

MANUFACTURING

AUSTRALIA

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C O N T E N T S

	<i>page</i>
Notes	2
Chapter contents.	4
 CHAPTERS	
1 A profile of the Australian manufacturing industry	6
2 Performance of the manufacturing industry	55
3 Latest indicators	88
4 International trade	100
 ADDITIONAL INFORMATION	
Explanatory notes	107
Appendix—list of manufacturing industries.	112
Glossary	117
List of references.	128
Index	130

- For further information about these and related statistics, contact Harvey Bissett on Canberra 02 6252 5639 or any ABS office shown on the back cover of this publication.

NOTES

ABOUT THIS PUBLICATION

This publication presents a picture of Australian manufacturing in the late 1990s with emphasis on most recent data and comparisons with the recent past. The main focus is on economic performance by Australian manufacturing as a whole and by the major industries within Australian manufacturing. Information is also provided on related aspects of manufacturing such as energy usage, composition of the workforce and costs incurred as a result of environmental protection activities. Material has been gathered from a range of ABS and non-ABS sources.

This publication will be released annually. However, future issues will not be simple updates of the material in this issue. While core material will be retained and updated each year, the content of future issues will vary as new data sources become available and as different aspects of manufacturing become topical. The ABS would appreciate any comments concerning the content of future issues.

ABOUT THIS ISSUE

This is the second issue of this publication. In addition to presenting a range of statistical information and commentary about the manufacturing industry, it provides background information on the classifications used and the variables presented. Comments on the content and usefulness of this publication, and suggestions for improvements are welcome. Comments can be provided to the Director, Manufacturing and Construction Statistics, Australian Bureau of Statistics, PO Box 10, Belconnen, ACT 2616, or telephone Canberra 02 6252 5654.

FURTHER DETAILS MAY BE AVAILABLE FROM THE ABS

The data in this publication mostly relate to broad industries such as Food, beverage and tobacco manufacturing. Data for finer level industries (e.g. Wine manufacturing) may be available from the ABS on request, especially for much of the data in chapters 1 and 2. Chapter 1 provides information of the various levels of industry for which manufacturing data are compiled. A full list of manufacturing industries appears in the listing of the Australian and New Zealand Standard Industrial Classification (ANZSIC) contained in the Appendix.

Similarly, while most of the data in this publication relate to Australia as a whole, an extensive range of data about manufacturing in individual States is also available in either published or unpublished form.

Much of the data in chapter 3 is based on quarterly surveys. A list of relevant publications appears in the bibliography at the back of this publication. In general, sample sizes in these surveys are not large enough to allow reliable estimates for levels of industry finer than those shown in this publication.

ABBREVIATIONS

ABARE	Australian Bureau of Agricultural Resource Economics
ABS	Australian Bureau of Statistics
ASIC	Australian Standard Industrial Classification
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASIC	Australian Standard Industry Classification
EAS	Economic Activity Survey
GDP	Gross Domestic Product
IGP	Industry Gross Product
mfg	manufacturing
OECD	Organisation for Economic Co-operation and Development
R&D	Research and development
TFP	Total factor productivity

SYMBOLS AND OTHER USAGES

Standard notations are used throughout this publication, with meanings as follows:

'000	thousands
billion	one thousand million
kWh	kilowatt hours
m ³	cubic metres
n.a.	not available
n.e.c.	not elsewhere classified
n.e.s.	not elsewhere specified
no.	number
n.p.	not available for publication but included in totals where applicable
Pj	petajoule
Tj	terajoule
t	tonne
\$m	millions of dollars
*	data subject to sampling variability of between 25% and 50%
. .	not applicable
-	nil or rounded to zero

W. McLennan
Australian Statistician

CHAPTER CONTENTS

Page

CHAPTER 1	A profile of the Australian manufacturing industry	6
	What is the manufacturing industry?	6
	Changing face of Australian manufacturing—a historical perspective	7
	Manufacturing's contribution to total Australian production	10
	Recent growth in the Australian manufacturing industry	14
	By industry	14
	By size of business	17
	Manufacturing activity by size of establishment	18
	Where is manufacturing carried out?	20
	Characteristics of the manufacturing workforce	31
	Persons employed in the manufacturing industry	32
	Unemployed persons previously employed full time	35
	Industrial disputes	36
	Industrial accidents	38
	Trade union membership	41
	Environmental issues	43
	Energy use	43
	Waste management and protecting the environment	46
	Degree of transformation by manufacturers	49
	Technological innovation by manufacturers	50
	Research and development expenditure	53
CHAPTER 2	Performance of the manufacturing industry	55
	Introduction	55
	Total manufacturing	56
	Relative performance by manufacturing subdivisions	58
	Food, beverage and tobacco	61
	Textile, clothing, footwear and leather	64
	Wood and paper product	67
	Printing, publishing and recorded media	70
	Petroleum, coal, chemical and associated product	73
	Non-metallic mineral product	76
	Metal product manufacturing	79
	Machinery and equipment	82
	Other manufacturing	85

		Page
CHAPTER 3	Latest indicators	88
	Introduction	88
	Sales of goods	88
	Capital expenditure	90
	Company profits	91
	Employees and their earnings	92
	Articles produced by manufacturers	95
	Changes in the price of articles produced and materials used	97
CHAPTER 4	International trade	100
	Introduction	100
	Exports and imports by industry	100
	Performance of direct exporters	103
	Exports and imports of manufactured goods	105

CHAPTER 1

PROFILE OF THE AUSTRALIAN MANUFACTURING INDUSTRY

WHAT IS THE MANUFACTURING INDUSTRY?

The range of activities Manufacturing is defined as the physical or chemical transformation of materials or components into new products, whether the work is performed by machinery or by hand (*Australian and New Zealand Standard Industrial Classification, 1993, p.47*). As well as the creation of new products, manufacturing includes a number of related service activities such as delivery, installation, repair and servicing of goods produced by the business. In addition, a number of other services are classified to manufacturing. For example, galvanising, annealing and plating of metals, elevator installation, spectacle lens grinding and tyre retreading are all services which are classified to manufacturing.

Degree of transformation The manufacturing industry embraces production of thousands of different types of goods. These range from ships to sugar to sheep shearing equipment, and from micro circuits to motor vehicles to medicines. One view of manufacturing activity focuses on the extent of transformation involved from raw material to finished product. Some products are simple primary product manufactures such as flour, cheese, tanned hides and skins and pig iron. Some are simply transformed manufactures such as basic metal shapes (billets, coils, ingots), portland cement, basic organic and inorganic chemicals (such as caustic soda). Others are moderately transformed manufactures such as wire rods, metal pipes and tubes, basic glass, soap and detergents, textile fabrics and tissue paper, while others are elaborately transformed manufactures such as prefabricated metal buildings, wire products, glassware, ceramic products, paints, medicines and perfumes.

Capital intensity Another view of the breadth of manufacturing activity concerns the degree of mechanisation involved in production. Manufacturing in Australia covers a wide range of situations from highly mechanised production lines using robotics to simple mechanical activities such as soft drink bottling or concrete mixing through to production of fine jewellery by hand.

In short, manufacturing covers a myriad of inputs, processes and products.

Industry classification: The ANZSIC Perhaps the most common way of viewing manufacturing statistics is through an industry classification. This publication extensively uses the Australian and New Zealand Standard Industrial Classification (ANZSIC) as the key framework for categorising and presenting information about the manufacturing industry.

The manufacturing industry is made up of those business units which earn the majority of their income from activities classified to Division C of the ANZSIC.

Industry classification: The ANZSIC *continued* The ANZSIC distinguishes four levels of industry classification to accommodate both broad analysis and fine dissection of statistical data about the Australian economy. The four levels constitute a hierarchy, with Division the broadest classification level, followed by Subdivision, Group and Class as increasingly finer dissections. To illustrate, a manufacturing example of the four levels is:

Division	Manufacturing
Subdivision	Metal product manufacturing
Group	Iron and steel manufacturing
Class	Steel pipe and tube manufacturing

Details of the structure of the ANZSIC and in particular the way in which it defines manufacturing industries are included in chapter 5. Also, a list of all manufacturing subdivisions, groups and classes is contained in an Appendix of this publication.

CHANGING FACE OF AUSTRALIAN MANUFACTURING—A HISTORICAL PERSPECTIVE

This section has been largely based on the analysis presented in the Productivity Commission report *The Changing of Australian Manufacturing—December 1996*, Authors Colin Clark, Timothy Geer and Barry Underhill. The material has been included in *Manufacturing, Australia* with the permission of the Productivity Commission.

Broad influences—Second World War to date The second world war provided great stimulus to Australian manufacturing, which was still recovering from the great depression of the 1930s. The interruption to imports during the war meant a switch in demand to domestically produced goods. Rising expenditure associated with the war increased real income and demand and Australia became an important source of supply for a number of countries in the region. Through a combination of existing industries expanding, and diversifying, and the rapid development of new industries, Australia was able to produce a huge range of products including many types of munitions, ball bearings, machine tools, ships, aircraft, chemicals, textiles and optics.

After 1945, Australian manufacturing continued to grow steadily, boosted by the needs of postwar reconstruction in the northern hemisphere. The re-emergence of competition from manufactured imports in the late 1940s was effectively eliminated through increased protection. Manufacturing production grew strongly throughout the 1950s, especially in the automotive, household appliances and plastic products industries.

Broad influences—Second World War to date *continued*

As Australia's trade links with Britain weakened during the 1950s and 1960s, Australian producers looked to Asia for new markets. Trade growth with Japan increased steadily and, by the mid 1960s, Japan was Australia's biggest customer for a wide range of primary products. Japan experienced a substantial trade deficit with Australia which it sought to redress by exporting more manufactured goods to Australia. Other developing Asian countries followed Japan's lead. Initially, the Asian economies exported labour intensive products such as clothing and footwear, but as their economies developed, they started to produce and export more technically advanced goods.

The 1970s was a turbulent decade for Australian manufacturing. This was due to several factors, such as strengthening import competition across a range of industries, upward pressure being exerted on exchange rates by the mining boom and by the inflow of foreign capital, and upward pressure on wages (including campaigns for equal pay for women). All this occurred against a background of high rates of inflation.

Manufacturing in the 1980s was characterised by declining production in the earlier years, especially 1982–83 and 1983–84, followed by steady growth through to the end of the decade and another decline in the early 1990s. In the past six years to 1997–98, manufacturing production has continued to grow steadily.

The 'openness' of the Australian economy to world markets accelerated through the 1980s and 1990s. Following its float in 1983, the Australian dollar depreciated by over 30% during 1985 and 1986, strengthening the international competitiveness of Australian manufactures. Australian manufacturing became increasingly export oriented through the 1980s and 1990s. In 1984–85, approximately 16% of the sales from Australia's manufacturing firms were to overseas markets. By 1997–98, this ratio had risen to 26%. Import penetration of Australian markets for manufactured goods rose more slowly over the same period, from 26% in 1984–85 to 36% by 1997–98.

Manufacturing's share of the Australian economy

As a proportion of the whole economy, employment in manufacturing industries peaked at roughly 27% around 1950, remaining high throughout the 1950s and 1960s. It fell to 20% in 1979 and thence to its present share of 13%. Production data tell a similar story. The share of Australian GDP accounted for by manufacturing rose steadily until around 1960, then fell steadily from a peak of 26% in 1962–63 to 14% in 1997–98.

This relative decline did not mean that manufacturing production fell over that period in absolute terms. On the contrary, in real terms manufacturing production in 1997–98 was more than double that in 1962–63. However, other industries such as mining and the services sector grew even faster, expanding their share of total production at the expense of manufacturing. Production by the Australian services sector was over three times greater in 1997–98 than in 1962–63.

Manufacturing's share of
the Australian economy
continued

There has also been a noticeable shift in the way that Australian manufacturers organise their production. In the first half of this century, manufacturing absorbed a greater proportion of the Australian workforce than the proportion of GDP that it produced. In 1921, the share of total employment accounted for by manufacturing exceeded its GDP share by slightly more than 50%.

Since then, Australian manufacturing has become progressively less labour-intensive with its labour share of GDP moving towards the average for the economy as a whole around 1960. This trend has continued over the past few decades. At present manufacturers use slightly fewer employees on average to produce a particular volume of goods or services than is the case for the economy as a whole. The above references to productivity are based on a crude measure only (one that does not distinguish between average working hours in different industries).

Structural change within
manufacturing

The industry structure of Australian manufacturing reflects Australia's strengths as a resource based economy. In 1997-98, almost half of the total production of Australian manufactures (in terms of constant price value added) was produced by the resource-based industries of Food, beverage and tobacco manufacturing, Metal product manufacturing and Petroleum, coal, chemical and associated product manufacturing. These industries also contributed a high proportion of manufacturing employment (44% in August 1998). However, individually the largest of the broad manufacturing industries was Machinery and equipment manufacturing which accounted for 25% of manufacturing production and slightly less than 20% of the manufacturing workforce.

The industries with the fastest growing production between 1987-88 and 1997-98 were Machinery and equipment manufacturing (31%), Petroleum, coal chemical and associated product manufacturing (23%), Food, beverage and tobacco manufacturing (20%) and Printing, publishing and recorded media (also 20%). Conversely, production by the Textile, clothing, footwear and leather manufacturing industry declined (by 19%) as did production by the Non-metallic mineral product manufacturing industry (by 8%).

MANUFACTURING'S CONTRIBUTION TO TOTAL AUSTRALIAN PRODUCTION

This section presents information on the manufacturing industry contribution to the Australian economy. Industry shares are given for Australia and for States and Territories. The measure used to represent production is gross product at factor cost. Estimates for rates of growth in manufacturing production have also been provided. Readers should regard these as indicative only as growth rates depend heavily on whether the start and end points for comparison are at the same stage of the business cycle or not and on the availability of appropriate price deflators.

Manufacturing contributed more to Australian production in 1996–97 than any other industry. However, the combined contribution of manufacturing and the other goods producing industries was substantially less than the combined contribution of the service industries—see table 1.2 below.

Over the 10 year period to 1996–97, manufacturing's share of national production fell from 16.7% to 14.2%. However, this does not mean that production fell in absolute terms. In fact manufacturing production grew between 1986–87 and 1996–97 (see the article on Production levels which follows this article). Rather, the fall in share does mean though that manufacturing production did not grow as quickly as production for some other industries, in particular some service industries.

During this period the overall proportion of national output accounted for by the goods producing industries fell, while the overall contribution of the service industries grew. The fastest growing industries were finance and insurance (which increased its contribution from 1.6% to 3.7%) and property and business services (from 7.4% to 9.6%).

Table 1.1 shows industry percentage shares of the Australian gross product and of the State and Territory gross products for 1996–97.

1.1 INDUSTRY SHARES(a) OF TOTAL PRODUCTION—1996–97

<i>Industry</i>	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
Agriculture, forestry and fishing	2.8	2.9	4.3	5.0	5.1	5.8	5.2	0.1	3.5
Mining and services to mining	1.8	2.3	4.8	2.1	16.9	2.6	10.7	0.0	4.1
Manufacturing	14.4	17.9	11.7	17.0	9.8	14.8	4.9	2.3	14.2
Electricity, gas and water supply	2.7	3.0	2.9	3.3	3.2	5.6	2.1	1.9	2.9
Construction	6.3	5.5	7.4	5.8	8.1	6.4	8.2	7.2	6.5
Wholesale trade	6.4	6.4	5.7	4.9	5.3	4.2	3.8	2.1	5.9
Retail Trade	7.2	7.6	9.5	8.2	7.1	9.5	8.3	6.5	7.8
Transport and storage	5.2	4.6	6.6	5.5	4.6	4.2	5.7	3.0	5.2
Communication services	3.1	3.5	3.0	2.6	2.6	2.4	3.0	2.5	3.1
Finance and insurance	4.7	4.1	2.7	3.2	1.7	1.8	2.6	2.8	3.7
Property and business services	11.3	10.4	6.9	8.4	8.4	5.5	6.6	10.5	9.6
Government administration and defence	3.5	3.2	4.2	3.1	2.6	4.8	8.3	28.0	4.0
Education, health and community services	10.2	11.5	10.9	13.5	9.8	13.5	12.3	11.5	11.0
Other services(b)	6.5	6.1	7.5	6.2	5.2	6.6	9.9	8.2	6.5

(a) Percentages for individual industries do not always sum to 100 because certain items included in the calculation of State and national production but are not relevant to industry level.

(b) Includes Accommodation, cafes and restaurants; Cultural and recreational services; and Personal and other services.

Source: ABS. Normally published in *Australian National Accounts: State Accounts*, (Cat no 5222.0). This publication temporarily withdrawn. Next issue (1997–98) expected to be released in April 1999.

States and Territories Of the industries listed in table 1.2, manufacturing was the largest contributor to total 1996–97 production in all States except Western Australia. In New South Wales, Victoria and South Australia, manufacturing contributed substantially more than the next largest industry—Property and business services in New South Wales and Education, health and community services in both Victoria and South Australia. Queensland and Tasmania showed smaller differences between the contribution by manufacturing and the contribution by the next largest industry—Education, health and community services.

In Western Australia, the mining industry was the largest contributor to total 1996–97 production, with the next biggest contribution shared by the manufacturing industry and the Education, health and community services industry. Manufacturing remains a relatively small industry in the two Territories.

The absolute size of the manufacturing industry grew in all States and Territories over the 10 years to 1996–97. Queensland manufacturing experienced the fastest growth rate of any State, growing at an average annual rate of 3.3% compared with national manufacturing growth which averaged 1.7% per annum over the same period. Average growth rates for other States were around 3.0% for Western Australia, 1.8% for South Australia, 1.4% for New South Wales, 1.2% for Victoria and 0.7% for Tasmania. Manufacturing in the Territories also grew in absolute terms during this period, at around 4.1% per annum in the Northern Territory and 2.1% in the Australian Capital Territory.

States and Territories
continued

Consistent with the national trend, despite growth in absolute terms, the manufacturing industry share of total production fell in all States over the 10 years. However, in South Australia manufacturing has maintained its relative importance with its share of total production decreasing only marginally (by 0.9%). Manufacturing in the Northern Territory has also maintained its share, increasing slightly over the 10 years (by 0.6%).

