 781	25	163
Other manufacturing	5 149	47 910	1 110	4 800	9	100
<b>Total manufacturing</b>	<b>38 285</b>	<b>882 497</b>	<b>27 311</b>	<b>170 100</b>	<b>23</b>	<b>193</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors.

Source: Manufacturing Industry, Australia (8221.0).

### Turnover

Turnover figures include sales of goods whether produced by the establishment or not; transfers out of goods to other establishments of the same business; bounties and subsidies on production; plus all other operating revenue from outside the

enterprise (such as commission, repair and service revenue and rent, leasing and hiring revenue), plus capital work done for own use, or for rental or lease. Receipts from interest, royalties, dividends, and sales of fixed tangible assets are excluded.

New South Wales (34%) and Victoria (32%) combined comprised two-thirds of manufacturing turnover in 1992–93. New South Wales contributed between 30% and 40% of the turnover in most industries, with Machinery and equipment manufacturing (28% of Australian total) and Printing, publishing and recorded media (46% of Australian total) being the only exceptions. Victoria dominated in Textiles, clothing, footwear and leather manufacturing (49%) and Machinery and equipment manufacturing

(43%) but contributed only 22% of Australian turnover for Metal product manufacturing. Although Queensland accounted for only 14% of manufacturing turnover, it contributed 20% of Australian turnover in each of the Food, beverages and tobacco manufacturing and non-metallic mineral products manufacturing. Similarly, South Australia which accounted for 9% of total manufacturing turnover for Australia, contributed 17% of Australian turnover for Machinery and equipment manufacturing.

### 18.3 Turnover by manufacturing industry, 1992–93 (\$ million)

Industry subdivision	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Food, beverages & tobacco mfg	11 556	10 999	7 522	2 931	2 593	1 215	108	75	<b>36 999</b>
Textiles, clothing, footwear & leather mfg	2 672	4 361	555	805	261	183	n.p.	n.p.	<b>8 849</b>
Wood & paper product mfg	3 110	2 779	1 489	903	629	942	13	43	<b>9 909</b>
Printing, publishing & recorded media	5 254	3 595	1 122	632	590	123	29	195	<b>11 539</b>
Petroleum, coal, chemical & associated product mfg	10 721	9 616	2 869	1 396	2 722	214	9	2	<b>27 550</b>
Non-metallic mineral product mfg	2 948	2 036	1 676	519	876	189	43	75	<b>8 362</b>
Metal product mfg	11 994	7 044	4 849	2 340	3 872	832	n.p.	n.p.	<b>31 310</b>
Machinery & equipment mfg	8 704	13 112	2 284	5 093	1 333	179	27	51	<b>30 781</b>
Other manufacturing	1 626	1 427	840	363	439	53	5	47	<b>4 800</b>
<b>Total manufacturing</b>	<b>58 584</b>	<b>54 969</b>	<b>23 206</b>	<b>14 982</b>	<b>13 315</b>	<b>3 930</b>	<b>600</b>	<b>514</b>	<b>170 100</b>

Source: *Manufacturing Industry, Australia* (8221.0).

## Employment

New South Wales (34%) and Victoria (32%) dominate manufacturing in Australia, comprising two-thirds of employment as at 30 June 1993. In all industries, New South Wales and Victoria are the two largest employing States. However, different industries predominate, in terms of employment, in different States (table 18.4).

New South Wales manufacturing establishments employ 41% of persons employed in Printing, publishing and recorded media and 39% of those in the Metal product manufacturing industry. Some 49% of all persons employed by Textiles, clothing

footwear and leather manufacturers are located in Victoria.

Queensland establishments employ 21% of persons in Food, beverages and tobacco manufacturing and 20% of those in non-metallic mineral product manufacturing. South Australia employs 14% of those in the Machinery and equipment manufacturing industry.

The quarterly Survey of Employment and Earnings is the ABS' major source of statistics on employed wage and salary earners. For further information refer to *Chapter 6, Labour*.

### 18.4 Employment in manufacturing industry, June 1993 (<sup>'000</sup>)

Industry subdivision	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Food, beverages & tobacco mfg	49.0	43.5	33.2	15.3	11.4	5.8	0.6	0.6	<b>159.3</b>
Textiles, clothing, footwear & leather mfg	22.3	36.6	5.9	5.5	3.0	1.8	0.1	0.1	<b>75.2</b>
Wood & paper product mfg	17.8	14.9	10.1	5.8	4.3	4.4	0.1	0.4	<b>57.8</b>
Printing, publishing & recorded media	34.7	26.3	10.1	5.2	5.2	1.5	0.3	1.6	<b>85.0</b>
Petroleum, coal, chemical & associated product mfg	33.0	33.8	8.0	6.7	5.1	0.8	—	—	<b>87.4</b>
Non-metallic mineral product mfg	12.6	9.6	7.8	2.7	4.6	0.8	0.1	0.2	<b>38.4</b>
Metal product mfg	56.0	34.0	22.0	11.8	13.9	4.0	1.1	0.1	<b>143.1</b>
Machinery & equipment mfg	58.4	71.1	19.4	27.2	9.8	1.9	0.3	0.5	<b>188.4</b>
Other manufacturing	14.2	14.4	9.6	3.9	4.8	0.7	0.1	0.4	<b>47.9</b>
<b>Total manufacturing</b>	<b>297.9</b>	<b>284.0</b>	<b>126.0</b>	<b>84.1</b>	<b>62.1</b>	<b>21.7</b>	<b>2.7</b>	<b>3.9</b>	<b>882.5</b>

Source: Manufacturing Industry, Australia (8221.0).