Decreasing shares of production were experienced to varying degrees by other goods producing industries over the period, with the notable exception of the mining industry in Western Australia which increased its share of Western Australian production from 13.1% to 16.9%. In general, the services industries grew the fastest over the period and increased their shares of total production at the expense of the goods producing industries. In particular, the finance and insurance industry exhibited rapid growth in all States with property and business services, communication services and other services growing at different rates from State to State.

PRODUCTION LEVELS

This article presents information on the amount of production for manufacturing and other industries. The variable used to measure production is gross product at factor cost which measures the value that industries add to their inputs. Data are presented in constant price terms (average 1989–90 prices). Thus, changes shown throughout this article in the tables, in the graph and in the commentary represent changes in the volume of production.

Manufacturing compared to
other industries

Table 1.2 shows that in terms of production (value added), manufacturing was the largest industry in the Australian economy in 1997–98. However, except for the Agriculture, forestry and fishing industry and the Education industry (both of which experienced production falls between 1996–97 and 1997–98), manufacturing experienced the lowest growth. At 1.5%, manufacturing production growth was substantially lower than growth by Communication services (up 12.8%), Property and business services (up 9.4%) and Construction (up 8.2%).

1.2 PRODUCTION LEVELS(a)

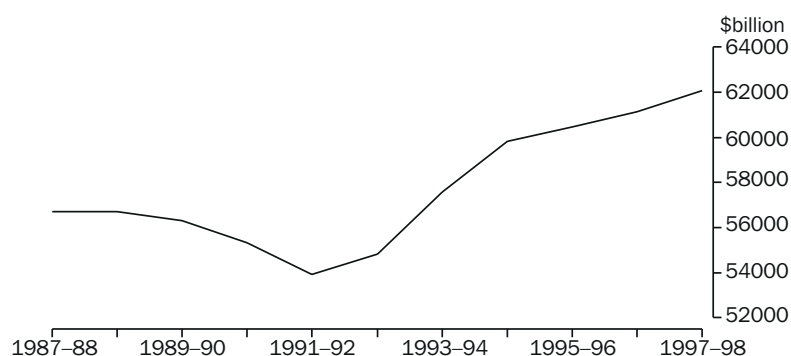
Industry	1996-97	1997-98	Change
	\$ billion(a)	\$ billion(a)	%
Agriculture, forestry and fishing	17 506	17 117	-2.2
Mining and services to mining	19 386	20 397	5.2
Manufacturing	61 138	62 066	1.5
Electricity, gas and water supply	14 271	14 714	3.1
Construction	29 070	31 450	8.2
Wholesale trade	46 251	47 868	3.5
Retail trade	31 636	33 204	5.0
Transport and storage	25 499	26 384	3.5
Communication services	17 625	19 888	12.8
Finance and insurance	26 052	27 379	5.1
Property and business services	37 049	40 532	9.4
Education	19 181	18 921	-1.4
Health and community services	23 465	24 514	4.5
Other services(b)	25 725	26 973	4.9

(a) At average 1989-90 prices.

(b) Includes Accommodation, cafes and restaurants, Cultural and recreational services and Personal and other services.

Source: ABS, Australian National Accounts: National Income, Expenditure and Product, June quarter 1998 (Cat. no. 5206.0).

1.3 MANUFACTURING PRODUCTION



Source: ABS, Australian National Accounts: National Income, Expenditure and Product, June 1998 (Cat. no. 5206.0).

Manufacturing production

Closely mirroring the business cycle, manufacturing production declined in the early 1990s before growing relatively strongly to 1994-95 then more moderately in the period since then. Production in 1997-98 was 15% higher than it had been 10 years earlier in 1987-88. On a per capita basis (i.e. per head of population) manufacturing production increased by around 2% over the 10 year period.

Production growth over the last 10 years has been slowest for manufacturing in comparison to the other major industries. Highest growth by far over that period has been the 181% growth by the Communication services industry followed by 56% growth by the Finance and insurance industry. Growth by other industries over the same period includes Transport 46%, Mining 39%, Retail Trade 32%, Construction 32% and Agriculture 26%.

1.4 PRODUCTION LEVELS

<i>Industry</i>	1996-97	1997-98	Change
	<i>\$ billion</i>	<i>\$ billion</i>	<i>%</i>
Food, beverage and tobacco mfg	12 732	13 411	5.3
Textile, clothing, footwear and leather mfg	2 814	2 704	-3.9
Wood and paper product mfg	3 297	3 454	4.8
Printing, publishing and recorded media	3 454	6 035	11.1
Petroleum, coal, chemical and associated product mfg	6 410	6 712	4.7
Non-metallic mineral product mfg	2 537	2 406	-5.2
Metal product mfg	9 708	9 027	-7.0
Machinery and equipment mfg	15 728	15 632	-0.6
Other mfg	2 479	2 685	8.3
Total mfg	61 138	62 066	1.5

Source: ABS, *Australian National Accounts: National Income, Expenditure and Product June 1998* (Cat. no. 5206.0).

Table 1.4 shows that generally, manufacturing subdivisions demonstrated quite mixed results between 1996-97 and 1997-98. Examples of industries that grew strongly include Printing, publishing and recorded media (by 11.1%), and Other manufacturing (by 8.3%). Those where production fell included Metal product manufacturing (by 7%) and Non-metallic mineral product manufacturing (by 5.2). Over the 10 years from 1987-88 to 1997-98, relatively strong growth was experienced by Machinery and equipment manufacturing (31%), Petroleum, coal chemical and associated product manufacturing (23%), Food, beverage and tobacco manufacturing (20%) and Printing, publishing and recorded media (also 20%). On the other hand, some industries declined over the 10 year period. Production by the Textile, clothing, footwear and leather manufacturing industry fell by 19% over the period while a smaller fall (8%) was experienced by the Non-metallic mineral product manufacturing industry.

RECENT GROWTH IN AUSTRALIAN MANUFACTURING INDUSTRY

This section on growth of the Australian manufacturing industry contains two parts. The first part presents ABS management unit statistics by industry while the second presents ABS management unit statistics by size of business. Information on manufacturing growth also appears in other sections of this publication.

By industry This section presents statistics for sales of goods and services, cost of sales and trading profit (see Glossary for definitions). Trading profit represents profit from trading operations only. It does not take account of all business income and expense items. It ignores interest income and some sundry income sources. More importantly, it does not take account of labour costs, depreciation, interest expenses or some other relatively minor expense items. Analyses covering all income and expense items are contained in chapter 2. The statistics in this section relate to the performance of management units (businesses).

1.5 SALES AND TRADING PROFITS

<i>Industry/period</i>	<i>Sales of goods and services</i>	<i>Cost of sales(a)</i>	<i>Trading profit</i>
	<i>\$ million</i>	<i>\$ million</i>	<i>\$ million</i>
Food, beverage and tobacco mfg			
1992-93	37 919	27 508	10 411
1994-95	42 757	31 522	11 235
1995-96	44 378	32 559	11 819
1996-97	45 563	33 659	11 904
Textile, clothing, footwear and leather mfg			
1992-93	9 024	6 050	2 974
1994-95	10 175	7 129	3 047
1995-96	9 987	6 898	3 089
1996-97	10 629	7 151	3 477
Wood and paper product mfg			
1992-93	10 161	6 433	3 728
1994-95	12 099	7 468	4 632
1995-96	11 892	7 774	4 118
1996-97	11 838	7 503	4 335
Printing, publishing and recorded media			
1992-93	11 750	6 359	5 391
1994-95	13 040	6 782	6 258
1995-96	13 724	7 328	6 396
1996-97	15 211	8 456	6 756
Petroleum, coal, chemical and associated product mfg			
1992-93	31 811	23 929	7 881
1994-95	33 249	24 610	8 639
1995-96	35 470	26 345	9 126
1996-97	37 158	28 104	9 054
Non-metallic mineral product mfg			
1992-93	8 942	5 738	3 204
1994-95	9 789	6 092	3 697
1995-96	9 532	5 933	3 599
1996-97	9 760	6 215	3 546
Metal product mfg			
1992-93	28 916	20 387	8 529
1994-95	32 781	22 319	10 462
1995-96	35 394	24 473	10 921
1996-97	34 782	23 760	11 022
Machinery and equipment mfg			
1992-93	34 088	24 015	10 073
1994-95	40 575	28 680	11 896
1995-96	41 618	28 807	12 811
1996-97	41 983	29 411	12 572
Other mfg			
1992-93	5 195	3 369	1 826
1994-95	6 054	4 010	2 044
1995-96	5 734	3 706	2 028
1996-97	6 200	4 077	2 123
Total mfg			
1992-93	177 805	123 788	54 017
1994-95	200 521	138 611	61 909
1995-96	207 729	144 146	63 583
1996-97	213 125	148 336	64 789

(a) Data for 1994-95 to 1996-97 inclusive are as per the definitions in the Glossary. However, 1992-93 cost of sales estimates also include payroll tax, fringe benefits tax, capitalised purchases of materials and bank charges. Even in combination, these items are small relative to the overall cost of sales. Thus, comparisons of estimates for 1992-93 and estimates for other periods are only slightly affected by the differences in definition.

Source: ABS, unpublished data, Manufacturing Survey.

Growth from 1992–93 to 1996–97

Table 1.5 shows that between 1992–93 and 1996–97, sales of goods and services by manufacturing businesses grew from \$177,805 million to \$213,125 million (up almost 20%). Over the same period, prices for Australian manufactured goods increased by approximately 6.6% which implies that the volume of goods and services produced by manufacturing businesses increased by around 12% over that period. Cost of sales and trading profit had an almost identical percentage increase to sales of goods and services over the period in current price terms.

However, not all industry subdivisions behaved in the same manner. The largest percentage growth in sales of goods and services between 1992–93 and 1996–97 was by Printing, publishing and recorded media (up 29.5%) and Machinery and equipment manufacturing (up 23.2%). The least growth over the same period was by Non-metallic mineral product manufacturing (up 9.1%). Trading profit grew most strongly in Metal product manufacturing (up 29.2%), Printing, publishing and recorded media (up 25.3%) and Machinery and equipment manufacturing (up 24.8%) and grew least in Non-metallic mineral product manufacturing (up 10.7%), Food, beverage and tobacco manufacturing (up 14.3%) and Petroleum, coal, chemical and associated product manufacturing (up 14.9%).

Trading profit percentage growth kept pace with sales growth for manufacturing as a whole over the period. However, nearly half of the growth of manufacturing trading profit from 1992–93 to 1996–97 was contributed by two industries, Machinery and equipment manufacturing and Metal product manufacturing. These two subdivisions had sales growth outstripping that for cost of sales. Six industry subdivisions experienced cost of sales increasing more quickly than sales of goods and services, with the consequence that trading profit for these subdivisions grew more slowly than sales growth.

Growth from 1995–96 to 1996–97

For the period 1995–96 to 1996–97, sales of goods and services by the manufacturing industry also grew (by 2.6%) while average prices increased by 0.6%, implying growth in the volume of goods and services produced of a little under 2%. Cost of sales grew by 2.9% over the period and trading profit grew by 1.9%.

Between 1995–96 and 1996–97, all manufacturing subdivisions increased their sales of goods and services except Metal product manufacturing (down 1.7%) and Wood and paper product manufacturing (down 0.4%). The largest percentage increase was by Printing, publishing and recorded media (up 10.9%), followed by Other manufacturing (up 8.2%). As was the case for the manufacturing industry overall, seven industry subdivisions experienced percentage increases in the cost of sales greater than in sales of goods and services. Trading profit rose in five industry subdivisions and fell in the other four. The largest increases in trading

Growth from 1995–96 to 1996–97 *continued* profit were by Textile, clothing, footwear and leather manufacturing (up 12.7%), followed by Printing, publishing and recorded media (up 5.3%) and Wood and paper product manufacturing (up 4.8%). The largest decrease was by Machinery and equipment manufacturing (down 3.2%).

By size of business This section presents management unit statistics about business growth or decline. The estimates have been compiled from the Growth and Performance Surveys conducted by the ABS. These surveys adopt a longitudinal study approach (i.e. the same businesses reporting in a series of annual surveys) to measure changes in growth and performance over time. It is intended that the Growth and Performance Survey be conducted annually for a further two years beyond the 1996–97 Survey.

Manufacturing businesses Table 1.6 shows the proportion of manufacturing businesses which experienced changes in employment levels and/or changes in income levels between 1995–96 and 1996–97. Because there are many more small businesses in the manufacturing industry than large and medium sized businesses, proportions for total businesses will naturally tend toward the results experienced by small businesses. However, while few in number, large businesses account for around 40% of total employment in manufacturing and around 50% of manufacturing income. Thus, changes by large business will have more influence on manufacturing activity than would similar changes by small business.

1.6 EMPLOYMENT AND INCOME CHANGE(a), BY BUSINESS SIZE(b)

<i>Business</i>	EMPLOYMENT(c)			INCOME		
	<i>Higher in 1996–97</i>	<i>Static</i>	<i>Lower in 1996–97</i>	<i>Higher in 1996–97</i>	<i>Static</i>	<i>Lower in 1996–97</i>
	%	%	%	%	%	%
Micro businesses	21	62	17	30	45	25
Other small businesses	26	49	26	34	48	18
<i>Total small businesses</i>	23	56	21	32	46	22
Medium-sized businesses	23	50	27	32	48	20
Large businesses	18	60	22	18	65	17
All businesses	23	56	22	32	47	22

(a) Change in employment or income means that current year levels are more than 10% different to previous year levels.

(b) For definitions of the various business sizes see 'Business size' or the individual entries in the Glossary.

(c) Employment is measured at the end of the reference year.

Source: ABS, *Small and Medium Enterprises, Business Growth and Performance Survey, Australia 1996–97* (Cat. no. 8141.0).

Employment More than half of the manufacturing businesses surveyed showed static employment levels from mid–1996 to mid–1997 (static levels means no more than 10% change in either direction). Of those businesses which did experience change, between mid–1996 and mid–1997, most medium-sized and most large businesses lowered their employment levels, while the opposite was the case for small businesses.

Income Income was more volatile than employment with only 47% of manufacturing businesses reporting static income levels between 1995–96 and 1996–97 (static levels means no more than 10% change in either direction). Of the 53% of manufacturing businesses which did experience changed income levels, about 60% had rises and 40% had falls.

All size categories recorded a higher proportion of businesses experiencing a rise in income, rather than a fall, between 1995–96 and 1996–97.

For all sizes of manufacturing business except large businesses, a higher proportion experienced income rises than experienced employment rises. For large businesses, these proportions were equal.

Manufacturing businesses compared to retail businesses Comparing small businesses in the manufacturing industry with small businesses in the retail industry shows that employment levels were static for 56% of small manufacturers and for 61% of small retailers. Small manufacturers had both a greater proportion of businesses raising their employment levels (23% compared to 22% for small retailers) and a greater proportion lowering their employment levels (21% compared to 18% for small retailers).

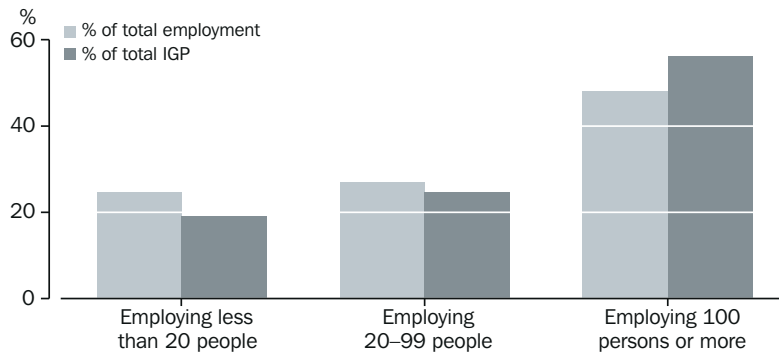
Extending this comparison to income, reveals that income levels were static for 46% of small manufacturers and for 58% of small retailers. Although for both industries the proportion of small businesses experiencing income increases was greater than the proportion experiencing decreases, the proportion of small manufacturers which had an increase (32%) was considerably higher than that for small retailers (25%).

MANUFACTURING ACTIVITY BY SIZE OF ESTABLISHMENT

Statistics in this section are based on data for manufacturing establishments. It shows the extent to which the larger manufacturing establishments dominate their industries. The economic variables used to illustrate the contributions by establishment size are employment (at 30 June 1997), and 1996–97 Industry gross product (IGP) which measures the value added by an industry. Definitions are contained in the Glossary.

Dominance by large establishments The general pattern in Australian manufacturing industries is for a small number of large manufacturing establishments to dominate activity levels in their industries. Though relatively few in number, large manufacturing establishments (those employing 100 or more people) employ 48.2% of the manufacturing workforce and generate 56.1% of manufacturing IGP. Establishments employing 20–99 people account for 27% of the manufacturing workforce and generate 24.7% of manufacturing IGP. The remaining 24.8% of the manufacturing workforce and 19.2% of IGP are contributed by a large number of small establishments. This means that generally value added per person employed in larger establishments is greater than in smaller establishments. This general pattern remained the same from 1995–96 to 1996–97.

1.7 PRODUCTION AND EMPLOYMENT—1996–97



Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

All manufacturing subdivisions (except Other manufacturing where small businesses are more dominant) tend to follow this pattern. The highest degree of industry dominance of IGP (value added) by large establishments is 74% for Food, beverage and tobacco manufacturing. Six of the subdivisions have more than 50% of IGP contributed by large establishments. Large establishments typically contribute more to IGP than to employment levels.

Note: Table 1.8 indicates that Metal product manufacturing is an exception to the pattern of large establishments generating more IGP per person employed than smaller establishments. However, this result is influenced by the way in which unincorporated joint venture operations are included in the statistics (each venturer is included as a separate business unit, each reflecting its individual share of the operation). If each of these joint venture operations were to be treated as a single business unit in the statistics, it is highly probable that the Metal product manufacturing industry would reflect a similar dominance pattern to the other manufacturing industries and that the large establishment dominance would be more pronounced for manufacturing as a whole.