### Labour costs

Major labour costs in the manufacturing industry increased by 6.5% between 1991–92 and 1993–94. In both years, earnings comprised

around 88% of total labour costs for the manufacturing industry which is comparable with the proportion for all industries.

### 18.5 Major labour costs of manufacturing industry

Type of labour cost	1993–94			
			Percentage distribution of labour costs	
	1991–92 (\$m)	1993–94 (\$m)	Manufacturing (%)	All industries (%)
Earnings	26 907	28 468	87.7	88.4
Other labour costs				
Payroll tax	1 367	1 441	4.4	3.5
Superannuation	1 142	1 432	4.4	5.6
Workers' compensation	893	948	2.9	1.8
Fringe benefits tax	183	184	0.6	0.7
Total other labour costs	3 585	4 005	12.3	11.6
<b>Total major labour costs</b>	<b>30 492</b>	<b>32 473</b>	<b>100.0</b>	<b>100.0</b>

Source: Labour Costs, Australia (6348.0).

Average total labour costs per employee in 1993–94 of \$36,570 represented an increase of 4.0% over 1991–92 costs. For 1993–94, the average total labour costs in the

manufacturing industry were substantially higher than the average of \$32,755 per employee for all industries.

### 18.6 Average labour cost per employee in manufacturing industry (\$)

Type of labour cost	1993–94		
	1991–92	Manufacturing	All industries
Earnings	31 036	32 058	28 957
Other labour costs			
Payroll tax	1 576	1 623	1 131
Superannuation	1 318	1 613	1 829
Workers' compensation	1 030	1 068	598
Fringe benefits tax	211	208	240
Total other labour costs	4 135	4 512	3 798
<b>Total major labour costs</b>	<b>35 171</b>	<b>36 570</b>	<b>32 755</b>

Source: Labour Costs, Australia (6348.0).

## Industrial disputes

One hundred and sixty four industrial disputes occurred in the manufacturing industry during 1994. These disputes involved over 50,200 employees and resulted in the loss of more than 123,200 working days (table 18.7). Compared to experience in 1993, this represented a small decrease in the number of disputes (down 3.5%), but a substantial fall in both employees involved (down 71%) and working days lost (down 48%).

Manufacturing industry represented 29% of all disputes during 1994. Manufacturing industry employees involved in disputes represented 19% of all employees involved in disputes during 1994, substantially less than the 36% recorded in 1993. Manufacturing industry disputes were responsible for 25% of working days lost during 1994, also substantially less than 1993 (37%).

**18.7 Manufacturing industry — industrial disputes which occurred during 1993 and 1994**

	Total manufacturing	All industries
Total industrial disputes in progress		
1993 (no.)	170	610
1994 (no.)	164	558
Employees involved (directly & indirectly)		
1993 ('000)	175.4	489.6
1994 ('000)	50.2	264.5
Working days lost		
1993 ('000)	238.1	635.8
1994 ('000)	123.2	501.0

Source: *Industrial Disputes, Australia* (6322.0).

## Trade union membership

Between 1982 and 1986, a fall in the proportion of manufacturing employees with trade union membership coupled with a contraction in manufacturing industry employment resulted in a decrease in union membership of nearly 90,000 persons in this industry. The number of manufacturing employees with union membership fell a further 123,800 persons (23%) between 1986 and 1994, resulting in an overall fall of approximately 213,400 persons (34%) between 1982 and 1994. Despite this large fall in membership numbers, manufacturing industry continues to have a higher rate of union membership than the average for all industries (table 18.8).

The number of trade union members in all industries decreased between 1982 and 1994. In percentage terms membership followed a downward trend similar to manufacturing.

Although 45% of permanent manufacturing employees belonged to a trade union in 1994, only 16% of casual employees were members. Permanent female employees displayed significantly lower membership rates than males of the same employment status. The membership rate for casual manufacturing employees was higher than the all industries average (table 18.9).

### 18.8 Employees with trade union membership: manufacturing and all industries

	Manufacturing		All industries	
	No. (000)	% of total employment	No. (000)	% of total employment
March-May 1982	635.0	53.9	2 567.6	49.5
August 1986	545.4	51.2	2 593.9	45.6
August 1988	546.7	48.5	2 535.9	41.6
August 1990(a)	520.9	46.1	2 659.6	40.5
August 1992	455.3	44.4	2 508.8	39.6
August 1994	421.6	40.8	2 283.4	35.0

(a) The August 1990 survey included persons aged 70 years and over.

Source: *Trade Union Members, Australia* (6325.0).

### 18.9 Manufacturing industry — proportion of employees with trade union membership, August 1994 (%)

Employees	Manufacturing	All industries
Males		
Permanent	47.3	43.0
Casual	15.8	14.8
Total	44.3	37.9
Females		
Permanent	35.6	38.8
Casual	16.0	14.5
Total	30.7	31.3
Persons		
Permanent	44.6	41.3
Casual	15.9	14.7
Total	40.8	35.0

Source: *Trade Union Members, Australia* (6325.0).

### Capital expenditure

New capital expenditure in the manufacturing industry rose by 36% between 1992-93 and 1994-95. Industries with greatest increases were Wood and paper products manufacturing (up 91%) and Printing, publishing and recorded media (up 81%). The only industry which showed a decrease in new capital expenditure over the period 1992-93 to 1994-95 was Metal products manufacturing (down 7.7%).

The level of private new capital expenditure in 1994-95 was higher than in 1993-94 for six of the nine broad industries in manufacturing and only marginally lower for the other three. Largest percentage increases were recorded for Printing publishing and recorded media (up 91%) and non-metallic mineral products manufacturing (up 71%).

### 18.10 Private new capital expenditure in manufacturing industry (\$ million)

Industry subdivision	1992-93	1993-94	1994-95
Food, beverages & tobacco mfg	1 438	1 973	1 967
Textiles, clothing, footwear & leather mfg	271	238	336
Wood & paper product mfg	366	592	699
Printing, publishing & recorded media	599	567	1 083
Petroleum, coal, chemical & associated product mfg	1 145	1 202	1 638
Non-metallic mineral product mfg	575	587	1 005
Metal product mfg	1 440	1 159	1 329
Machinery & equipment mfg	1 119	1 308	1 301
Other manufacturing	85	187	178
<b>Total manufacturing</b>	<b>7 038</b>	<b>7 815</b>	<b>9 537</b>

Source: *Private New Capital Expenditure, Australia, Actual and Expected Expenditure* (5626.0).



## Stocks

In average 1989–90 price terms, the value of stocks at the end of June 1995 was 4% higher than in June 1994. This followed a fall of 2% between June 1993 and June 1994.

Non-metallic mineral products (up 16%) and Other manufacturing (up 12%) recorded the highest stock increases between June 1993 and June 1995. Textiles, clothing, footwear and leather (down 10%) and Metal products (down 6%) showed the largest percentage stock rundowns between June 1993 and June 1995.

Food, beverages and tobacco manufacturing and non-metallic minerals manufacturing were the only industries to show successive rises in June stocks from 1993 to 1995.

Textiles, clothing, footwear and leather manufacturing was the only industry to show successive falls.

### 18.11 Book value of stocks owned by private manufacturing businesses at average 1989–90 prices (\$ million)

Industry subdivision	June 1993	June 1994	June 1995
Food, beverages & tobacco mfg	4 313	4 340	4 501
Textiles, clothing, footwear & leather mfg	1 568	1 448	1 416
Wood & paper product mfg	1 295	1 290	1 343
Printing, publishing & recorded media	676	660	678
Petroleum, coal, chemical & associated product mfg	3 777	3 666	3 885
Non-metallic mineral product mfg	994	1 042	1 156
Metal product mfg	3 968	3 655	3 734
Machinery & equipment mfg	4 759	4 618	4 880
Other manufacturing	482	570	540
<b>Total manufacturing</b>	<b>21 832</b>	<b>21 289</b>	<b>22 133</b>

Source: Stocks, Manufacturers' Sales and Expected Sales, Australia (5629.0).

## Company profits

Profits before income tax earned by manufacturing companies increased by 19% between 1993–94 and 1994–95, following a rise of 33% from 1992–93. Growth in profits between 1993–94 and 1994–95 was strongest in Machinery and equipment (up 55%), Metal products manufacturing (up 27%) and Printing, publishing and recorded media (up 25%). The only industry to record lower

profits in 1994–95 than in 1993–94 was Other manufacturing.

Metal product manufacturing contributed 19% to total manufacturing profits in 1994–95 followed closely by Food, beverages and tobacco manufacturing (18%) and Machinery and equipment (17%).

### 18.12 Manufacturing companies — profit before income tax by industry (\$ million)

Industry subdivision	1992–93	1993–94	1994–95
Food, beverages & tobacco mfg	2 144	2 130	2 262
Textiles, clothing, footwear & leather mfg	219	380	487
Wood & paper product mfg	643	913	977
Printing, publishing & recorded media	666	1 134	1 415
Petroleum, coal, chemical & associated product mfg	1 350	1 633	1 782
Non-metallic mineral product mfg	816	1 047	1 130
Metal product mfg	847	1 895	2 399
Machinery & equipment mfg	1 259	1 402	2 178
Other manufacturing	40	122	60
<b>Total manufacturing</b>	<b>7 983</b>	<b>10 655</b>	<b>12 690</b>

Source: Company Profits, Australia (5651.0).

## Principal manufactured commodities

Table 18.13 shows the total recorded production of selected principal manufactured commodities.

Of the 25 selected commodities, 21 had greater production in 1994-95 than in 1993-94. Largest increases were for motor vehicles for goods and materials (up 17%), non laminated particle board (up 12%) and cotton yarn (up 11%). Of the four selected commodities which had lower production in

1994-95 than in 1993-94, largest falls were recorded by domestic refrigerators (down 11%) and domestic clothes washing machines (down 6%).

Twelve commodities exhibited growth for each of the past three years while tobacco and cigarettes is the only commodity of those tabulated for which production has fallen steadily over that period.