<i>Industry</i>	<i>Employing less than 20 people</i>		<i>Employing 20–99 people</i>		<i>Employing 100 or more persons</i>	
	<i>Proportion of total employment</i>	<i>Proportion of total IGP</i>	<i>Proportion of total employment</i>	<i>Proportion of total IGP</i>	<i>Proportion of total employment</i>	<i>Proportion of total IGP</i>
	%	%	%	%	%	%
Food, beverage and tobacco mfg	10.5	6.1	22.3	20.2	67.2	73.8
Textile, clothing, footwear and leather mfg	35.5	25.7	27.5	28.8	37.0	45.5
Wood and paper product mfg	34.7	18.9	26.5	25.5	38.8	55.6
Printing, publishing and recorded media	29.0	18.5	27.7	25.6	43.3	55.9
Petroleum, coal, chemical and associated product mfg	15.7	9.5	34.1	31.1	50.2	59.3
Non-metallic mineral product mfg	24.1	12.8	28.7	28.6	47.3	58.6
Metal product mfg	28.0	41.4	29.2	23.5	42.8	35.2
Machinery and equipment mfg	20.8	13.6	23.3	20.6	55.9	65.9
Other mfg	55.1	48.2	34.1	38.3	10.8	13.4
Total mfg	24.8	19.2	27.0	24.7	48.2	56.1

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

WHERE IS MANUFACTURING CARRIED OUT?

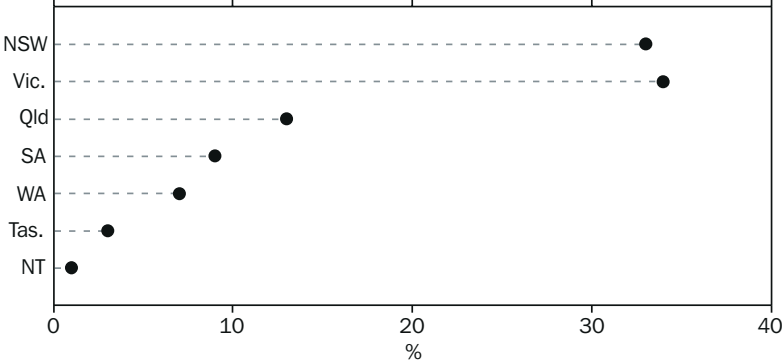
This section is based on manufacturing establishment statistics. It shows how manufacturing activity is spread across and within Australia's States and Territories and shows which broad industries are of most importance to those States and Territories. References to 'production' in this article refer to 'industry gross product' (see Glossary for definition). The ABS industry classification system is in the article 'What is the manufacturing industry'. Some further State and regional analysis is provided on an industry basis in chapter 2.

AUSTRALIA—STATES AND TERRITORIES



1996–97 Production and employment

1.9 MANUFACTURING PRODUCTION—1996–97



Source: ABS, Manufacturing Industry, Australia, 1996–97 (Cat. no. 8221.0).

1996–97 Production and employment *continued*

As shown by graph 1.9, Victoria had the largest share of Australian manufacturing production in 1996–97 closely followed by New South Wales and followed then, at a lower level of activity, by the other States and by the Territories. The pattern was similar for persons employed in manufacturing in June 1997 except that New South Wales employment in manufacturing was slightly greater than Victorian employment.

1.10 MANUFACTURING ACTIVITY

<i>State and Territory</i>	<i>Employment at 30 June 1997</i>	<i>1996–97 turnover</i>	<i>1996–97 IGP</i>
	<i>'000</i>	<i>\$ billion</i>	<i>\$ billion</i>
New South Wales	310	68.1	21.0
Victoria	307	68.5	21.8
Queensland	141	30.4	8.7
South Australia	85	18.6	5.6
Western Australia	74	16.8	4.7
Tasmania	22	4.7	1.6
Northern Territory	3	0.9	0.3
Australian Capital Territory	4	0.6	0.2
Australia	946	208.4	63.8

Source: ABS, *Manufacturing Industry, 1996–97* (Cat. nos. 8221.1–8221.6).

STATISTICAL DIVISIONS—NEW SOUTH WALES



In 1996–97, New South Wales had the largest manufacturing employment (310,000 persons) and the second largest manufacturing production (\$21.0 billion) of all the States and Territories. The largest manufacturing industries within New South Wales are Metal product manufacturing with 53,800 employed and \$4.1 billion of production, Machinery and equipment manufacturing (64,200 and \$3.8 billion), Food, beverage and tobacco manufacturing (48,500 and \$3.1 billion), Printing, publishing and recorded media (39,600 and \$3.0 billion) and Petroleum, coal, chemical and associated product manufacturing (32,600 and \$3.2 billion).

Table 1.11 below shows that around 70% of New South Wales manufacturing activity takes place in the Sydney Statistical Division and that the Hunter and Illawarra Statistical Divisions are the only other individual statistical divisions with a significant share of New South Wales manufacturing activity. In terms of employment these three statistical divisions account for over 85% of manufacturing employment in New South Wales. The industries listed above as the largest manufacturing industries in New South Wales are also the largest manufacturing industries in Sydney. Approximately 13,600 factories operate within the Sydney Statistical Division and 219,000 people are employed in those factories. In both Hunter and Illawarra Statistical Divisions, by far the largest industry is Metal product manufacturing. This industry employs around 10,000 persons in each of these two statistical divisions. For remaining statistical divisions within New South Wales, Food, beverage and tobacco manufacturing is the largest industry accounting for around half of the manufacturing turnover.

1.11 MANUFACTURING ACTIVITY—NEW SOUTH WALES

<i>Statistical Division</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996–97 turnover</i>
	%	%	%
Sydney	71.8	71.6	70.3
Hunter	6.6	8.2	9.4
Illawarra	4.3	5.8	8.1
Richmond-Tweed	3.0	1.6	0.9
Mid North Coast	3.5	2.4	1.8
Northern	2.0	1.5	1.1
North Western	1.2	1.0	0.7
Central West	1.8	2.6	2.4
South Eastern(a)	2.4	1.4	1.0
Murrumbidgee	1.8	2.3	2.5
Murray	1.5	1.6	1.7
Far West(b)	0.2	0.1	0.0

(a) Excludes Australian Capital Territory.

(b) Manufacturing production in the far west of NSW is less than 0.05% of the NSW total.

Source: ABS, *Manufacturing Industry, New South Wales, 1996–97* (Cat. no. 8221.1).

STATISTICAL DIVISIONS—VICTORIA



Victoria In 1996–97, Victoria had the largest manufacturing production (\$21.8 billion) and the second largest manufacturing employment (307,000 persons) of all the States and Territories. The largest manufacturing industries within Victoria were Machinery and equipment manufacturing with 73,900 employed and \$5.7 billion of production, Food, beverage and tobacco manufacturing (46,400 and \$3.7 billion) and Petroleum, coal, chemical and associated product manufacturing (36,000 and \$3.5 billion).

Table 1.12 below shows that over 75% of Victorian manufacturing activity takes place in the Melbourne Statistical Division and that the Barwon Statistical Division is the only other statistical division with a significant share of Victorian manufacturing activity. The industries listed above as the largest manufacturing industries in Victoria are also the largest manufacturing industries within Melbourne. Approximately 14,400 factories operate within the Melbourne Statistical Division and around 242,000 people are employed in those factories. In Barwon Statistical Division, the largest industry is Petroleum, coal, chemical and associated product manufacturing. The largest industry in Western District Statistical Division is Metal product manufacturing while Wood and paper product

Victoria *continued*

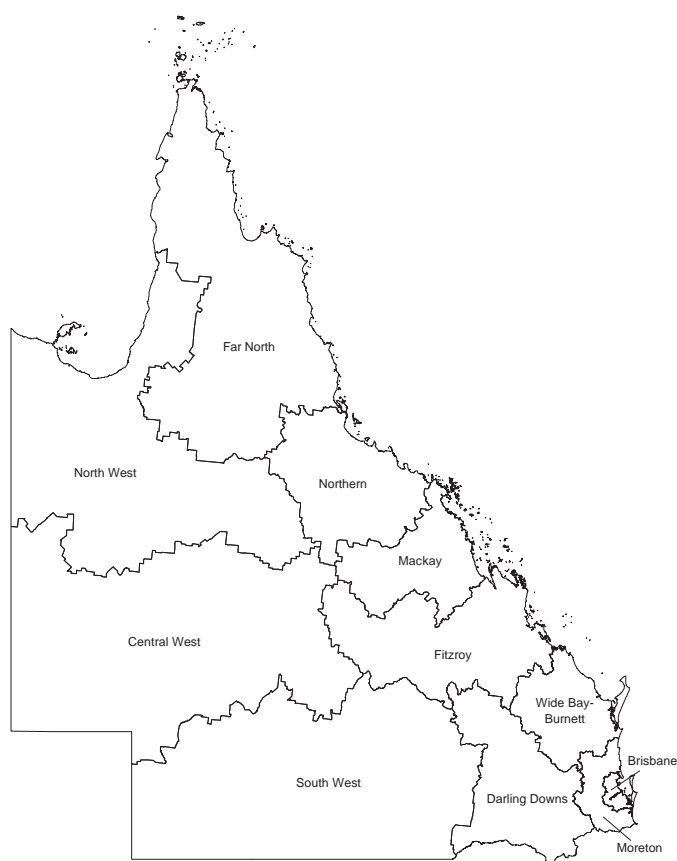
manufacturing is the largest in Gippsland Statistical Division. For the remaining statistical divisions within Victoria, Food, beverage and tobacco manufacturing is the largest manufacturing industry.

1.12 MANUFACTURING ACTIVITY—VICTORIA

<i>Statistical Division</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996-97 turnover</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Melbourne	82.0	80.4	77.0
Barwon	3.5	4.6	7.0
Western District	1.2	1.4	2.1
Central Highlands	2.1	2.5	2.1
Wimmera	0.8	0.5	0.3
Mallee	1.1	0.7	0.9
Loddon	2.1	2.5	1.7
Goulburn	2.9	3.1	3.6
Ovens-Murray	1.3	2.0	3.0
East Gippsland	1.1	0.7	0.6
Gippsland	1.9	1.6	1.7

Source: ABS, *Manufacturing Industry, Victoria, 1996-97* (Cat. no. 8221.2).

STATISTICAL DIVISIONS—QUEENSLAND



Queensland Queensland is the third largest of the States and Territories in terms of both manufacturing employment (141,000 persons) and manufacturing production (\$8.7 billion). The largest manufacturing industries within Queensland are Food, beverage and tobacco manufacturing with 34,300 employed and \$2.1 billion of production, Metal product manufacturing (24,900 and \$2.0 billion), Machinery and equipment manufacturing (24,300 and \$1.1 billion) and Petroleum, coal, chemical and associated product manufacturing (10,800 and \$1.1 billion).

Manufacturing activity is generally more dispersed in Queensland than in other mainland States but is less dispersed than in Tasmania. Table 1.13 below shows that a little over half of Queensland manufacturing activity takes place in the Brisbane Statistical Division. The industries listed above as the largest manufacturing industries in Queensland are also the largest manufacturing industries in Brisbane. Approximately 4,850 factories operate within the Brisbane Statistical Division and almost 80,000 people are employed in those factories. Outside Brisbane, there are two Statistical Divisions with more than \$2.0 billion in manufacturing turnover i.e. Fitzroy (\$2.5 billion) and Moreton (\$2.3 billion). In Fitzroy Statistical Division, Metal product manufacturing accounts for almost half of manufacturing employment and over half of manufacturing turnover. Moreton Statistical Division has no dominant industry. Food, beverage and tobacco manufacturing is the largest industry but several other industries are almost as large. Moreton Statistical Division has a high preponderance of small factories, containing 22% of Queensland's factories but contributing only 7% to manufacturing turnover in Queensland. For the remaining statistical divisions within Queensland, Food, beverage and tobacco manufacturing is generally the largest manufacturing industry.

1.13 MANUFACTURING ACTIVITY—QUEENSLAND

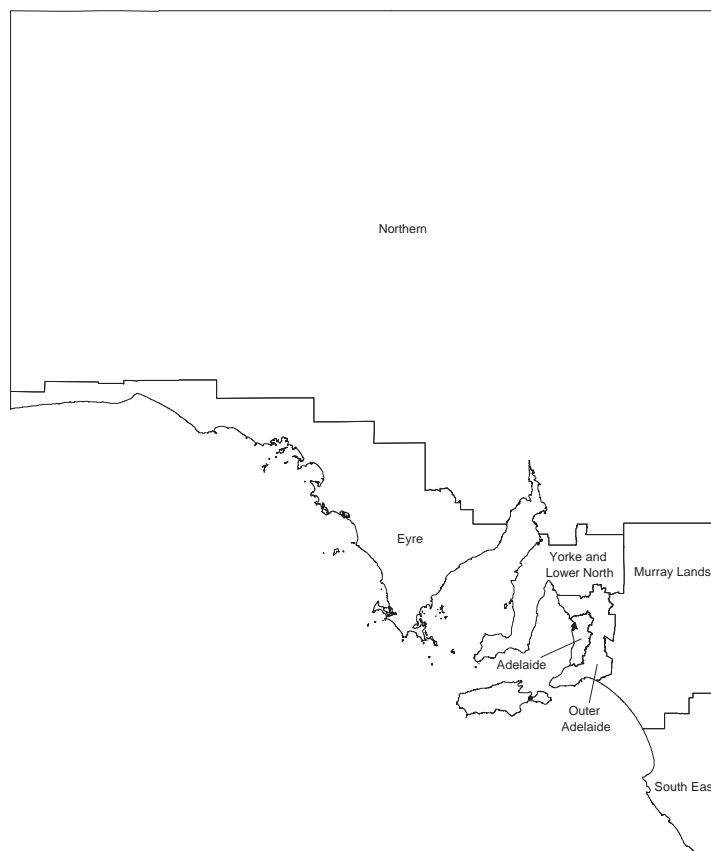
<i>Statistical Division</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996-97 turnover</i>
	%	%	%
Brisbane	49.1	56.9	56.7
Moreton	21.9	12.0	7.6
Wide Bay-Burnett	5.5	6.0	4.9
Darling Downs	5.6	6.8	6.4
South West	0.6	0.3	(a)
Fitzroy	3.6	5.2	8.2
Central West	0.2	0.1	(b)0.0
Mackay	2.9	3.6	4.1
Northern	4.6	4.3	5.9
Far North	5.3	4.0	3.4
North West	0.6	0.8	(a)2.6

(a) Details of Manufacturing turnover in the South West Statistical Division is not available separately. Its contribution has been combined with the contribution of the North West Statistical Division.

(b) Manufacturing in the Central West Statistical Division amounts to less than 0.05% of the Queensland total.

Source: ABS, *Manufacturing Industry, Queensland, 1996-97* (Cat. no. 8221.3).

STATISTICAL DIVISIONS—SOUTH AUSTRALIA



South Australia South Australia is the fourth largest of the States and Territories in terms of both manufacturing employment (85,000 persons) and manufacturing production (\$5.6 billion). The largest manufacturing industries within South Australia are Machinery and equipment manufacturing with 28,300 employed and \$1.8 billion of production and Food, beverage and tobacco manufacturing (15,200 and \$1.3 billion).

Table 1.14 below shows that over 75% of South Australian manufacturing activity takes place in the Adelaide Statistical Division. The industries listed above as the largest manufacturing industries in South Australia are also the largest manufacturing industries in Adelaide. Approximately 3,100 factories operate within the Adelaide Statistical Division and almost 67,000 people are employed in those factories. Outside Adelaide, there are two Statistical Divisions with more than \$1.0 billion in manufacturing turnover i.e. Northern (\$1.4 billion) and Outer Adelaide \$1.1 billion. In Northern Statistical Division, Metal product manufacturing accounts for around 75% of manufacturing employment and almost 90% of manufacturing turnover. In Outer Adelaide Statistical Division, Food, beverage and tobacco manufacturing is the largest industry, accounting for almost 60% of manufacturing employment and almost 75% of manufacturing turnover. For the remaining statistical divisions within

South Australia *continued*

South Australia, Food, beverage and tobacco manufacturing is the largest manufacturing industry except in South East Statistical Division where Wood and paper product manufacturing is the largest.

1.14 MANUFACTURING ACTIVITY—SOUTH AUSTRALIA

<i>Statistical Division</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996-97 turnover</i>
	%	%	%
Adelaide	76.9	78.8	76.5
Outer Adelaide	7.7	5.7	6.0
Yorke and Lower North	2.4	0.9	0.6
Murray Lands	3.8	3.2	3.6
South East	4.2	5.8	5.0
Eyre	1.8	0.7	0.5
Northern	3.3	4.9	7.7

Source: ABS, *Manufacturing Industry, South Australia, 1996-97* (Cat. no. 8221.4).

STATISTICAL DIVISIONS—WESTERN AUSTRALIA



Western Australia Western Australia is the fifth largest of the States and Territories in terms of both manufacturing employment (74,000 persons) and manufacturing production (\$4.7 billion). The largest manufacturing industries within Western Australia are Metal product manufacturing with 16,100 employed and \$1.2 billion of production, Food, beverage and tobacco manufacturing (13,000 and \$0.8 billion), Machinery and equipment manufacturing (12,900 and \$0.7 billion) and Petroleum, coal, chemical and associated product manufacturing (6,500 and \$0.7 billion).

Table 1.15 below shows that almost three quarters of Western Australian manufacturing activity takes place in the Perth Statistical Division. The industries listed above as the largest manufacturing industries in Western Australia are also the largest manufacturing industries in Perth. Approximately 4,400 factories operate within the Perth Statistical Division and over 56,000 people are employed in those factories. Outside Perth, only the South West Statistical Division has significant manufacturing activity with 10,100 employed and almost \$3.0 billion in turnover of which around 45% of employment and around 60% of turnover are contributed by the Metal product manufacturing industry. Perth and South West Statistical Divisions combined contribute 90% of Western Australian manufacturing turnover. Among the remaining Statistical Divisions, South Eastern Statistical Division with 1,500 people employed and \$800 million of turnover is by far the largest. In South Eastern Statistical Division, Metal product manufacturing industry is by far the largest industry. For the balance of statistical divisions within Western Australia, Food, beverage and tobacco manufacturing is the largest manufacturing industry.

1.15 MANUFACTURING ACTIVITY—WESTERN AUSTRALIA

<i>Statistical Divisions</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996–97 turnover</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Perth	79.5	78.1	72.6
South West	8.3	14.0	17.6
Lower Great Southern	2.6	1.8	1.1
Upper Great Southern	0.8	0.4	0.3
Midlands	2.0	1.0	1.1
South Eastern	2.6	2.1	4.9
Central	2.3	1.8	1.9
Pilbara	1.2	0.5	0.3
Kimberley	0.7	0.3	0.2

Source: ABS, *Manufacturing Industry, Western Australia, 1996–97* (Cat. no. 8221.5).



Tasmania While having a substantially larger manufacturing industry than the two Territories, Tasmania is the smallest of the States in terms of both manufacturing employment (21,600 persons) and manufacturing production (\$1.6 billion). The largest manufacturing industries within Tasmania are Wood and paper product manufacturing with 3,800 employed and \$0.5 billion of production, Food, beverage and tobacco manufacturing (5,700 and \$0.4 billion) and Metal product manufacturing (3,400 and \$0.3 billion).

Table 1.16 below shows that less than 40% of Tasmanian manufacturing activity takes place in the Greater Hobart Statistical Division. Hobart is the only State capital which contributes less than half of the State manufacturing activity. Greater Hobart is the largest manufacturing Statistical Division in Tasmania but is only slightly larger than Northern and Mersey–Lyell Statistical Divisions. Approximately 400 factories operate within the Greater Hobart Statistical Division and almost 8,000 people are employed in those factories. Northern Statistical Division contains approximately 350 factories (7,000 people employed) and Mersey–Lyell Statistical Division contains approximately 250 factories (5,600 people employed). Largest industries in Greater Hobart are Food, beverage and

Tasmania *continued*

tobacco manufacturing and Metal product manufacturing. In Northern Statistical Division, largest industries are Metal product manufacturing and Wood and paper product manufacturing. In Mersey–Lyell Statistical Division, largest industries are Food, beverage and tobacco manufacturing and Wood and paper product manufacturing.

1.16 MANUFACTURING ACTIVITY—TASMANIA

<i>Statistical Division</i>	<i>Manufacturing locations at 30 June 1997</i>	<i>Employment at 30 June 1997</i>	<i>1996–97 turnover</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Greater Hobart	36.9	37.2	36.4
Southern	6.8	3.2	3.4
Northern	32.7	32.9	30.1
Mersey–Lyell	23.6	26.7	30.1

Source: ABS, Manufacturing Industry, Tasmania, 1996–97 (Cat. no. 8221.6).

Northern Territory

Manufacturing is not a large industry in the Northern Territory. At 30 June 1997, the Territory contained 328 locations at which manufacturing was the predominant activity. These locations employed 3,400 people and, in 1996–97, generated around \$330 million of production. Metal product manufacturing contributed around 40% of manufacturing employment and almost two thirds of Territory manufacturing production. Of the 328 manufacturing locations in the Northern Territory, the Metal product manufacturing industry accounted for 91, the Machinery and equipment manufacturing industry for 59 with the remainder spread more or less evenly across the remaining broad industries.

Australian Capital Territory

Manufacturing is not a large industry in the Australian Capital Territory. At 30 June 1997, the Territory contained 351 locations at which manufacturing was the predominant activity. These locations employed 3,600 people and, in 1996–97, generated around \$220 million of production. Printing, publishing and recorded media contributed around 40% of the employment and a little over 50% of Territory manufacturing production. Of the 351 manufacturing locations in the Australian Capital Territory, the Printing, publishing and recorded media accounted for 109.

CHARACTERISTICS OF THE MANUFACTURING WORKFORCE

This section presents information about people employed in the manufacturing industry or who have recently left the manufacturing industry. The estimates include working proprietors as well as employees. It also includes information on rates of industrial disputation, industrial accidents and trade union membership for persons employed in the manufacturing industry.

Persons employed in the manufacturing industry In August 1998, the manufacturing industry employed 12.9% of all persons employed in Australia. Males outnumbered females by a ratio of 3 to 1 (75% males and 25% females).

Full time versus part time jobs In August 1998, the vast majority of males employed in the manufacturing industry (95%) were employed full time. The corresponding proportion for females was considerably lower (76%). The proportion of people with full time jobs in manufacturing has fallen slightly over the past 10 years, from 98% for males and 77% for females.

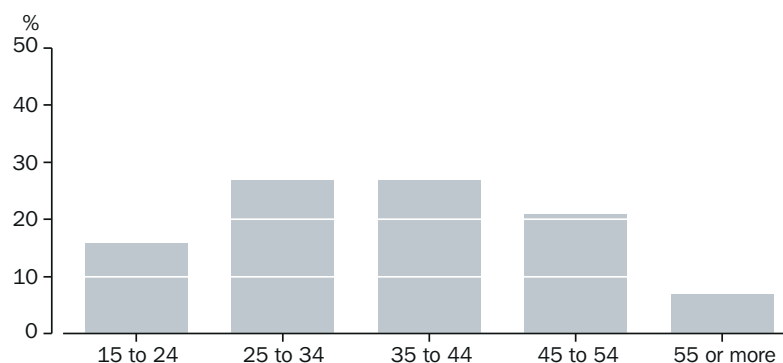
After adjusting for people working zero hours in the survey week (for example, people on leave for the whole week), average hours worked in the manufacturing industry was much the same in August 1998 (40.4 hours) as they had been in August 1988 (40.3 hours). However, some compositional changes have occurred over the 10 year period. The largest change has been to the proportion of people working more than 49 hours per week from just under 16% in 1988 to just over 19% in 1998. Other changes have been a rise from 10% to 11% for people working less than 30 hours and a fall from 43% to 38% for people working from 40 to 48 hours per week. The proportion working 30 to 39 hours was similar at around 31%.

In August 1998, the length of the working week in manufacturing was:

- up to 30 hours for 7% of males and 23% of females;
- 30 but less than 40 hours for 29% of males and 38% of females;
- 40 but less than 49 hours for 41% of males and 31% of females; and
- 49 or more hours for 23% of males and 8% of females.

Age profile

1.17 AGE PROFILE—AUGUST 1998



Source: Labour Force, Australia, August 1998 (Cat. no. 6203.0).

Manufacturing industry subdivisions

At August 1998, the largest manufacturing subdivisions in terms of employment were Machinery and equipment manufacturing (20% of people employed in manufacturing), Metal product manufacturing (17%) and Food, beverage and tobacco manufacturing (17%). The largest employers of males were Machinery and equipment manufacturing (22%), Metal product manufacturing (19%) and Food, beverage and tobacco manufacturing (16%). The largest employers of females were Textile, clothing, footwear and leather manufacturing (19%), Food, beverage and tobacco manufacturing (18%) and Printing, publishing and recorded media (16%).

Comparisons with earlier periods are necessarily approximate due to changes in industry classifications used. However, in August 1988, relative industry sizes appear to have been very similar to the current profile (August 1998). Machinery and equipment manufacturing was the largest employer in 1988 (23%) followed by Metal product manufacturing (17%) and Food, beverage and tobacco manufacturing (13%). The most substantial change is that in 1988, Textile, clothing, footwear and leather manufacturing was relatively, an even larger employer of females (25%).

Further information on employment and other aspects of manufacturing industry subdivisions is included in chapter 2.

1.18 EMPLOYED PERSONS—AUGUST 1998

<i>Industry</i>	%
Food, beverage and tobacco mfg	16.7
Textile, clothing, footwear and leather mfg	8.4
Wood and paper product mfg	5.9
Printing, publishing and recorded media	9.7
Petroleum, coal, chemical and associated product mfg	9.0
Non-metallic mineral product mfg	4.9
Metal product mfg	16.9
Machinery and equipment mfg	19.7
Other mfg	8.9
Total mfg	100.0

Source: ABS, Labour Force, Australia, August 1998 (Cat. no. 6203.0).

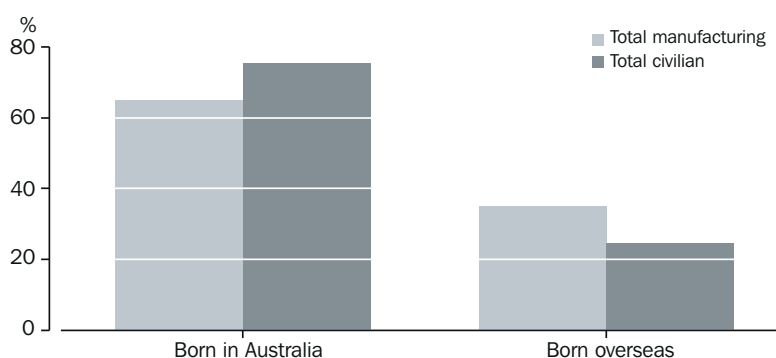
Australian versus Overseas born

As graph 1.19 shows, 65% of people employed in the Australian manufacturing industry in August 1998 were Australian born. The corresponding figure for all civilian industries was 75%. Figures for August 1988 were 63% and 74% respectively. Of all males employed in the Australian manufacturing industry in August 1998, 66% were Australian born. For females, the corresponding proportion was 61%.

Australian versus Overseas
born *continued*

Table 1.20 provides a breakdown of the manufacturing industry. It shows that in August 1998, over half of the people employed in the Textile, clothing, footwear and leather manufacturing industry were born outside Australia (52% of males in the industry and 51% of females). Petroleum, coal, chemical and associated product manufacturing also employed high proportions of people born outside Australia (43% of males, 50% of females and 45% overall).

1.19 EMPLOYED PERSONS, BIRTHPLACE—AUGUST 1998



Source: ABS, Labour Force, Australia, August 1998 (Cat. no. 6203.0).

1.20 EMPLOYED PERSONS, BY BIRTHPLACE—AUGUST 1998

Industry	Born in Australia			Born outside Australia		
	Males	Females	Persons	Males	Females	Persons
	%	%	%	%	%	%
Food, beverage and tobacco mfg	55.2	18.6	73.8	18.0	8.2	26.2
Textile, clothing, footwear and leather mfg	20.4	28.4	48.8	21.7	29.6	51.2
Wood and paper product mfg	60.8	9.4	70.4	24.0	5.6	29.6
Printing, publishing and recorded media	40.4	30.9	71.2	19.0	9.8	28.8
Petroleum, coal, chemical and associated product mfg	38.3	16.4	54.7	29.1	16.2	45.3
Non-metallic mineral product mfg	55.0	10.4	65.2	28.4	6.5	34.8
Metal product mfg	56.1	9.5	65.6	28.5	6.0	34.4
Machinery and equipment mfg	53.4	8.1	61.5	31.2	7.4	38.5
Other mfg	58.7	11.8	70.5	22.9	6.6	29.5
Total mfg	49.7	15.3	65.0	25.1	9.9	35.0
Total civilian	41.9	33.5	75.4	14.4	10.2	24.6

Source: ABS, unpublished data, Labour Force Survey, August 1998.

Unemployed persons previously employed full time

Of the estimated 336,900 people who were unemployed in the survey week in August 1998 but who had been employed full time at some time during the previous two years, 62,600 (19%) had been last employed full time in the manufacturing industry. This was the largest single industry of last employment with only retail trade (15%) being of similar size.

Of the estimated 62,600 people who had been last employed full time in the manufacturing industry, 34,100 (54%) were laid off or retrenched, 13,300 (21%) left involuntarily for other reasons (such as poor health) and 15,200 (24%) left voluntarily.

1.21 UNEMPLOYED PERSONS(a), INDUSTRY OF LAST FULL TIME JOB—AUGUST 1998

<i>Industry of last full-time job</i>	<i>Duration of unemployment</i>		<i>Males</i>	<i>Females</i>	<i>Persons</i>
	<i>Under 1 year</i>	<i>Over 1 year</i>			
	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>
Agriculture, forestry and fishing	17.9	*3.6	15.5	6.1	21.5
Manufacturing	50.5	12.2	48.8	13.8	62.6
Construction	27.0	4.7	30.8	0.9	31.7
Retail trade	40.7	11.4	30.9	21.2	52.1
Accommodation, cafes and restaurants	21.4	*2.8	13.7	10.4	24.2
Property and business services	24.8	*3.9	17.2	11.6	28.8
Other industries	95.6	20.4	73.2	42.8	116.1

(a) Persons aged 15 and over who were in the workforce in August 1998 but not employed during the survey week.

Source: ABS, *Labour Force, Australia, August 1998* (Cat. no. 6203.0).

1.22 UNEMPLOYED PERSONS(a), REASONS FOR LEAVING FULL-TIME JOB—AUGUST 1998

<i>Industry</i>	<i>Job loser</i>						<i>Job leaver</i>			<i>Total</i>
	<i>Laid-off, retrenched</i>			<i>Total(b)</i>			<i>Males</i>	<i>Females</i>	<i>Persons</i>	
	<i>Males</i>	<i>Females</i>	<i>Persons</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>				
	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>	<i>'000</i>
Manufacturing	29.0	5.1	34.1	37.7	9.7	47.4	11.1	4.1	15.2	62.6
Other	87.4	22.7	110.3	132.2	47.7	179.7	49.0	45.6	94.5	274.4
<i>Total</i>	<i>116.5</i>	<i>27.9</i>	<i>144.4</i>	<i>170.0</i>	<i>57.2</i>	<i>227.2</i>	<i>60.0</i>	<i>49.7</i>	<i>109.7</i>	<i>336.9</i>

(a) Persons unemployed in August 1998 but who had worked full-time for at least two weeks in the previous two years.

(b) The difference between job losers laid-off or retrenched and total job losers were those persons who involuntarily left their job because of ill-health or injury; or because the job was seasonal or temporary.

Source: ABS, *Labour Force, Australia, August 1998* (Cat. no. 6203.0).

INDUSTRIAL DISPUTES

Manufacturing compared
with other industries

During 1997 in Australia, of the 447 industrial disputes that occurred, 78 involved the manufacturing industry. Manufacturers lost approximately 139 working days per thousand employees, substantially more than the 75 working days lost per thousand employees for the total of all industries.

While the manufacturing industry employed 15% of the Australian workforce, manufacturing contributed 21% of all employees involved in disputes, the second highest rate after Education, health and community services (26%). Manufacturing also had the highest percentage of working days lost (27%).

The average number of working days lost per employee involved was 2.2 working days in Manufacturing, placing this industry third after Electricity, gas and water (3.8 days) and Mining and services to mining (3.3 days).

Comparing 1987 and 1997 shows that the total number of disputes was 71% less in 1997 (1,518 down to 477), with disputes in the manufacturing industry decreasing by 83% (466 down to 78). This has resulted in the proportion of total disputes, involving manufacturers, decreasing from 31% to 17%. Also over this period, the number of manufacturing employees involved has fallen by 58% (156,600 down to 65,800) and the number of working days lost by manufacturing employees has fallen by 63% (395,000 down to 145,600).

1.23 INDUSTRIAL DISPUTES—1997

Industry	Disputes <i>no.</i>	Employees involved <i>'000</i>	Working days lost <i>'000</i>	Working days	Working days
				lost per employee involved <i>no.</i>	lost per thousand employees <i>no.</i>
Agriculture, forestry and fishing	n.p	0.58	0.16	0.27	0.89
Mining and services to mining	129	29.42	96.84	3.29	1 195.73
Manufacturing	78	65.78	145.62	2.21	138.76
Electricity, gas and water supply	10	3.50	13.31	3.80	202.71
Construction	112	49.60	107.82	2.16	289.95
Wholesale trade	n.p	0.05	0.10	1.94	0.23
Retail trade	—	—	—	—	—
Transport and storage	64	26.58	36.29	1.37	110.14
Communication services	19	15.45	11.43	0.74	79.67
Finance and insurance; Property and business services	7	14.81	15.84	1.07	15.80
Government administration and defence	20	24.76	11.71	0.47	32.63
Education, health and community services	25	82.09	94.05	1.15	72.63
Other services	8	2.34	1.03	0.44	1.31
Total	(a)447	315.37	534.20	1.70	74.93

(a) The total number of disputes does not equal the sum of the disputes in each industry. If a dispute involves a number of industries it is counted separately

Source: ABS, *Industrial Disputes, Australia, 1997* (Cat. no. 6322.0) and unpublished data.

Manufacturing subdivisions Table 1.24 shows that, of the disputes that occurred in the manufacturing industry in 1997, the majority involved Metal product manufacturing (40 disputes), Machinery and equipment manufacturing (19) and Food, beverage and tobacco manufacturing (15). As well as having the three highest working days lost per thousand employees in manufacturing, these subdivisions accounted for 82% of manufacturing employees involved in disputes and 79% of the working days lost.

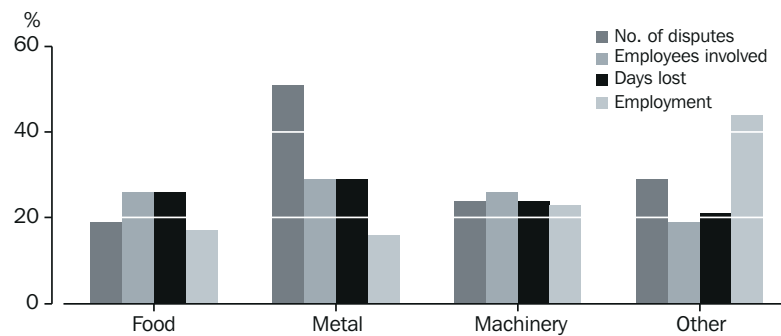
1.24 INDUSTRIAL DISPUTES—1997

	Disputes	Employees involved	Working days lost	Working days lost per employee involved	Working days lost per thousand employees
	no.	'000	'000	no.	no.
Food, beverage and tobacco mfg	15	17.01	37.75	2.22	216.08
Textile, clothing, footwear and leather mfg	4	3.53	8.38	2.38	97.47
Wood and paper product mfg	n.p	2.01	3.28	1.63	55.34
Printing, publishing and recorded media	6	2.70	8.28	3.06	72.24
Petroleum, coal, chemical and associated product mfg	6	3.20	7.54	2.35	73.24
Non-metallic mineral product mfg	n.p	0.87	2.94	3.39	75.82
Metal product mfg	40	19.04	42.43	2.23	247.91
Machinery and equipment mfg	19	17.40	34.52	1.98	144.92
Other mfg	n.p	0.02	0.52	24.62	8.08
Total	(a)78	65.78	145.62	2.21	138.76

(a) The total number of disputes does not equal the sum of the disputes in each industry. If a dispute involves a number of industries it is counted separately for each industry but only once at the total level for Australia.