### 18.13 Quantities of selected commodities produced by manufacturing establishments(a)

Commodity	Unit of quantity	1991-92	1992-93	1993-94	1994-95
Confectionery					
Chocolate based	tonnes	98 119	105 681	110 910	109 709
Other	tonnes	65 416	68 455	68 324	71 974
Beer(b)	million litres	1 862	1 805	1 752	1 788
Tobacco & cigarettes(c)	tonnes	24 538	24 001	23 273	23 083
Woven fabric(d)					
Man-made fibre	'000 sq. m	185 528	185 060	184 885	185 257
Cotton (incl. towelling)	'000 sq. m	38 907	41 410	48 971	51 153
Wool (incl. blanketing)	'000 sq. m	8 132	8 343	7 893	8 622
Yarn(d)					
Cotton	tonnes	24 863	27 436	33 780	37 643
Wool	tonnes	18 551	18 167	21 016	23 093
Textile floor coverings	'000 sq. m	42 259	42 106	46 910	47 258
Newsprint	'000 tonnes	404	433	411	423
Nonlaminated particle board(e)	'000 cu m	643	660	752	846
Plastics in primary forms(f)	'000 tonnes	1 002	1 023	1 140	1 240
Portland cement	'000 tonnes	5 731	6 225	6 733	7 124
Clay bricks for structural purposes	million	1 632	1 722	1 814	1 860
Ready mixed concrete	'000 cu. m	13 359	14 548	15 265	15 871
Basic iron, spiegeleisen & sponge iron(g)	'000 tonnes	6 394	6 445	7 209	7 449
Blooms & slabs of iron or steel(g)	'000 tonnes	5 205	6 218	7 627	7 807
Motor vehicles					
Cars & station wagons	'000	269	275	298	301
Vehicles for goods & materials(h)	'000	15	15	23	27
Domestic refrigerators	'000	372	393	460	408
Domestic clothes washing machines(i)	'000	296	308	326	305
Electric motors	'000	2 445	2 847	2 990	3 099
Electricity	million kWh	156 413	159 872	161 813	165 063
Gas(j)	terajoules	553 438	568 820	587 013	622 047

(a) Data in this table exclude operations by single establishment enterprises employing fewer than four persons. (b) Includes ale, stout and porter. Excludes extra light beer containing less than 1.15 per cent but more than 0.5 per cent by volume of alcohol. (c) Source: Australian Tobacco Marketing Advisory Committee, until April 1995. (d) Includes mixtures predominantly of the fibre named. (e) Includes board for subsequent conversion to other purposes. Excludes fibreboard and fibre paperboard. (f) Includes liquid, paste, powder, granules, flakes, blocks, irregular shapes, lumps and similar forms. (g) Comprises production of BHP Steel only. (h) Includes utilities, panel vans and prime movers for semi-trailers. Excludes off-highway trucks (for example, dump wagons), materials handling trucks (for example, forklift trucks) and semi-trailers. (i) Household or laundry-type, each of a dry linen capacity not exceeding 10 kg. (j) Available for issue through mains. Includes natural gas.

Source: ABS manufacturing production publications (8301.0, 8357.0 to 8363.0 and 8367.0 to 8369.0).

## Concentration of enterprises in the manufacturing industry

Concentration statistics provide information on the extent to which particular enterprise groups predominate in individual industries. They are an indicator of the degree of competition existing between enterprise groups engaged in an industry.

In 1991-92, the most concentrated manufacturing industries, in terms of the share of employment accounted for by the

largest four enterprise groups, were Basic metal products (45%) and non-metallic mineral products (41%). The industries with the lowest levels of concentration were Fabricated metal products (7%), Wood, wood products and furniture (9%) and Other machinery and equipment (9%) (table 18.14).

### 18.14 Concentration of employment in manufacturing establishments(a), June 1992

Industry subdivision	Enterprise groups ranked by turnover									
	Largest 4		5-8		9-12		13-16		Remainder	
	'000	%	'000	%	'000	%	'000	%	'000	%
Food, beverages & tobacco mfg	19.4	12	16.9	10	10.8	7	10.3	6	108.6	0.65
Textiles mfg	3.9	15	1.8	7	1.9	7	1.4	6	17.2	0.66
Clothing & footwear mfg	8.1	16	1.7	3	2.6	5	0.8	2	36.6	0.73
Wood, wood products & furniture mfg	6.6	9	2.2	3	2.1	3	1.2	2	59.5	0.83
Paper, paper products, printing & publishing	22.7	23	6.9	7	4.9	5	3.7	4	62.0	0.62
Chemical, petroleum & coal products mfg	7.7	15	2.9	6	3.4	7	3.5	7	33.0	0.65
Non-metallic mineral products mfg	15.2	41	4.7	12	1.6	4	1.8	5	14.2	0.38
Basic metal products mfg	28.2	45	8.6	14	5.9	1	2.7	4	16.7	0.27
Fabricated metal products mfg	6.4	7	6.1	7	3.0	3	2.3	3	71.0	0.80
Transport equipment mfg	20.4	25	11.4	14	6.9	8	5.5	7	37.3	0.46
Other machinery & equipment mfg	9.8	9	8.5	7	4.0	3	3.2	3	88.8	0.78
Miscellaneous manufacturing	8.1	14	4.6	8	1.4	2	1.3	2	42.8	0.74
<b>Total manufacturing</b>	<b>45.7</b>	<b>5</b>	<b>33.4</b>	<b>4</b>	<b>30.9</b>	<b>3</b>	<b>20.8</b>	<b>2</b>	<b>776.3</b>	<b>0.86</b>

(a) Data in this table exclude operations by single establishment enterprises employing fewer than four persons. Employment at end of June. Includes working proprietors.

Source: *Manufacturing Industry, Concentration Statistics, Australia (8207.0)* and *Manufacturing Industry, Australia (8221.0)*.

## Manufacturing technology

The proportion of manufacturing establishments (employing 10 or more people) using advanced manufacturing technologies increased by about one-quarter to 41% in the three-year period to December 1991. Over the same period, the proportion of manufacturing establishments using Total Quality Control/Management (TQC/TQM), increased by more than half to 24%. By 1996, a further 9% of manufacturers intended introducing advanced manufacturing technologies and 25% intended introducing TQC/TQM. In December 1991, the most widely used advanced manufacturing technology was computer aided design and/or engineering.

Tables containing relevant data appear in *Year Book Australia 1995*.

## Research and experimental development

Research and experimental development (R&D) activity in the business context is systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R&D activity extends to modifications to existing products/processes.

Business enterprises in the Electronic and electrical equipment and appliance industry accounted for 21% of all manufacturing research and development expenditure in 1993–94. Metal product (17%), Motor vehicle and parts and other transport equipment (16%) and Petroleum, coal, chemical and associated product (15%) were also major contributors to R&D expenditure.

Total expenditure on R&D by manufacturing business enterprises in 1993–94 remained virtually unchanged compared with 1992–93. Wood and paper product (up 132%) and Other manufacturing (up 34%) had the largest percentage increases over the period. Printing, publishing and recorded media (down 21%) and Metal product (down 13%) had the largest percentage decreases.

### 18.15 Expenditure on research and experimental development by manufacturing enterprises (\$ million)

Industry subdivision	1992–93	1993–94			
		Type of expenditure			
		Capital expenditure	Labour costs(a)	Other current expenditure	Total
Food, beverage & tobacco mfg	136.1	14.0	64.9	61.0	<b>139.8</b>
Textile, clothing, footwear & leather mfg	28.8	2.7	12.4	21.5	<b>36.6</b>
Wood & paper product mfg	44.4	n.p.	12.5	n.p.	<b>103.0</b>
Printing, publishing & recorded media	15.3	n.p.	6.4	n.p.	<b>12.1</b>
Petroleum, coal, chemical & associated product mfg	279.6	23.3	106.4	122.5	<b>252.2</b>
Non-metallic mineral product mfg	30.9	4.6	12.8	13.3	<b>30.8</b>
Metal product mfg	335.7	60.3	93.6	138.9	<b>292.8</b>
Motor vehicle & part & other transport equipment mfg	307.7	12.0	105.8	152.0	<b>269.8</b>
Photographic & scientific equipment mfg	96.5	8.2	53.4	41.0	<b>102.6</b>
Electronic & electrical equipment & appliance mfg	336.8	27.8	190.2	142.0	<b>360.0</b>
Industrial machinery & equipment mfg	65.2	5.2	35.7	31.3	<b>72.2</b>
Other manufacturing	10.9	1.9	7.1	5.6	<b>14.6</b>
<b>Total manufacturing</b>	<b>1 688.0</b>	<b>171.1</b>	<b>701.1</b>	<b>814.3</b>	<b>1 686.6</b>

(a) Includes wages and salaries, payroll tax, payments to contract staff on the payroll, fringe benefits tax and workers compensation, holiday pay, long service leave payments, sick pay, employer contributions to superannuation and pension schemes.

Source: *Research and Experimental Development, Business Enterprises, Australia (8104.0)*.

### Commonwealth government authorities

*Year Book Australia 1994* contains an outline of the role and responsibilities of the Industry Commission, the Bureau of Industry Economics, and the Department of Industry,

Technology and Regional Development, the industry related responsibilities of which are now the responsibility of the Department of Industry, Science and Technology.

## Innovation in Australian manufacturing

The ABS conducted its first survey of the innovative activity of manufacturing businesses in respect of 1993–94. The results were published in *Innovation in Australian Manufacturing* (8116.0). In this article, these results are summarised and some international comparisons are made.

### How much innovation occurs?

The ABS survey showed that one in every three manufacturing businesses in Australia undertook some technological innovation over the period July 1991 to June 1994.

A business was considered to be technologically innovative if during the period it introduced one or more new, or substantially changed, products or if it used new, or substantially changed, processes to manufacture its products.

There are substantial differences across industries and sizes of business in the rate at which technological innovation occurs. Forty six per cent of businesses in the Petroleum, coal, chemical and associated product manufacturing industry were technologically innovative; this industry was the one most technologically innovative, followed by the Machinery and equipment industry (42% of businesses). At the other end of the scale, only 15% of businesses in the Wood and paper product manufacturing industry were innovative. The incidence of innovative activity in all other manufacturing industries was in the 30–37% range. These results are shown in table 18.16.

**18.16 Businesses undertaking technological innovation by manufacturing subdivision**

Manufacturing subdivision	%
Food, beverages & tobacco mfg	35.6
Textile, clothing, footwear & leather mfg	29.9
Wood & paper product mfg	15.1
Printing, publishing & recorded media	33.5
Petroleum, coal, chemical & associated product mfg	46.4
Non-metallic mineral product mfg	36.7
Metal product	32.0
Machinery & equipment mfg	41.9
Other manufacturing	31.0
<b>Total manufacturing</b>	<b>33.7</b>

Source: *Innovation in Australian Manufacturing* (8116.0).

On a size basis, not surprisingly the largest firms were the most technologically innovative. Ninety per cent of the manufacturers employing 1,000 employees or more were considered to be innovative. The percentage fell by size of business; 50%

of firms with between 20 and 49 employees were innovative. One in four of the smallest firms, employing less than 5 employees, were innovative in the three year period. These results are shown in table 18.17.

### 18.17 Businesses undertaking technological innovation by employment size

No. of employees	%
Less than 5	25.0
5-9	29.6
10-19	41.3
20-49	50.7
50-99	60.9
100-199	74.8
200-499	81.2
500-999	83.7
1000 or more	90.3
<b>Total</b>	<b>33.7</b>

Source: *Innovation in Australian Manufacturing* (8116.0).

### How innovative are individual businesses?

The above analysis shows that innovative activity is fairly widespread. However it does not answer the question of how much innovative activity each particular innovating business undertook. An insight can be obtained from the share of a firm's income spent on innovative activities. Table 18.18 shows the results of this analysis on both an industry and a size basis.