Source: ABS, *Industrial Disputes, Australia, 1997* (Cat. no. 6322.0) and unpublished data.

1.25 INDUSTRIAL DISPUTES, SELECTED MANUFACTURING SUBDIVISIONS—1997



Source: ABS, *Industrial disputes, Australia, 1997* (Cat. no. 6322.0) and unpublished data.

Manufacturing subdivisions
continued

Graph 1.25 illustrates, as a percentage of total manufacturing, the number of disputes, employees involved, working days lost and employment, that the subdivisions—Food, beverage and tobacco manufacturing (Food), Metal product manufacturing (Metal) and Machinery and equipment manufacturing (Machinery), represent in comparison to the remaining manufacturing subdivisions (Other). Although there were more disputes in Metal product manufacturing, the amount of working days lost and employees involved were similar to those in the Food and Machinery subdivisions.

The number of disputes involving manufacturers decreased by 30% (112 down to 78) from 1996 to 1997, largely due to the decrease by 46% in the Metal product manufacturing subdivision (74 down to 40), as most other subdivisions remained relatively stable. Despite the large drop in the number of disputes in Metal product manufacturing, both the number of employees involved (up 2,900) and the working days lost (up 29,500), in this subdivision, increased.

The number of employees involved increased in all other subdivisions except that of Non-metallic mineral product and the number of working days lost also increased in most subdivisions, except Non-metallic mineral product, Wood and paper products and Machinery and equipment.

Cause of disputes

In the manufacturing industry, the two main causes of disputes ending in 1997, as measured by working days lost, were managerial policy (43,400 days lost) and wages (35,200 days lost), accounting for 48% and 39% of the total, respectively. For all industries, managerial policy, (234,400 days lost) and wages (108,700 days lost), 53% and 24% of the total respectively, were also the two main causes of disputes.

INDUSTRIAL ACCIDENTS

This article is based on data published by the National Occupational Health and Safety Commission in *Compendium of Workers' Compensation Statistics, Australia, 1995-96*. The statistics are compiled from claims for workers' compensation made under Commonwealth, State and Territory workers' compensation Acts which resulted in a fatality, permanent disability or absence from work for five working days or more. Occupational injuries and diseases such as those suffered by self-employed persons or by military personnel within the armed forces, and those not claimed or acknowledged to be work-related are not included in the statistics. Also excluded are injuries suffered in journeys to and from work.

Due to compilation of their statistics on a different basis to other jurisdictions, comparable data for Victoria and the Australian Capital Territory are not available and are therefore excluded from the Australian totals shown below. Thus the data shown in this article will differ from true Australian totals to the extent that Victorian and Australian Capital Territory patterns differ from those of the other jurisdictions.

Manufacturing compared with other industries

New workers' compensation cases reported for 1995–96 are summarised in table 1.26. The manufacturing industry accounted for almost 25% of the total for all industries, considerably more than any other industry division. Manufacturing ranks second behind mining in the incidence of new cases per thousand employees (46.8 compared to 54.0 in Mining) and in the frequency of new cases per million hours worked (24.2 compared to 24.3 in Mining). In both cases, the incidence rates for manufacturing are almost double the rates for all industries.

Comparisons over time are problematic due to methodological and legislative changes in the various jurisdictions. However, it appears that the incidence and frequency of new compensation cases in manufacturing has varied little over the last few years. At the same time, the Mining and Construction industries have both achieved significant reductions in these rates from those recorded in 1993–94.

1.26 NEW WORKERS COMPENSATION CASES(a)—1995–96

	<i>Proportion of all industries total</i>	<i>Incidence (per thousand employees)</i>	<i>Frequency (per million hours worked)</i>
	%	<i>no. of cases</i>	<i>no. of cases</i>
Agriculture, forestry and fishing	4.0	40.7	20.6
Mining	3.1	54.0	24.3
Manufacturing	24.6	46.8	24.2
Electricity, gas and water supply	1.4	30.3	16.6
Construction	9.2	43.4	22.0
Wholesale trade	4.6	18.7	9.4
Retail trade	8.2	14.9	10.3
Accommodation, cafes and restaurants	4.3	22.0	14.6
Transport and storage	7.6	42.0	21.0
Communication	2.5	23.9	12.9
Finance and insurance	0.9	5.2	2.9
Property and business services	5.3	15.2	8.2
Government administration and defence(b)	5.7	24.0	13.6
Education	3.6	11.5	6.7
Health and community services	9.5	24.2	15.8
Cultural and recreational services	1.7	20.1	12.5
Personal and other services	3.3	23.5	13.8
All Industries(b)	100.0	25.5	14.5

(a) Australia less Victoria and the Australian Capital Territory.

(b) Excluding the armed forces.

Source: National Occupational Health and Safety Commission, 1998.

Manufacturing industry subdivisions

Table 1.27 summarises new workers' compensation cases for manufacturing subdivisions in 1995–96. Of the manufacturing subdivisions, Food, beverage and tobacco manufacturing had the highest incidence of injury both on a per thousand employees basis and on a per million hours worked basis. On the other hand, Printing, publishing and recorded media recorded rates about one quarter of those for Food, beverage and tobacco manufacturing with an incidence of 16.5 and a frequency of 9.2.

	<i>Proportion of total manufacturing</i>	<i>Incidence (per thousand employees)</i>	<i>Frequency (per million hours worked)</i>
	%	<i>no. of cases</i>	<i>no. of cases</i>
Food, beverage and tobacco mfg	26.6	64.9	35.1
Textile, clothing, footwear and leather mfg	3.7	26.9	14.5
Wood and paper product mfg	6.9	51.8	27.4
Printing, publishing and recorded media	3.5	16.5	9.2
Petroleum, coal, chemical and associated product mfg	6.3	34.7	17.8
Non-metallic mineral product mfg	4.9	48.1	24.4
Metal product mfg	21.8	55.9	27.7
Machinery and equipment mfg	21.0	48.4	24.0
Other mfg	5.3	39.2	19.9
Manufacturing	100.0	46.8	24.2

(a) Australia less Victoria and the Australian Capital Territory.

(b) Excluding the armed forces.

Source: *National Occupational Health and Safety Commission, 1998.*

Other characteristics of newly reported compensation cases, 1995–96

Manufacturing accounted for 24.6% of new workers' compensation cases in Australia in 1995–96. In terms of various (not mutually exclusive) categories of compensation cases, manufacturing industry's share of all industry totals were:

- Strains of joints or muscles 48.0%.
- Deafness 38.7%.
- Open wounds 33.4%.
- Disease 29.2%.
- Injury and poisoning 23.4%.
- Back injuries 20.3%.

Within the manufacturing industry, Strains of joints or muscles accounted for 41.6% of newly reported compensation cases. Other (not mutually exclusive) categories of compensation cases, and their incidence in manufacturing were:

- Back injuries 20.0%.
- Hand injuries 19.3%.
- Ear injuries 15.8%.

TRADE UNION MEMBERSHIP

Manufacturing compared to other industries

In August 1997, 37% (378,200) of employees in the manufacturing industry were members of a trade union, a higher proportion of members than for industry overall (30%). However, as table 1.28 shows, the manufacturing industry is not as unionised as a number of other industries including Electricity, gas and water supply (66% of employees), Communication services (60%) and Transport and storage (48%).

Of manufacturing employees, 41% (321,500) of males and 23% (56,600) of females were union members. For males, this is a higher proportion than industry overall (33%), while it is a lower proportion for females (27% overall).

Over the five year period, 1992–97, in the manufacturing industry, the proportion of trade union members has fallen 8.2 percentage points, which is less than the 9.7 percentage points fall for industry overall. Only Agriculture, forestry and fishing (down 5.8 percentage points), Wholesale trade (down 4.0 points), Retail trade (down 3.6 points) and Other services (down 7.8 points) had a smaller decrease in membership levels. The proportion of female manufacturing employees who were union members, over this period, has fallen 11.4 percentage points, almost four more points than male manufacturing employees, which fell by 7.5 points.

1.28 TRADE UNION MEMBERSHIP—AUGUST 1997

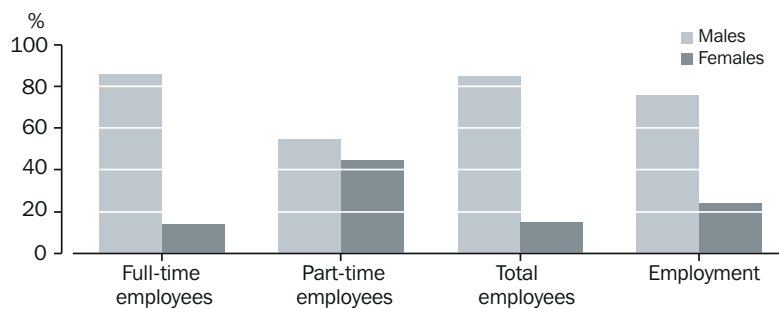
	Trade union members			Trade union members as a proportion of all employees		
	Males	Females	Persons	Males	Females	Persons
	'000	'000	'000	%	%	%
Agriculture, forestry and fishing	9.8	*1.4	11.1	8.4	*3.4	7.1
Mining	32.2	*1.3	33.5	46.6	*18.1	43.9
Manufacturing	321.5	56.6	378.2	41.1	22.5	36.6
Electricity, gas and water supply	40.3	*4.7	45.0	66.6	*60.7	65.9
Construction	112.9	*2.1	115.0	37.0	*5.5	33.5
Wholesale trade	49.2	6.0	55.2	16.3	4.5	12.7
Retail trade	83.4	138.9	222.3	17.8	26.3	22.3
Transport and storage	130.4	17.2	147.6	54.8	23.7	47.5
Communication services	61.8	21.6	83.4	66.9	45.9	59.8
Finance and insurance	37.9	69.2	107.2	28.8	40.6	35.5
Property and business services	50.1	22.5	72.6	12.8	6.8	10.0
Government administration and defence	89.9	55.8	145.6	49.2	36.8	43.5
Education, Health and community services	150.5	381.9	532.4	44.6	39.9	41.2
Personal and other services	96.8	64.4	161.2	26.8	16.3	21.3
Total	1 266.7	843.7	2 110.3	33.0	26.9	30.3

Source: ABS, *Weekly Earnings of Employees (Distribution)*, Australia, August 1997 (Cat. no. 6310.0).

Manufacturing industry In the manufacturing industry as a whole, almost 40% of full time employees were trade union members in August 1997 but only 13% of part time employees were members. With 42% of full time employees and 19.0 of part time employees, males had substantially higher membership rates than females (27% and 9% respectively).

Graph 1.29, shows the distribution of trade members in manufacturing industry in August 1997. At that time, 85% of trade union members were males. Of the males who were members, over 95% were full time employees. Of the 15% of union members who were female almost 90% were full time employees. Part time employees made up less than 5% of union membership in the manufacturing industry.

1.29 TRADE UNION MEMBERS, MANUFACTURING INDUSTRY—
AUGUST 1997



Source: ABS, *Weekly Earnings of Employees (Distribution), Australia, August 1997* (Cat. no. 6310.0).

Manufacturing subdivisions In August 1997, the manufacturing subdivision with the highest proportion of union members was Food, beverage and tobacco manufacturing for both males (56%) and females (36%). In all subdivisions, except Other manufacturing, the proportion of male employees who were trade union members was above 30%, whereas for females only Food, beverage and tobacco subdivision had over 30% of its female employees belonging to a union.

1.30 TRADE UNION MEMBERSHIP—AUGUST 1997

	Trade union members	Trade union members as a proportion of all employees		
		Males	Females	Persons
		no.	%	%
Food, beverage and tobacco mfg	72.1	17.8	90.0	56.2
Textile, clothing, footwear and leather mfg	12.7	13.1	25.8	38.3
Wood and paper product mfg	22.1	*1.1	23.2	44.2
Printing, publishing and recorded media	23.9	7.2	31.1	34.4
Petroleum, coal, chemical and associated product mfg	28.9	6.7	35.6	43.0
Non-metallic mineral product mfg	15.3	—	15.3	46.4
Metal product mfg	54.9	*1.6	56.5	37.7
Machinery and equipment mfg	82.6	7.0	89.5	40.4
Other mfg	8.9	*2.1	11.1	17.4
Manufacturing	321.5	56.6	378.2	41.1

Source: ABS, unpublished data, Trade Union Membership Survey.

Manufacturing subdivisions
continued

Over the five year period, 1992–97, all manufacturing subdivisions experienced decreases in the proportion of union members. However, only small decreases (1 percentage point or less) occurred in Food, beverage and tobacco manufacturing, Wood and paper product manufacturing and Petroleum, coal, chemical and associated product manufacturing. For males these subdivisions have slightly increased their membership proportions, whereas for females the only subdivision to increase its proportion of members, over this period, was Other manufacturing (up 5 percentage points). The subdivision which experienced the greatest fall in membership was Printing, publishing and recorded media, falling 15 percentage points.

ENVIRONMENTAL ISSUES

This section contains two parts. The first part presents an analysis by the Australian Bureau of Agricultural and Resource Economics (ABARE) of fuels used by manufacturers. It includes information on past usage and ABARE's projections of use to the year 2009–10. The second part is based on an ABS survey of manufacturing management units. It shows costs incurred by manufacturers for environmental protection measures during 1995–96 and 1996–97.

Energy use

This article is based on analysis by the Australian Bureau of Agricultural and Resource Economics (ABARE) of past and predicted future energy use by manufacturers. ABARE bases its analysis on the results of its biennial fuel and energy survey (FES). Because the FES is conducted every second year, the article in this publication covering energy use will be updated every second year. No new material has been included this year. The data presented in this article represent net energy use—that is energy consumed minus energy produced. The proportions and growth rates shown in the tables and mentioned in the commentary in this section are based on data measured in petajoules.

Growth in fuels used by
manufacturers

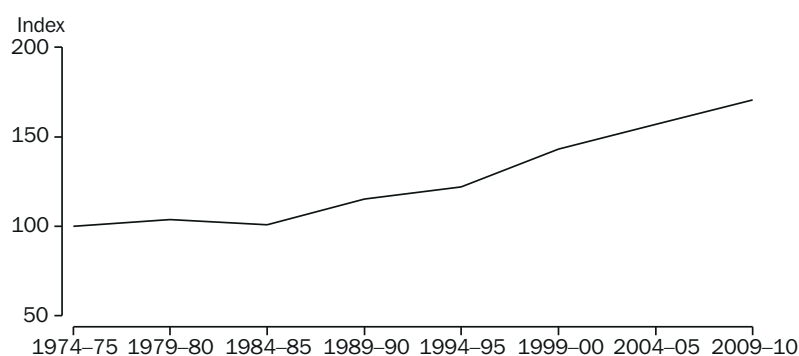
Net consumption of energy by the manufacturing industry has grown by 17% over the 15 years from 1979–80 to 1994–95. It is predicted by ABARE to grow by a further 40% over the following 15 years to 2009–10. By way of comparison, manufacturing production increased by 26% over the 15 years from 1979–80 to 1994–95.

While energy use has grown over the past 20 years, manufacturing's share of total Australian fuel use has decreased from almost 35% to 26%. It is predicted that manufacturing's share of Australian fuel use will remain at around 1994–95 proportions until at least 2009–10.

Growth in fuels used by manufacturers *continued*

By far the largest single fuel type used by the manufacturing industry is refinery feedstock (51% of total fuel consumption by manufacturers in 1979–80, 53% in 1994–95 and predicted to be 52% in 2009–10). Refinery feedstock is used exclusively by the petroleum refining industry to produce petroleum fuels for use throughout the Australian economy and for export. Black coal, at 12% of energy consumption, was the second largest fuel source for manufacturing in 1979–80. By 1994–95, black coal's share had fallen to 9% and is predicted to fall slightly to around 8% by 2009–10. Relatively fast growing fuel sources for manufacturing industry are natural gas (7% in 1979–80, 11% in 1994–95 and predicted to be 15% by 2009–10) and electricity (4% in 1979–80, 7% in 1994–95 and predicted to be 8% by 2009–10).

1.31 PAST AND PROJECTED ENERGY USE



Base: 1974–75=100

Source: Australian Bureau of Agricultural and Resource Economics, 1997.

1.32 ENERGY CONSUMPTION(a)

Period	Index of energy consumption by manufacturing	Proportion of total Australian consumption(b)
	1974–75 = 100	%
1974–75	100.0	34.4
1979–80	104.0	30.8
1984–85	100.7	27.7
1989–90	115.1	27.1
1994–95	122.1	26.0
1999–00	143.1	26.5
2004–05	157.1	26.1
2009–10	170.4	26.4

(a) Unit of measurement for energy consumption data used to compile this table is the petajoule. Data for periods 1994–95 and earlier are survey estimates. Data for later periods have been projected on the basis of survey results and other information.

(b) Total consumption is all consumption including residential consumption.

Source: ABARE 1997, pp. 102–109.

Energy consumption by industry within manufacturing

Due to the extent of the period covered in the above analysis, the ABARE analysis is based on the Australian Standard Industrial Classification (ASIC), the industry classification which preceded the ANZSIC. At the broad industry levels presented here, the alignment of ASIC and ANZSIC categories is sufficiently close for the purpose of presenting long term data.

In 1994–95, by far the largest net energy consumer among broad manufacturing industries, was Metal product manufacturing, with 45% of total manufacturing energy consumption. By 2009–10, this industry is expected to have an even greater share, 53%. Within the Metal product manufacturing industry energy consumption is split approximately 60% to non ferrous metals and 40% to ferrous metals. In gross terms, in 1994–95, the Petroleum refining industry was the largest consumer of energy but because of its nature as a large producer of energy products, its net energy consumption is substantially less than that of Metal product manufacturing.

1.33 ENERGY CONSUMPTION(a)

Industry	Share of total Australian energy consumption(b)	
	1994–95	Projected 2009–10
	%	%
Food, beverage and tobacco mfg	14.3	12.6
Textile, clothing, footwear and leather mfg	1.5	1.3
Wood, wood product, paper, printing, publishing and recorded media	6.3	5.3
Petroleum, coal, chemical and associated product mfg	22.7	19.9
Non-metallic mineral product mfg	8.4	7.3
Metal product mfg	45.1	52.6
Machinery and equipment mfg	1.8	1.6
Other mfg(c)	—	—
Total mfg	100.0	100.0

(a) The unit of measurement used to compile this table is the petajoule. Data for periods 1994–95 and earlier are survey estimates. Data for later periods have been projected on the basis of survey results and other information.

(b) Total consumption is all consumption including residential consumption.

(c) Less than 0.05%.

Source: ABARE, 1997, pp. 110–117.

Net energy consumption—manufacturing industry by State

In 1994–95, New South Wales manufacturing was by far the largest net energy consumer of the State manufacturing industries. However, by 2009–10, Western Australian manufacturing is expected to become the largest. All other States are expected to have a reduced share of net energy consumption of Australian manufacturing.

On a per person employed basis, Western Australian manufacturing was the highest energy using State followed by Queensland. On this basis, Victoria was the lowest energy consumer.

1.34 ENERGY CONSUMPTION(a)

<i>State and Territory</i>	<i>Share of total Australian manufacturing energy consumption</i>	
	<i>1994–95</i>	<i>Projected 2009–10</i>
	<i>%</i>	<i>%</i>
New South Wales including the Australian Capital Territory)	32.0	23.9
Victoria	20.3	17.4
Queensland	21.6	21.4
Western Australia	13.9	26.9
South Australia	7.0	5.6
Tasmania	3.4	3.3
Northern Territory	1.7	1.4
Australia	100.0	100.0

(a) The unit of measurement used to compile this table is the petajoule. Data for periods 1994–95 and earlier are survey estimates. Data for later periods have been projected on the basis of survey results and other information.

(b) Total consumption is all consumption including residential consumption

Source: ABARE, 1997, pp. 102–109.

Waste management and protecting the environment

This section presents results from the 1995–96 and 1996–97 Waste Management and Environmental Protection Expenditure Surveys. These surveys measure both current expenditure and capital expenditure on waste management and environmental protection. Definitions of the various concepts associated with this survey are included in the Glossary.

1.35 ENVIRONMENTAL PROTECTION EXPENDITURE

<i>Industry</i>	<i>1995–96</i>		<i>1996–97</i>	
	<i>Current expenditure</i>	<i>Capital expenditure</i>	<i>Current expenditure</i>	<i>Capital expenditure</i>
	<i>\$ million</i>	<i>\$ million</i>	<i>\$ million</i>	<i>\$ million</i>
Food, beverage and tobacco mfg	94.1	54.3	127.0	77.8
Textile, clothing, footwear and leather mfg	23.8	9.5	32.4	21.8
Wood and paper product mfg	46.6	70.3	45.6	31.5
Printing, publishing and recorded media	21.4	3.0	15.3	3.8
Petroleum, coal, chemical and associated product mfg	58.3	54.0	81.1	70.1
Non-metallic mineral product mfg	38.1	22.4	28.6	29.4
Metal product mfg	89.9	119.5	97.3	146.7
Machinery and equipment mfg	42.0	119.1	41.1	30.3
Other mfg	30.3	3.6	12.5	4.5
Total mfg	444.5	455.7	480.8	415.8

Source: ABS, unpublished data, Waste Management and Environmental Protection Expenditure Survey.

1.36 WASTE MANAGEMENT AND ENVIRONMENTAL PROTECTION
EXPENDITURE—1996–97

<i>Capital expenditure to protect environment</i>	<i>\$ million</i>
End-of-line techniques	
Protect air	119.1
Waste water management	86.2
Managing non hazardous solid waste	27.5
Managing hazardous solid waste	6.2
Noise and vibration abatement	10.4
Other environmental protection	11.1
<i>Total</i>	260.5
Change in production methods	
Protect air	47.6
Waste water management	40.1
Managing non hazardous solid waste	9.7
Managing hazardous solid waste	42.8
Noise and vibration abatement	4.2
Other environmental protection	10.7
<i>Total</i>	155.1
Total	415.8

Source: Waste Management and Environmental Protection Expenditure Survey, 1996–97.

Current expenditure on waste management and other environmental protection

Table 1.35 shows that current expenditure by manufacturers on waste management and other environmental protection services provided by government and private industry increased by \$36.3 million (8%) between 1995–96 and 1996–97. This overall increase was despite only four of the nine broad manufacturing industries increasing their expenditure. The largest increases were by:

- Food, beverage and tobacco manufacturers—current expenditure up by \$32.9 million (35%); and
- Petroleum, coal, chemical and associated product manufacturers—current expenditure up by \$22.8 million (39%).

Of the industries which experienced reduced costs in 1996–97 compared with 1995–96, the reductions were generally small. The largest falls were by:

- Other manufacturing—current expenditure down by \$17.8 million (59%); and
- Non-metallic mineral product manufacturers—current expenditure down by \$9.5 million (25%).

Capital expenditure on environmental protection

Table 1.35 shows that during 1996-97, manufacturers acquired \$415.8 million worth of assets primarily for the purpose of environmental protection. This represented a decrease of almost 9% compared with capital expenditure in the previous year. This overall decrease was despite seven of the nine broad manufacturing industries increasing their expenditure. The two industries which decreased expenditure did so by large amounts, viz.

- Machinery and equipment manufacturers—capital expenditure down by \$88.8 million (75%); and
- Wood and paper product manufacturers—capital expenditure down by \$38.8 million (55%).

Of the industries which increased their expenditure on assets acquired primarily for the purpose of environmental protection, largest increases were by:

- Metal product manufacturers—capital expenditure up by \$27.2 million (23%); and
- Food, beverage and tobacco manufacturers—capital expenditure up by \$23.5 million (43%).

Table 1.36 shows that of the \$415.8 million spent on assets, manufacturers spent over 60% on filters and other end of line environmental protection equipment. The remainder (almost 40%) was spent on new technologies with environmental protection as an integral feature. Within the expenditure on end of line equipment, almost 80% was devoted to protection of air (46%) and waste water management (33%). Of the expenditure devoted to change in production processes, three categories had similar levels of expenditure i.e. protecting air (30%), managing hazardous solid waste (27%) and waste water management (also 27%).

DEGREE OF TRANSFORMATION BY MANUFACTURERS

This article presents statistics for manufactured goods classified by degree of transformation. Table 1.37 shows the value of goods produced by manufacturers during 1996–97 and either sold or transferred within the business for further processing. The statistics presented are experimental in nature as the classification used to categorise goods by degree of transformation is still under development by the ABS. Thus, readers should regard the statistics in table 1.37 as indicative rather than precise estimates.

The basic premise of the classification of goods by degree of transformation is that each manufactured product reaching the point of sale (or transfer) will have been subjected to one or more processes beginning at a raw material state and passing through a range of manufacturing processes and intermediate products to become a final end use product. The number and complexity of such processes determine the degree of transformation category to which that product is classified.

The concept of degree of transformation is also related to the concept of value adding. The amount and complexity of transformation strongly influence the amount of value added by manufacturing processes. However, in making the connection between degree of transformation and value adding, it should be remembered that these are not the only influences which determine the amount of value added. Furthermore, for a given Australian produced final product, not all of the transformations required to produce the product have necessarily been carried out in Australia.

The classification has five broad categories. These are:

- Primary products (such as butter, pasteurised milk, red meat, hides and skins).
- Primary product manufactures (such as beer, flour, refined sugar, wood pulp).
- Simply transformed manufactures (such as clay bricks, paper, pig iron, plaster).
- Moderately transformed manufactures (such as broadwoven fabrics, soaps and detergents, steel wire).
- Elaborately transformed manufactures (such as clothing, motor vehicles, machinery, paint).

However, the first three of these have been combined together in the table below because the boundaries between the categories have not been finally established.

<i>Industry</i>	<i>Simply transformed manufactures(a)</i>	<i>Moderately transformed manufactures</i>	<i>Elaborately transformed manufactures</i>	<i>Manufactures not yet classified</i>
	<i>\$ billion</i>	<i>\$ billion</i>	<i>\$ billion</i>	<i>\$ billion</i>
Food, beverage and tobacco mfg	43.5	0.0	0.0	0.0
Textile, clothing, footwear and leather mfg	1.4	2.5	5.3	0.0
Wood and paper product mfg	5.0	3.8	2.4	0.0
Printing, publishing and recorded media	0.0	0.0	10.2	0.4
Petroleum, coal, chemical and associated product mfg	14.2	5.5	12.2	0.0
Non-metallic mineral product mfg	6.9	0.7	0.6	0.0
Metal product mfg	14.1	8.7	13.4	0.0
Machinery and equipment mfg	0.0	0.2	37.5	0.0
Other mfg	0.0	0.0	6.0	0.0
Total mfg	85.1	21.3	87.6	0.4

(a) Also includes products classified to the 'Primary Products' and 'Primary Product Manufactures' categories.

Source: *Manufacturing Survey, 1996–97*.

TECHNOLOGICAL INNOVATION BY MANUFACTURERS

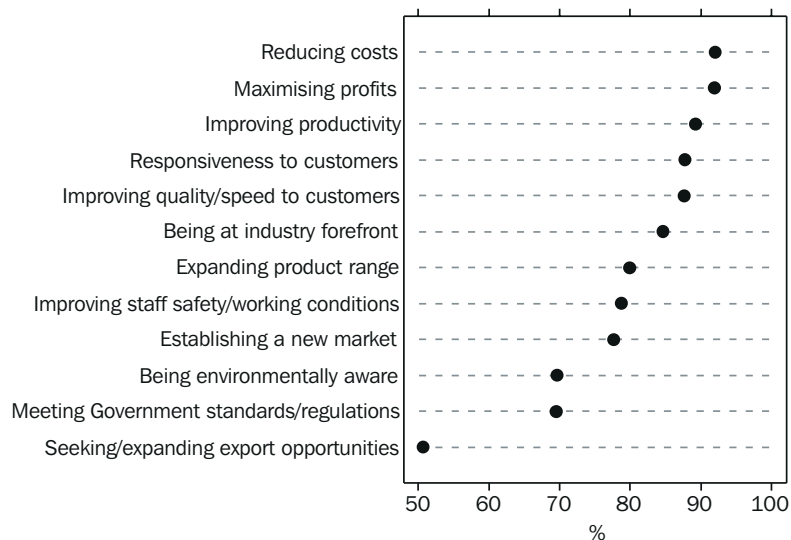
This article contains information on technological innovation by manufacturers. Manufacturers involved in technological innovation are those which have implemented technologically new products or processes, and/or significant technological improvements in products or processes. For the purposes of the statistics, an innovation is regarded as having been implemented when it has been introduced onto the market (product innovation) or used within a production process (process innovation). Innovations therefore involve a series of scientific, technological, organisational, financial and commercial activities. Other types of innovation such as innovation in management practices, work practices and marketing techniques are excluded from the statistics.

In 1996–97, manufacturers expended just under \$4 billion on innovation as defined above. This represented approximately 2% of total expenses incurred by manufacturers. Most of the \$4 billion innovation expenditure was on research and development (50%) followed by tooling up costs (29%).

Objectives of technological innovation

Manufacturers were asked to indicate whether they regarded certain objectives or results of innovation to be important, not important or not applicable. Reducing costs and maximising profits were the most frequently indicated as being important (by 92% of innovating manufacturers) closely followed by improving productivity (90%). Seeking/expanding export opportunities was least frequently indicated as being important (51%) along with meeting government standards/regulations and being environmentally aware (each at 70%).

1.38 OBJECTIVES OF ENGAGING IN INNOVATION, MANUFACTURER INDICATING IMPORTANCE—1997



Innovation by Industry Subdivisions

Table 1.39 shows the proportion of manufacturers which undertook some form of technological innovation during two periods, the three years ended 30 June 1994 and the three years ended 30 June 1997. Of the industry subdivisions within manufacturing, Petroleum, coal, chemical and associated product manufacturers had the highest level of innovation with just over 42% of businesses undertaking some technological innovation activity in the period 1994–97. Food, beverages and tobacco and Non-metallic mineral product manufacturers both recorded 36%. The industry with the lowest proportion of businesses undertaking technological innovation was the Textile, clothing, footwear and leather manufacturing industry (15%) only slightly below the Wood and paper product manufacturing industry at 16%.

Comparing the three years to 30 June 1997 with the three years to 30 June 1994 shows that for all manufacturers, the proportion of businesses undertaking technological innovation fell from 34% to 26%. The proportion of Textile, clothing, footwear and leather manufacturers undertaking innovation halved from 30% to 15%. All other industry subdivisions also exhibited a decline in the proportion undertaking innovation except for Food, beverages and tobacco manufacturing (up 2%) and Wood and paper product manufacturing (up 4%).

The proportion undertaking product innovation was higher than the proportion undertaking process innovation for the total manufacturing industry and for all industry subdivisions within manufacturing except for Printing, publishing and recorded media. In the three years ended 30 June 1997, 23% of manufacturing businesses undertook product innovation compared with 18% of businesses who undertook process innovation.

	<i>Type of technological innovation</i>					
	<i>Product</i>		<i>Process</i>		<i>Total(a)</i>	
	<i>%</i>		<i>%</i>		<i>%</i>	
	<i>1991-94(b)</i>	<i>1994-97(c)</i>	<i>1991-94(b)</i>	<i>1994-97(c)</i>	<i>1991-94(b)</i>	<i>1994-97(c)</i>
Food, beverage and tobacco mfg	29	33	25	29	36	36
Textile, clothing, footwear and leather mfg	28	15	21	14*	30	15
Wood and paper product mfg	13	12	11	12	15	16
Printing, publishing and recorded media	22	18	30	21*	34	26
Petroleum, coal, chemical and associated product mfg	46	35	30	29	46	42
Non-metallic mineral product mfg	35	33	25	21	37	36
Metal product mfg	29	20	22	13	32	21
Machinery and equipment mfg	39	33	25	20	42	35
Other manufacturing	27	19	21	15	31	21
Manufacturing	30	23	23	18	34	26

(a) Some manufacturers undertake both product and process innovation. Hence, the respective proportions will not sum to the total.

(b) Three years ended 30 June 1994.

(c) Three years ended 30 June 1997.

Source: *Innovation in Manufacturing, Australia, 1996-97 (Cat. no. 8116.0)*.

Innovation by size of business

The proportion of businesses undertaking technological innovation during the three years ended 30 June 1997 was strongly correlated with the employment size of the businesses involved. Slightly less than 19% of manufacturers employing fewer than 10 people undertook any technological innovation. However for manufacturers employing more than 500 people, frequency of innovation was over four times as great at 89%.

1.40 MANUFACTURING BUSINESSES UNDERTAKING TECHNOLOGICAL INNOVATION

<i>Employment size</i>	<i>Type of technological innovation three years ended June 1997</i>		
	<i>Product</i>	<i>Process</i>	<i>Total</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Less than 10 persons	16.0	12.5	18.7
10-49 persons	39.1	28.0	42.6
50-99 persons	47.3	45.7	53.6
100-499 persons	63.9	56.6	70.6
500 or more persons	83.3	80.6	89.2
Total Manufacturing	22.9	17.8	26.0

(a) Some manufacturers undertake both product and process innovation. Hence, the respective proportions will not necessarily sum to the total.

Source: *Innovation in Manufacturing, Australia, 1996-97 (Cat. no. 8116.0)*.

Innovation by State

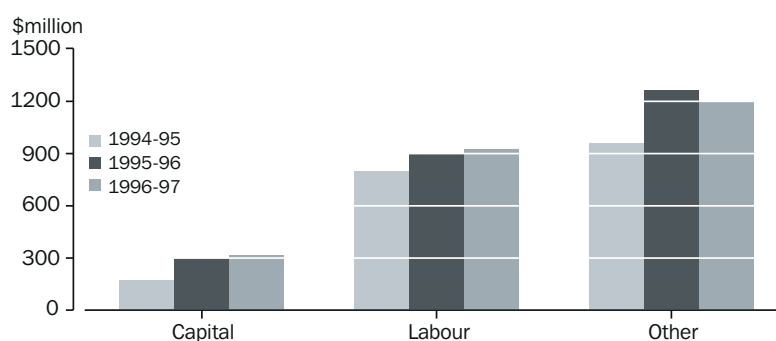
The proportion of manufacturers undertaking technological innovation during the three years ended 30 June 1997 was highest in Victoria (29%) followed by South Australia (28%) and Tasmania (26%). Northern Territory (16%) recorded the lowest proportion.

RESEARCH AND DEVELOPMENT EXPENDITURE

In 1996–97 total expenditure by all businesses in the Australian economy on research and experimental development (R&D) was \$4.1 billion, around 5% lower than 1995–96 expenditure. This is the first time, since the ABS began conducting surveys on R&D in 1976–77, that total expenditure has fallen compared to the previous year. The manufacturing industry experienced a 1% decrease with expenditure falling to just under \$2.5 billion in 1996–97. However, because expenditure by manufacturers fell relatively less than other industries, manufacturing's share of the total increased from 57% in 1995–96 to 59% in 1996–97.

Within the manufacturing industry R&D expenditure consisted of 87% current expenditure and 13% capital expenditure, which was very similar to the proportions recorded for the total of all industries. Of the total current expenditure for the manufacturing industry, 38% related to labour costs. The overall decrease in R&D expenditure for manufacturing was reflected in the 5% fall in other current expenditure. Capital expenditure and labour costs increased by 7% and 3% respectively.

1.41 R & D EXPENDITURE



Source: ABS, *Research and Experimental Development Expenditure, Business Enterprises, Australia, 1996–97* (Cat. no. 8104.0).

Manufacturing subdivisions

In 1996–97 expenditure on R&D decreased, from the previous year, in all of the manufacturing subdivisions except for Machinery and equipment manufacturing, Metal product manufacturing, and Wood and paper product manufacturing.