Interestingly, on average innovating firms spent only 3.6% of their income on their innovative activities. Across industries the proportion ranges from 2.1% to 5.9%. It does not vary greatly by size of business, except for the very smallest businesses, which spend a much greater proportion of their income on innovative activity. This clearly is a reflection of the smaller income of the smallest businesses and the smaller range of activities that they perform. It also reflects the relative newness of the smallest businesses, and the relatively greater importance of expenditure on new activities as part of the process of establishing themselves.

### 18.18 Innovation intensity of technologically innovative businesses

	Innovation intensity (% of sales)
Employment size	
Less than 5	15
5-9	6
10-19	4
20-49	5
50-99	4
100-199	4
200-499	4
500-999	2
1000 or more	3
Selected ANZSIC subdivisions	
Food, beverages & tobacco mfg	2
Textile, clothing, footwear & leather mfg	3
Wood & paper product mfg	5
Printing, publishing & recorded media	5
Petroleum, coal, chemical & associated product mfg	3
Non-metallic mineral product mfg	4
Metal product mfg	2
Machinery & equipment mfg	6
Other manufacturing	4
<b>Total</b>	<b>4</b>

Source: *Innovation in Australian Manufacturing* (8116.0).

### Are Australian businesses more or less innovative than their overseas counterparts?

There is very little comparative data available, as Innovation surveys are fairly new and data from the latest round of surveys in Europe are not yet available. Data are however available for Norway and Ireland, even if on slightly different bases. Before making any international comparisons one needs to make allowances for these differences. In Norway, the innovation survey excluded manufacturing firms employing less than 5 persons. In the Irish survey the cut-off was businesses

employing less than 10 employees. Data are not available to bring these two surveys to the same basis. However, the Australian data can be manipulated to be on a consistent basis with each of them separately. The results of these analyses are shown in table 18.19 (industry) and 18.20 (size) below. The consistency can only be perfectly achieved at the total Manufacturing level, as the industry classifications are slightly different between the countries.

**18.19 Proportion of manufacturing businesses which are innovative in Australia, Norway and Ireland by manufacturing subdivision(a)**  
(%)

Manufacturing subdivision	5 or more employees		10 or more employees	
	Australia(b)	Norway	Australia(b)	Ireland
Food, beverages & tobacco	41	37	52	..
Food	..	..	..	21
Drink & tobacco	..	..	..	35
Textile, clothing, footwear & leather	33	..	41	..
Clothing/footwear	32	..	..	..
Textiles, wearing apparel, leather	..	30	..	..
Textiles	..	..	..	36
Wood & paper products	18	..	29	..
Wood products	..	24	..	..
Paper products	..	62	..	..
Wood products, furniture	..	..	..	20
Paper products, printing	..	..	..	26
Printing, publishing & recorded media	42	..	51	(c)
Printing & publishing	..	35	..	(d)
Petroleum, coal, chemical & associated products	55	..	69	..
Chemical, rubber, plastic products	..	66	..	..
Chemicals/pharmaceuticals	..	..	..	45
Non-metallic mineral products	43	..	50	42
Mineral products	..	38	..	..
Metal products	39	36	47	..
Basic metals	..	..	..	..
Basic/fabricated metals	..	..	..	26

For footnotes see end of table.

...continued

**18.19 Proportion of manufacturing businesses which are innovative in Australia, Norway and Ireland by manufacturing subdivision(a) — continued**  
(%)

Manufacturing subdivision	5 or more employees		10 or more employees	
	Australia(b)	Norway	Australia(b)	Ireland
Machinery & equipment	54	..	60	..
Machinery	..	52	..	38
Instruments	..	55	..	40
Electrical appliances & supplies	..	57	..	..
Electric/electronic	..	..	..	61
Transport	..	38	..	41
Other manufacturing	39	37	47	..
Furniture	..	38	..	(d)
<b>Total</b>	<b>41</b>	<b>40</b>	<b>51</b>	<b>33</b>

(a) Industry categories align broadly with international standards but have been presented at different levels. (b) Australian data has been recalculated using the size cutoff to allow direct comparison. (c) Included above with Paper products. (d) Included above with Wood products.

Source: Statistics Norway, *Norwegian Innovation Survey, 1993*; Forfa's, *Evaluation and Statistics Unit, Technological Innovation in Irish Manufacturing Industry, Preliminary findings from the Irish Innovation Survey, November 1994*; *Innovation in Australian Manufacturing (8116.0)*.

**18.20 Proportion of manufacturing businesses which are innovative in Australia, Norway and Ireland, by employment size**  
(%)

No. of employees	Australia(a)	Norway	Ireland
<b>5 or more</b>			
5-9	34	22	..
20-49	51	37	..
50-99	61	50	..
100-199	75	62	..
200 or more	84	79	..
<b>Total</b>	<b>41</b>	<b>40</b>	<b>..</b>
<b>10 or more</b>			
10-49	45	..	26
50-99	61	..	32
100 or more	79	..	60
<b>Total</b>	<b>51</b>	<b>..</b>	<b>33</b>

(a) Australian data has been recalculated using the size cutoff to allow direct comparison.

Source: Statistics Norway, *Norwegian Innovation Survey, 1993*; Forfa's, *Evaluation and Statistics Unit, Technological Innovation in Irish Manufacturing Industry, Preliminary findings from the Irish Innovation Survey, November 1994*; *Innovation in Australian Manufacturing (8116.0)*.