With \$1.2 billion of R&D expenditure in 1996–97, Machinery and equipment manufacturing was by far the largest manufacturing subdivision. This industry contributed 49% of the total spent by manufacturers and 29% of expenditure by all businesses in the economy. Expenditure was principally current expenditure (93%) which was split 47% to labour costs and 53% to other costs with capital expenditure accounting for the remainder. Within the Machinery and equipment manufacturing industry, 49% of total expenditure was by Electronic and

Manufacturing subdivisions *continued* Electrical equipment and appliance manufacturers; and 33% by Motor vehicle and other transport equipment manufacturers. The remainder of the expenditure was made by manufacturers of Photographic and scientific equipment and Industrial machinery and equipment.

Other industries with more than 10% of total manufacturing R&D expenditure in 1996–97 were Metal product manufacturing (15%) and Petroleum, coal, chemical and associated product manufacturing (13%).

1.42 EXPENDITURE ON RESEARCH AND DEVELOPMENT

	1994–95		1995–96			1996–97
	Total expenditure	Total expenditure	Capital expenditure	Labour costs	Other current expenditure	Total expenditure
	\$ million	\$ million	\$ million	\$ million	\$ million	\$ million
Food, beverage and tobacco mfg	140.1	288.9	23.5	75.8	128.0	227.3
Textile, clothing, footwear and leather	28.4	25.7	2.1	10.5	9.1	21.7
Wood and paper product mfg	79.3	183.8	n.p.	n.p.	91.4	190.0
Printing, publishing and recorded media	15.1	20.7	2.2	9.5	5.5	17.2
Petroleum, coal, chemical and associated product mfg	317.5	348.5	27.8	135.4	157.5	320.8
Non-metallic mineral product mfg	45.3	81.8	5.1	24.7	37.3	67.2
Metal product mfg	324.3	337.1	91.4	109.6	170.0	371.0
Machinery and equipment mfg	955.2	1 145.8	83.7	528.3	589.2	1 201.2
Other mfg	19.2	20.5	n.p.	n.p.	6.1	18.0
Total mfg	1 924.1	2 452.8	316.1	924.1	1 194.2	2 434.3

Source: ABS, *Research & Experimental Development, Business Enterprises, Australia, 1996–97* (Cat. no. 8104.0).

Expenditure by State Less than 1% of R&D expenditure by Australian manufacturers was spent overseas. Of the expenditure which took place in Australia, State shares were Victoria (42%), New South Wales (32%), Western Australia (9%), Queensland (8%), South Australia (6%) and Tasmania and the Territories (2% in combination). Since Victoria accounted for around 32% of manufacturing production in 1996–97, this result reflects a continued strong performance by Victoria in R&D expenditure.

In 1996–97, Machinery and equipment manufacturing was by far the largest manufacturing subdivision in terms of R&D expenditure, in New South Wales (50% of total manufacturing), Victoria (52%), Queensland (50%) and South Australia (69%). The second largest contributing industries in these States were Petroleum, coal, chemical and associated product manufacturing (Victoria and South Australia) and Metal product manufacturing (New South Wales and Queensland).

In Western Australia, Metal product manufacturing had the largest share of expenditure (50%), with Machinery and equipment manufacturing ranked next at 25%.

Expenditure by size of business Large businesses (businesses employing more than 100 people) were responsible for 77% of 1996–97 R&D expenditure by manufacturers, medium sized businesses (employment of 20–99 people) were responsible for 14% and small businesses (employing fewer than 20 people) accounted for the remaining 9%.

CHAPTER 2

INTRODUCTION

PERFORMANCE OF THE MANUFACTURING INDUSTRY

Chapter 2 of this publication presents information about the performance of the manufacturing industry as a whole, and about the performance of industry subdivisions within manufacturing. Similar information is provided for other Australian and New Zealand Standard Industrial Classification (ANZSIC) Divisions such as Wholesale trade, Construction and Mining. The source of the non-manufacturing data is the Economic Activity Survey (EAS) which is conducted annually by the Australian Bureau of Statistics (ABS).

For each of the industry subdivisions within manufacturing, four types of data are presented. From statistics about manufacturing establishments (factories), information is presented on which are the largest industry classes within the subdivision and how production is distributed across States and Territories. From statistics about management units (businesses), income statement and balance sheet information is presented along with some selected industry performance measures.

The selected industry performance measures include standard accounting concepts such as the profitability ratio, the ratio of debt to equity and the current ratio. Definitions of the various economic variables and performance measures are included in the Glossary. Performance measures are compiled and presented uniformly to facilitate direct comparison of the relative performances of industries, as well as enabling readers to focus on individual industries.

Corresponding information may also be available for finer levels of manufacturing industry. Readers who are interested in obtaining data about the performance of finer industries within manufacturing should consult the New South Wales Office of the ABS—see page 2 for details. A full list of manufacturing industries is contained in the Appendix List of Manufacturing Industries in this publication.

Data presented in this chapter exclude operations of those unincorporated businesses which do not employ staff and which have not registered as group employers with the Australian Taxation Office. Although these very small businesses are fairly numerous, especially in industries such as Retail trade, Construction and Transport, their omission from the statistics is believed to have no serious effect on the reliability of the industry performance measures presented because they account for a very small proportion of total production.

TOTAL MANUFACTURING

Performance of manufacturing relative to other industries This article presents information about operations by private sector businesses and by public trading enterprises. Other activities of Federal, State and Local Governments are excluded.

Table 2.1 shows that of the major industries, manufacturing ranked eleventh of 15 industries in terms of profit margins (operating profit before tax as a percentage of operating income). The ranking has fallen from 1995–96 when manufacturing ranked ninth of these industries. Table 2.1 also shows that the manufacturing profit margin was well below the all industries level of 9.4%. In terms of return on assets (pre-tax profits as a percentage of the total value of assets) manufacturing ranked seventh of the 15 broad industries at a level well above that of the all industries level.

2.1 PERFORMANCE RATIOS—1996–97

<i>Industry</i>	<i>Profit margin</i>	<i>Return on assets</i>	<i>Long-term debt to equity</i>	<i>Interest coverage</i>
	<i>%</i>	<i>%</i>	<i>times</i>	<i>times</i>
Agriculture, forestry and fishing	11.8	2.6	0.1	3.0
Mining	17.3	8.5	0.8	5.0
Manufacturing	6.2	7.3	0.5	5.0
Electricity, gas and water supply	14.5	3.7	0.5	2.3
Construction	5.0	10.7	0.9	5.0
Wholesale trade	3.1	7.9	0.5	4.3
Retail trade	2.7	10.2	1.0	3.8
Accommodation, cafes and restaurants	7.0	6.1	0.7	3.3
Transport and storage	7.5	6.2	0.8	3.4
Communication	11.7	7.4	0.6	4.8
Finance and insurance	32.9	3.3	0.1	2.0
Property and business services	12.7	6.3	0.6	3.2
Private community services(a)	11.1	12.9	0.5	9.1
Cultural and recreational services	3.7	2.6	0.8	2.3
Personal and other services	8.9	6.7	0.2	6.1
All industries	9.4	4.8	0.4	2.7

(a) Includes private education, health services and community services businesses, but excludes those in the public sector.

Source: ABS, *Business Operations and Industry Performance, Australia Preliminary, 1996–97* (Cat. no. 8142.0).

Changes in performance by the manufacturing industry Excluding some very small businesses (see the introduction to this chapter), it is estimated that approximately 60,000 manufacturing businesses were in operation at 30 June 1997. These manufacturing businesses employed approximately one million people. In 1996–97 these manufacturing businesses generated sales of over \$213 billion, an increase of 2.6% over 1995–96 sales. Sales continue to grow at a slightly faster rate than the general level of prices for manufactured goods. Growth in the volume of goods and services provided by manufacturing businesses is estimated to have been around 2% for 1996–97 compared with the previous year.

Changes in performance by the manufacturing industry

continued

Operating profit before tax for the manufacturing industry fell marginally between 1995–96 and 1996–97 despite a small increase in trading profits and a marginal fall in labour costs. The main reason for the profit fall was an increase in depreciation though falls in interest income and other operating income also contributed.

The balance sheet for the manufacturing industry shows increases in assets and in liabilities (especially non current liabilities) from 1995–96 to 1996–97. As a result, net worth (assets minus liabilities) fell by 2.7%. Capital expenditure fell substantially between 1995–96 and 1996–97.

2.2 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Relative change
	\$ million	\$ million	%
Income statement			
Sales of goods and services	207 729	213 125	2.6
Less cost of sales	144 146	148 336	2.9
Trading profit	63 583	64 789	1.9
<i>Plus</i> interest income	808	695	-13.9
<i>Plus</i> other operating income	2 176	1 958	-10.0
Less labour costs	40 390	40 366	-0.1
Less depreciation	6 356	7 201	13.3
Less other operating expenses	3 011	3 102	3.0
Earnings before interest and tax	16 810	16 774	-0.2
Less interest expenses	3 337	3 359	0.7
Operating profit before tax	13 473	13 415	-0.4
Balance sheet			
Current assets	73 519	72 181	-1.8
Non-current assets	105 518	110 540	4.8
<i>Total assets</i>	<i>179 038</i>	<i>182 721</i>	<i>2.1</i>
Current liabilities	56 379	54 505	-3.3
Non-current liabilities	36 798	44 644	21.3
<i>Total liabilities</i>	<i>93 178</i>	<i>99 149</i>	<i>6.4</i>
Net worth	85 860	83 572	-2.7
Capital outlays			
Net capital expenditure	9 366	8 236	-12.1

Source: ABS, unpublished data, Manufacturing Survey.

The 1996–97 industry profit margin of 6.2% (i.e. \$6.20 of operating profit before tax per \$100 of operating income) was an almost 3% decrease from the 1995–96 result. The most notable feature of the balance sheet was the substantial increase in the ratio of long term debt to equity (i.e. non current liabilities as a proportion of net worth). The current ratio (current assets as a proportion of current liabilities) remained virtually unchanged from 1995–96 to 1996–97 as did the interest coverage ratio.

2.3 INDUSTRY PERFORMANCE

<i>Industry performance</i>			<i>Change</i>
	1995-96	1996-97	%
Selected performance measures			
Profit margin	6.4	6.2	-2.8
Return on assets	7.5	7.3	-2.4
Long term debt to equity	0.4	0.5	24.6
Current ratio	1.3	1.3	1.6
Interest coverage	5.0	5.0	-0.9

Source: ABS, unpublished data, Manufacturing Survey.

RELATIVE PERFORMANCE BY MANUFACTURING SUBDIVISIONS

This article presents a comparison of some key elements of the recent performance of industry subdivisions within manufacturing. Comparisons are made in terms of performance by manufacturing management units (businesses). Further information appears in the remainder of this chapter where performance by individual industry subdivisions is examined. The glossary contains definitions of the various performance measures used.

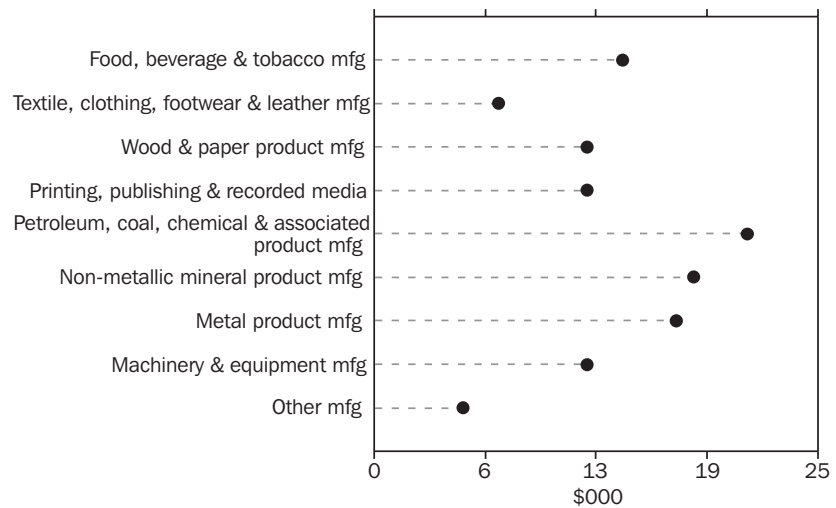
Sales of goods and services	In 1996-97, manufacturing businesses generated around \$213 billion of sales of goods and services, an increase of 2.6% compared with the previous year. 1996-97 sales represented an average of around \$215,000 per person employed in manufacturing. All manufacturing subdivisions increased their sales between 1995-96 and 1996-97 except Metal product manufacturing (down 1.7%) and Wood and paper product manufacturing (down 0.5%). Largest increases in sales were recorded by Printing, publishing and recorded media (10.8%) and Other manufacturing (8.1%).
Trading profits	In 1996-97, manufacturing businesses generated a little under \$65 billion in trading profits (sales of goods and services less cost of sales), an increase of 1.9% over the previous year. All manufacturing subdivisions increased their trading profits between 1995-96 and 1996-97 except Machinery and equipment manufacturing (down 1.9%), Non-metallic mineral product manufacturing (down 1.5%) and Petroleum, coal, chemical and associated product manufacturing (down 0.8%). Largest increases in trading profits were recorded by Textile, clothing, footwear and leather product manufacturing (up 13.3%), Printing, publishing and recorded media (up 5.6%) and Wood and paper product manufacturing (up 5.3%).
Operating profits before tax (OPBT)	In 1996-97, manufacturing businesses generated around \$13.4 billion of OPBT. This represented, on average, around \$13,500 per person employed in manufacturing and \$63 of OPBT for every thousand dollars of operating income generated by manufacturers. Both OPBT per person employed and OPBT per thousand dollars of operating income were fractionally lower in 1996-97 than they had been in 1995-96.

Operating profits before tax
(OPBT) *continued*

Performance varied widely within the manufacturing industry. As shown by figure 2.3, Petroleum, coal, chemical and associated product manufacturing businesses generated OPBT of a little over \$21,000 per person employed while Textile, clothing, footwear and leather manufacturing businesses generated around \$7,500 per person employed and Other manufacturing averaged even less at around \$5,200 per person.

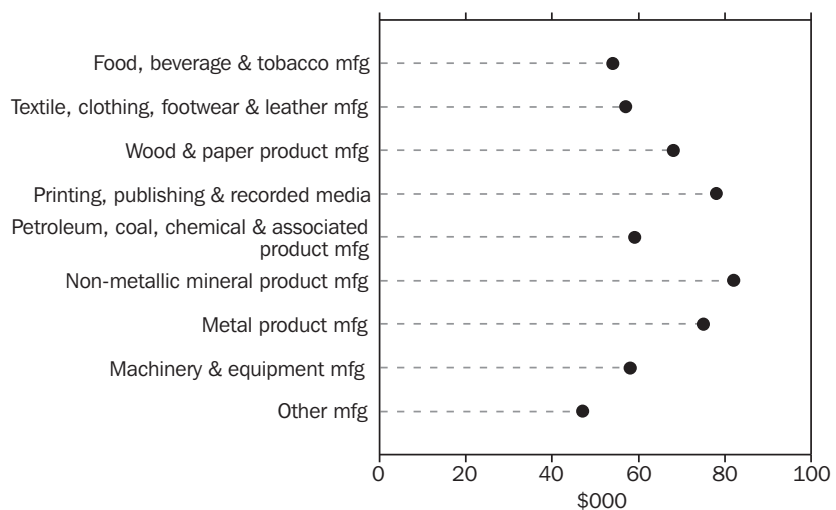
Similarly a variety of results are recorded for OPBT generated per thousand dollars of operating income (figure 2.4). Results ranged from the approximately \$82 of OPBT per thousand dollars of operating income recorded for the Non-metallic mineral product manufacturing industry to the approximately \$46 of OPBT per thousand dollars of operating income recorded for the Other manufacturing industry.

2.4 OPBT PER PERSON EMPLOYED—1996–97



Source: ABS, unpublished data, Manufacturing Survey, 1996–97.

2.5 OPBT PER \$000 OF INCOME—1996–97



Source: ABS, unpublished data, Manufacturing Survey, 1996–97.

Operating profits before tax (OPBT) *continued* Manufacturing subdivisions which improved their OPBT per thousand dollars of operating income between 1995–96 and 1996–97 were:

- Textile, clothing, footwear and leather manufacturing (from \$43 to \$56);
- Food, beverage and tobacco manufacturing (from \$51 to \$54); and
- Metal product manufacturing (remained at \$74 to the nearest dollar but rose fractionally).

In all other manufacturing subdivisions, OPBT per thousand dollars of operating income fell. Largest falls were:

- Printing, publishing and recorded media (from \$91 to \$77);
- Non-metallic mineral product manufacturing (from \$93 to \$82); and
- Other manufacturing (from \$57 to \$46).

Capital expenditure In 1996–97 manufacturers undertook capital expenditure of around \$8.2 billion, a substantial decrease (down 12.1%) on the previous year's expenditure. Main contributors to the decrease were Metal product manufacturers (down 51%), Machinery and equipment manufacturers (down 20%) and Printing, publishing and recorded media businesses (down 16%). However, capital expenditure increased in several manufacturing subdivisions (mainly smaller industries). The largest percentage increases were for Non-metallic mineral product manufacturing (up 64.2%), Other manufacturing (up 54.5%) and Textile, clothing, footwear and leather product manufacturing (up 52.6%).

FOOD, BEVERAGE AND TOBACCO MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.6 presents establishment data for the 11 largest of the 23 industry classes within the Food, beverage and tobacco manufacturing industry. These classes accounted for almost two thirds of the people employed in the Food, beverage and tobacco manufacturing industry at 30 June 1997 and for almost 70% of 1996–97 production. Meat processing was by far the most significant class. It had the largest production (\$1.3 billion), turnover (\$5.7 billion) and with almost 29,000 people employed, accounted for nearly 18% of all people employed by the Food, beverage and tobacco manufacturing industry.