Compared to manufacturers in Norway, Australian manufacturers have a fairly similar propensity to innovate. The results for most industries seem to be similar. There are however differences by size of business, with a much smaller proportion of small Norwegian businesses considered innovative. The apparent similarity in the totals, despite the differences by business size, reflects the different industrial structures between the two countries.

Compared to manufacturers in Ireland, Australian manufacturers seem to be significantly more innovative. This phenomenon occurs across all industries and all size of business.

From the limited amount of Innovation survey data available, it can be concluded that our manufacturing industry is reasonably innovative when compared to the manufacturing industries of Norway and Ireland. At this time no further international comparisons are possible although more data relating to other countries are expected to become available in early to mid 1996.



## Wholesale trade

The wholesale industry comprises businesses primarily engaged in the resale (as agents or principals) of goods to businesses or to institutional (including government) users. These businesses are wholesale merchants who take title to the goods they sell; separate sales branches (not being retail businesses) operated by manufacturing businesses; commission agents, import and export agents and purchasing agents; petroleum products distributors; and cooperatives and marketing boards engaged in marketing farm products.

Comprehensive statistics on the wholesale industry are only collected periodically. The most recent wholesale industry survey was in respect of 1991–92, following a previous survey for 1981–82. Information from these surveys is available in *Year Book Australia 1995*.

## Retail trade

The Retail (and selected services) industry is a major contributor to the Australian economy. The industry accounts for in excess of \$100,000 million annually in turnover and has over 1 million employees.

The performance and characteristics of the industry are measured by statistics obtained from the monthly Retail Trade (and selected services) survey, through the Retail Census which is conducted every 5 or 6 years (the last being in respect of 1991–92) and through a number of ABS economy wide collections which incorporate the retail sector.

In current price terms, turnover for Retail and Selected services industries for the year ended June 1995 totalled \$112,200 million which was an increase of 7.5% on the previous year. This compares to an increase of 4.1% for the year before that. Each of the industry groups showed growth. Hospitality and services industries, which includes hotels, licensed clubs and cafes and restaurants, recorded the strongest growth of 11.4%. Other industry groups to show strong growth during 1994–95 were the Recreational good retailing group, up 9.9% and the Food retailing group, up 8.1%. The weakest growth occurred in the Clothing and soft good retailing group which grew by just 2.3%.

In terms of contribution to the \$7,800 million growth between 1993–94 and 1994–95, the Food retailing group accounted for \$3,300 million (42%) with the other major contributor being the Hospitality and services industries group which accounted for \$2,000 million (26%).

**18.21 Retail turnover by industry group at current prices (\$ million)**

	1992–93	1993–94	1994–95
Food retailing	39 385	40 671	43 963
Department stores	10 649	10 798	11 209
Clothing & soft good retailing	7 892	7 779	7 957
Household good retailing	11 304	11 978	12 588
Recreational good retailing	5 394	5 731	6 299
Other retailing	8 958	9 724	10 457
Hospitality & services	16 761	17 744	19 772
<b>Total</b>	<b>100 342</b>	<b>104 424</b>	<b>112 245</b>

Source: Retail Industry, Australia, 1991–92 (8622.0).

Retail and Selected services industries turnover in constant price terms, that is, after the removal of the effect of price changes, grew by a strong 5.3% for 1994–95 compared to growth of 1.1% for 1993–94. The strongest growth in 1994–95 was recorded in the Hospitality and services industries group,

which increased by 8.1%, Recreational good retailing, up 7.4%, Other retailing, up 6.5%, and Food retailing, up 5.3%. The Clothing and soft good retailing group recorded the weakest growth with turnover increasing by 1.7% in 1994–95.

**18.22 Retail turnover by industry group at constant (average 1989-90) prices (\$ million)**

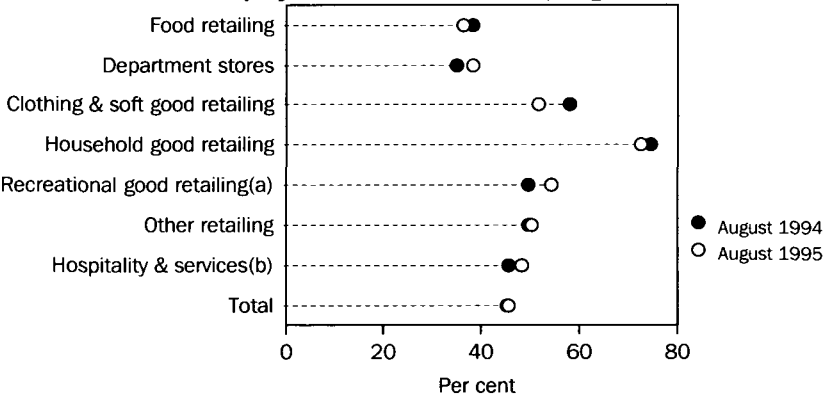
	1992-93	1993-94	1994-95
Food retailing	35 775	35 615	37 511
Department stores	9 944	10 024	10 331
Clothing & soft good retailing	7 426	7 345	7 471
Household good retailing	11 270	11 731	12 162
Recreational good retailing	5 034	4 819	5 175
Other retailing	7 808	8 522	9 074
Hospitality & services	15 142	15 382	16 624
<b>Total</b>	<b>92 399</b>	<b>93 438</b>	<b>98 349</b>

Source: Retail Industry: Commodity Sales, Australia, 1991-92 (8624.0).

At August 1995 there were 1,017,000 employees in retail and selected service industries (excluding hairdressers and video hire outlets) compared to 975,000 employees at August 1994. Full-time employees increased by 21,000 (4.5%) while part-time employees also increased by 21,000 (3.9%) during the year ended August 1995.

The composition of employees varies across the different types of retail stores. Household good retailing stores have mainly full-time employees whereas Department stores and Food retailing stores are mainly staffed by part-time employees.

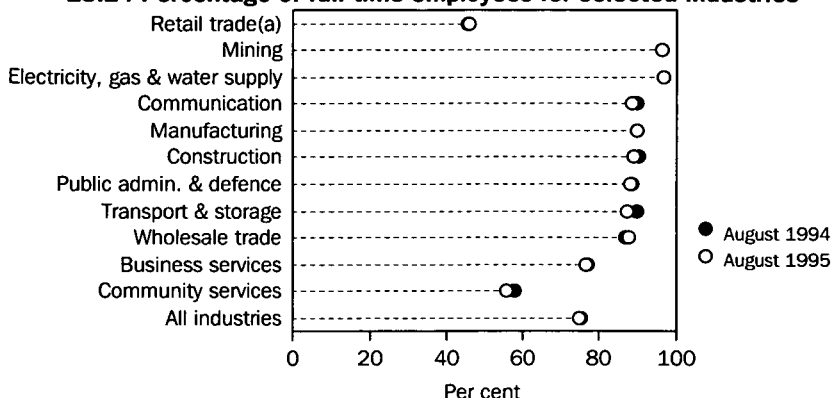
**18.23 Full-time employees in retail industries, August 1994 and 1995**



(a) Includes Marine equipment retailing. (b) Excludes Hairdressers and Video hire outlets  
Source: Labour Force, Australia (6203.0).

Compared to other industries, retail and selected service industries (excluding hairdressers and video hire outlets) have a significantly lower percentage of full-time

employees. For most other industries full-time employees account for 80% or more of their total employees. For retail trade the percentage is around 46%.

**18.24 Percentage of full-time employees for selected industries**

(a) Includes Hospitality and services, excluding hairdressers and video hire outlets. Excludes Motor vehicle retailing and services.

Source: *Labour Force, Australia* (6203.0).

Company profits for the retail trade industry (including motor vehicle retailing and services) amounted to \$1,800 million in

1994–95, more than double the profits reported in 1990–91 and 1991–92.

**18.25 Total retail trade(a), company profits before tax**

(a) Includes Motor vehicle retailing and services. Excludes Hospitality and services.

Source: *Company Profits, Australia* (5651.0).

The retail trade industry (including motor vehicle retailing and services) had capital expenditure, in current price terms, of \$2,000 million in both 1993–94 and 1994–95. Capital expenditure for both these years was higher than the \$1,700 million recorded for 1992–93.

Stocks held by retailers (including motor vehicle retailers and services), in current price terms, amounted to \$15,100 million as at 30 June 1995. This was 10.4% higher than the value of stocks held at 30 June 1994, which, in turn, was 4.8% lower than at the same time in 1993. In constant price terms the value of stocks rose by 7.8% in 1994–95, compared to a fall of 6.2% in 1993–94.

## Service industries

The service industries have become increasingly significant in Australia and now account for over 60% of Australia's employment. As a result, the ABS, since 1986-87, has been increasing its collection activity from the service industries sector, and in 1991-92 introduced an annual program of collections. However, due to the diversity and large number of service industries, the program only covers a number of the service industries each year, and, as a result, it will take a number of years before all industries in the sector are surveyed.

In 1991-92, surveys were conducted of the hospitality industries (comprising accommodation; pubs, bars and taverns; cafes and restaurants; licensed clubs; and casinos) and the motor vehicle hire industry. For

1992-93, surveys were undertaken of real estate agents and a range of business services, specifically computer services, legal and accounting services, advertising services, market research services, business management services, architectural services, surveying services and consultant engineering services.

For 1993-94, surveys of motion picture, radio and television services were undertaken, while in 1994-95, surveys are being conducted of private medical practice industry and the sport recreation and gambling industries.

The following table provides a summary of key results from the 1992-93 service industries collections.

**18.26 Selected service industries, summary of operations, 1992-93**

	No. of businesses at 30 June 1993	Employment at 30 June 1993	Sales of goods & services (\$m)	Profit before income tax (\$m)	Operating profit margin (%)
Real estate agents	7 265	51 922	2 798.7	216.0	7.7
Architectural services	4 409	16 204	945.2	92.3	9.8
Surveying services	1 175	6 964	481.2	47.6	9.9
Consulting engineering services	5 454	28 208	2 325.2	155.7	6.7
Data processing services	262	2 049	142.7	15.5	10.8
Information storage & retrieval services	67	636	102.6	10.8	10.5
Computer maintenance services	242	4 778	1 082.1	92.5	8.5
Computer consultancy services	4 323	22 599	2 601.4	246.2	9.5
Legal services	8 850	63 108	5 105.2	1 665.5	32.6
Accounting services	8 699	60 000	4 051.2	828.6	20.5
Advertising services	858	9 083	842.1	117.5	13.9
Market research services	174	8 064	251.7	28.6	9.7
Business management services	686	4 933	506.6	42.6	8.4

Source: *Computing Services Industry, Australia, 1992-93* (8669.0); *Selected Technical Services, Australia, 1992-93* (8676.0); *Real Estate Agents Industry, Australia, 1992-93* (8663.0); *Legal and Accounting Service, Australia, 1992-93* (8678.0); *Selected Business Services, Australia, 1992-93* (8677.0).

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