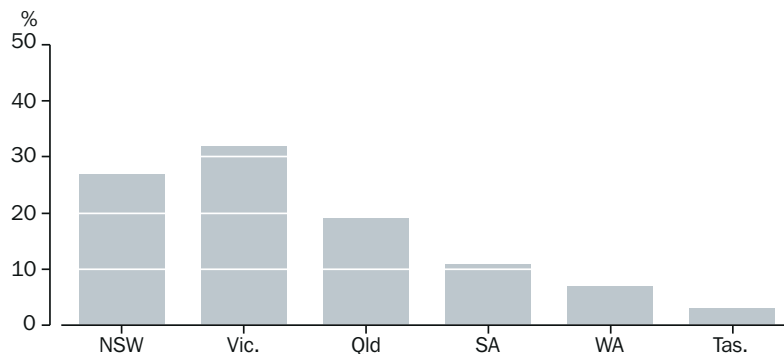
2.6 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Meat processing	28 874	5 734	1 314
Food mfg n.e.c.	14 940	3 101	982
Beer and malt mfg	2 948	2 370	847
Fruit and vegetable processing	11 018	3 308	800
Wine mfg	6 966	2 269	768
Dairy product mfg n.e.c.	7 963	3 650	618
Cereal food and baking mix mfg	5 623	1 994	603
Sugar mfg	6 552	2 521	560
Milk and cream processing	6 550	2 734	536
Bread mfg	11 495	1 345	472
Soft drink, cordial and syrup mfg	5 352	2 213	472
Balance of food, beverage and tobacco mfg	55 747	13 739	3 505
Total food, beverage and tobacco mfg	164 028	44 978	11 477

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.7 PRODUCTION(a)—1996–97



(a) NT and ACT each contributed less than 0.5% of production by this industry.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Food, beverage and tobacco manufacturing businesses

In 1996–97, Food, beverage and tobacco manufacturing businesses employed over 182,000 people. These businesses generated over \$45 billion in sales and almost \$2.5 billion in pre-tax profits. In terms of ANZSIC Subdivisions within manufacturing this industry was the largest in sales and the second largest in both employment and profits in 1996–97.

Between 1995–96 and 1996–97 sales of goods and services increased by 2.7%. Cost of sales increased at a slightly lower rate resulting in an increase in trading profits. Despite relatively large increases in depreciation (up 16.5%) and other operating expenses (up 16.3%), operating profit before tax increased by almost \$200 million (8.6%).

The industry balance sheet shows a substantial increase from 1995–96 to 1996–97 in both industry assets and industry liabilities (especially non-current liabilities). Over the period, total assets increased by 20% and total liabilities were up by 26.5%. Net worth (total assets minus total liabilities) increased by 12.8%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Food, beverage and tobacco manufacturers increased by nearly 10% from \$2 billion in 1995–96 to \$2.2 billion in 1996–97.

2.8 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	44 378	45 563	2.7
Less cost of sales	32861	33 659	2.4
Trading profit	11 517	11 904	3.4
<i>Plus interest income</i>	162	139	-14.1
<i>Plus other operating income</i>	359	503	40.1
<i>Less labour costs</i>	7297	7 388	1.2
<i>Less depreciation</i>	1229	1 432	16.5
<i>Less other operating expenses</i>	341	397	16.3
Earnings before interest and tax	3 171	3 329	5.0
<i>Less interest expenses</i>	890	852	-4.3
Operating profit before tax	2 281	2 477	8.6
<i>Balance sheet</i>			
Current assets	13 338	15 040	12.8
Non-current assets	22 247	27 710	24.6
<i>Total assets</i>	<i>35 585</i>	<i>42 750</i>	<i>20.1</i>
Current liabilities	13 345	13 266	-0.6
Non-current liabilities	5 647	10 760	90.6
<i>Total liabilities</i>	<i>18 991</i>	<i>24 026</i>	<i>26.5</i>
Net worth	16 594	18 726	12.8
<i>Capital outlays</i>			
Net capital expenditure	2 034	2 232	9.7

Source: ABS, unpublished data, Manufacturing Survey.

Food, beverage and tobacco manufacturing businesses *continued*

The 1996–97 industry profit margin of 5.4% (i.e. \$5.40 of pre-tax profits per \$100 of operating income) was an increase on the 1995–96 result by more than 5%. However, it fell below the overall manufacturing profit margin of 6.2%. Both the current ratio and interest coverage ratio improved between 1995–96 and 1996–97, although the current ratio (current assets as a proportion of current liabilities) remains the lowest of all manufacturing subdivisions. The large increase in non-current liabilities between 1995–96 and 1996–97 led to a substantial rise in the ratio of long term debt to equity.

2.9 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i>
			%
<i>Selected performance measures</i>			
Profit margin	5.1	5.4	5.5
Return on assets	6.4	5.8	–9.6
Long term debt to equity	0.3	0.6	68.9
Current ratio	1.0	1.1	13.4
Interest coverage	3.6	3.9	9.7

Source: ABS, unpublished data, Manufacturing Survey.

TEXTILE, CLOTHING, FOOTWEAR AND LEATHER MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.10 presents establishment data for the eight largest of the 19 industry classes within the Textile, clothing, footwear and leather manufacturing industry. These industry classes accounted for a little over 70% of people employed and for slightly more than 65% of 1996–97 production by the Textile, clothing, footwear and leather manufacturing industry. The three largest industry classes (in terms of production) all involved the manufacturing of clothing. Between them Women's and girls' clothing manufacturing, Men's and boys' wear manufacturing and Clothing manufacturing n.e.c. accounted for over 40% of employment in the Textile, clothing, footwear and leather manufacturing industry and almost 35% of 1996–97 turnover and production for the industry.

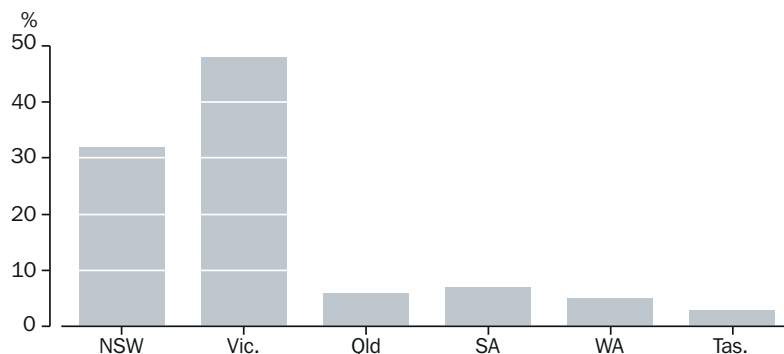
2.10 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Women's and girls' wear mfg	11 573	1 559	512
Men's and boys' wear mfg	8 485	813	314
Clothing mfg n.e.c.	12 781	894	308
Synthetic fibre textile mfg	4 078	674	235
Made-up textile product mfg	5 637	650	228
Footwear mfg	5 852	623	217
Textile floor covering mfg	2 918	606	166
Cotton textile mfg	2 928	486	157
Balance of textile, clothing, footwear and leather mfg	22 747	3 630	1 128
Total textile, clothing, footwear and leather mfg	76 999	9 935	3 265

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.11 PRODUCTION(a)—1996–97



(a) NT and ACT each contributed less than 0.5% of production by this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Textile, clothing, footwear and leather manufacturing businesses

In 1996–97, Textile, clothing, footwear and leather manufacturing businesses employed over 80,000 people. These businesses generated over \$10 billion in sales of goods and services and over \$600 million in operating profit before tax. Among the manufacturing subdivisions, Textile, clothing, footwear and leather manufacturing is one of the smaller industries, ranking sixth in employment, seventh in turnover and eighth in operating profit before tax.

Between 1995–96 and 1996–97 sales of goods and services grew by 6.4%. The cost of sales increased proportionally less than sales (up 3.4%). As a result, trading profit increased by 13.3%. This increase, along with the fall of more than 12% in interest expenses were the main contributors to an industry increase of almost 40% in operating profit before tax, notwithstanding an increase of 8% in total labour costs for the industry.

The industry balance sheet shows an increase from 1995–96 to 1996–97 in both industry assets and industry liabilities. Over the period, total assets increased by 8.1% and total liabilities were up 11.3%. Net worth (total assets minus total liabilities) increased by 2.7%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Textile, clothing, footwear and leather manufacturers increased by over 50% from 1995–96 to 1996–97.

2.12 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
	\$ million	\$ million	%
Income statement			
Sales of goods and services	9 987	10 629	6.4
Less cost of sales	6 918	7 151	3.4
Trading profit	3 069	3 477	13.3
<i>Plus interest income</i>	29	28	-3.8
<i>Plus other operating income</i>	171	110	-35.6
Less labour costs	2 274	2 456	8.0
Less depreciation	236	258	9.5
Less other operating expenses	146	142	-2.4
Earnings before interest and tax	613	759	23.8
Less interest expenses	179	156	-12.6
Operating profit before tax	435	603	38.7
Balance sheet			
Current assets	3 762	4 023	6.9
Non-current assets	2 257	2 481	9.9
<i>Total assets</i>	<i>6 019</i>	<i>6 504</i>	<i>8.1</i>
Current liabilities	2 643	2 881	9.0
Non-current liabilities	1 115	1 300	16.6
<i>Total liabilities</i>	<i>3 758</i>	<i>4 181</i>	<i>11.3</i>
Net worth	2 261	2 323	2.7
Capital outlays			
Net capital expenditure	217	331	52.6

Source: ABS, unpublished data, Manufacturing Survey.

Textile, clothing, footwear
and leather manufacturing
businesses *continued*

The 1996–97 industry profit margin of 5.6% (i.e. \$5.60 of pre-tax profits per \$100 of operating income) was a substantial improvement on the 1995–96 result. However, despite the improvement, the industry profit margin remained below the overall manufacturing profit margin (6.2%). While the interest coverage ratio improved considerably between 1995–96 and 1996–97, the current ratio fell slightly and more importantly, the ratio of long term debt to equity rose by 13.5% due mainly to the increase in non-current liabilities.

2.13 INDUSTRY PERFORMANCE

<i>Industry performance</i>	<i>1995–96</i>	<i>1996–97</i>	<i>Change</i>
			<i>%</i>
Selected performance measures			
Profit margin	4.3	5.6	31.3
Return on assets	7.2	9.3	28.4
Long term debt to equity	0.5	0.6	13.5
Current ratio	1.4	1.4	–1.9
Interest coverage	3.4	4.9	41.7

Source: ABS, unpublished data, Manufacturing Survey.

WOOD AND PAPER PRODUCT MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.14 presents establishment data for the five largest of the 12 industry classes within the Wood and paper product manufacturing industry. These five classes accounted for a little over two thirds of people employed and the same proportion of 1996–97 production by the Wood and paper product manufacturing industry as a whole. Two of the three largest industry classes are paper product manufacturing industries while the remainder of the top five classes are wood product manufacturing industries.

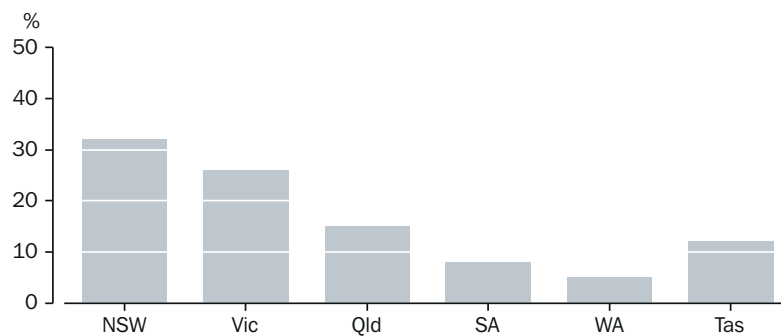
2.14 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Pulp, paper and paperboard mfg	5 364	2 324	846
Wooden structural component mfg	16 489	1 905	603
Corrugated paperboard container mfg	5 648	1 555	508
Timber resawing and dressing	6 953	1 046	386
Log sawmilling	7 140	814	325
Balance of wood and paper product mfg	19 910	3 837	1 311
Total wood and paper product mfg	61 504	11 481	3 979

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.15 PRODUCTION(a)—1996–97



(a) NT and ACT each contributed less than 0.5% of production by this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Wood and paper product manufacturing businesses

In 1996–97, Wood and paper product manufacturing businesses employed over 65,000 people. These businesses generated almost \$12 billion in sales of goods and services and over \$800 million in pre-tax profits. Among the manufacturing subdivisions, Wood and paper product manufacturing is one of the smaller industries ranking seventh in employment, sixth in turnover and seventh in operating profits before tax.

Between 1995–96 and 1996–97 sales of goods and services fell by 0.5%. Proportionally, the cost of sales fell considerably more (by 3.5%) leading to an increase in trading profit of over 5%. However, an increase in labour costs, in depreciation and in other operating costs outweighed the increase in trading profits so that operating profits before tax were almost 7% lower in 1996–97 than they had been in 1995–96.

The industry balance sheet shows an increase from 1995–96 to 1996–97 in both industry assets and industry liabilities. Over the period, total assets increased by 10.2% and total liabilities were up by almost 7.6%. Net worth (total assets minus total liabilities) increased by 13.2%. Despite the decreases in sales and in profits, net capital expenditure (capital outlays minus receipts from sale of capital goods) for Wood and paper product manufacturers increased by almost 12% from 1995–96 to 1996–97.

2.16 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>no.</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	11 892	11 838	-0.5
Less cost of sales	7 774	7 503	-3.5
Trading profit	4 118	4 335	5.3
<i>Plus interest income</i>	40	35	-11.6
<i>Plus other operating income</i>	147	128	-13.1
Less labour costs	2 468	2 586	4.8
Less depreciation	396	445	12.6
Less other operating expenses	294	371	26.1
Earnings before interest and tax	1 148	1 096	-4.5
Less interest expenses	282	290	3.0
Operating profit before tax	866	806	-6.9
<i>Balance sheet</i>			
Current assets	3 740	3 747	0.2
Non-current assets	7 271	8 383	15.3
<i>Total assets</i>	<i>11 011</i>	<i>12 130</i>	<i>10.2</i>
Current liabilities	3 334	2 360	-29.2
Non-current liabilities	2 640	4 068	54.1
<i>Total liabilities</i>	<i>5 974</i>	<i>6 429</i>	<i>7.6</i>
Net worth	5 037	5 701	13.2
<i>Capital outlays</i>			
Net capital expenditure	846	946	11.8

Source: ABS, unpublished data, Manufacturing Survey.

Wood and paper product
manufacturing businesses
continued

The 1996–97 industry profit margin of 6.7% (i.e. \$6.70 of pre-tax profits per \$100 of operating income) was 6.3% lower than the 1995–96 result. However, despite the decrease, the industry profit margin remained marginally above the overall manufacturing profit margin (6.2%). The current ratio improved considerably between 1995–96 and 1996–97. However, the industry experienced a 36% rise in the ratio of long term debt to equity.

2.17 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i> %
Selected performance measures			
Profit margin	7.2	6.7	–6.3
Return on assets	7.9	6.6	–15.5
Long term debt to equity	0.5	0.7	36.1
Current ratio	1.1	1.6	41.5
Interest coverage	4.1	3.8	–7.3

Source: ABS, unpublished data, Manufacturing Survey.

PRINTING, PUBLISHING AND RECORDED MEDIA

Industry classes Table 2.18 presents establishment data for all seven industry classes within the Printing, publishing and recorded media industry. The two largest classes by far are the (general) Printing industry and the Newspaper printing or publishing industry which between them account for over 70% of people employed and around 65% of production for the total Printing, publishing and recorded media industry.

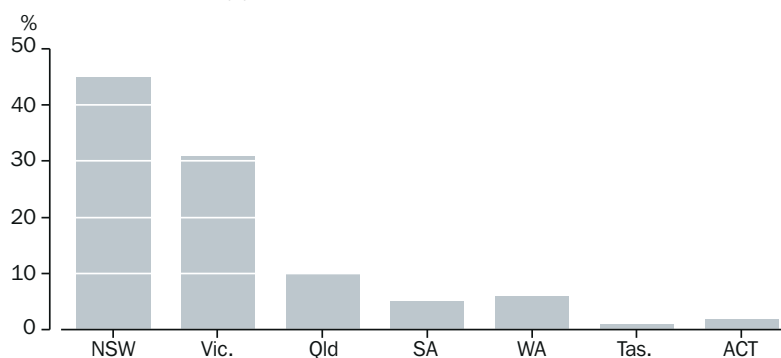
2.18 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Newspaper printing or publishing	29 556	4 746	2 234
Printing	39 786	5 337	2 139
Book and other publishing	5 610	1 368	834
Recorded media manufacturing and publishing	2 204	663	425
Paper stationery mfg	7 098	1 086	382
Other periodical publishing	5 450	993	364
Services to printing	7 036	676	356
Total printing, publishing and recorded media	96 739	14 868	6735

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.19 PRODUCTION(a)—1996–97



(a) NT contributed less than 0.5% of production of this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Printing, publishing and recorded media businesses

In 1996–97, Printing, publishing and recorded media businesses employed over 100,000 people. These businesses generated over \$15 billion in sales of goods and services and almost \$1.2 billion in operating profit before tax. Among the manufacturing subdivisions, Printing, publishing and recorded media ranks fifth in each of employment, turnover and operating profit before tax.

Between 1995–96 and 1996–97 sales of goods and services increased by over 10%. However, proportionally, the cost of sales increased by more (by over 15%) and as a result, trading profit increased proportionally less than sales. Despite the increase in trading profit the industry experienced a decrease of almost 7% in operating profits before tax mainly because of a substantial increase in interest expenses (43%) and in depreciation expenses (25%).

The industry balance sheet shows an increase in assets and a fall in liabilities from 1995–96 to 1996–97. Over the period, total assets increased by almost 4% while total liabilities were down by a little over 1%. As a result net worth (total assets minus total liabilities) increased by almost 9%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Printing, publishing and recorded media fell by around 16% from 1995–96 to 1996–97.

2.20 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
Income statement			
Sales of goods and services	13 724	15 211	10.8
Less cost of sales	7 328	8 456	15.4
Trading profit	6 396	6 756	5.6
Plus interest	53	64	19.8
Plus other operating income	187	152	-18.6
Less labour costs	3 889	3 962	1.9
Less depreciation	463	580	25.2
Less other operating expenses	733	841	14.9
Earnings before interest and tax	1 552	1 589	2.4
Less interest expenses	281	403	43.4
Operating profit before tax	1 271	1 186	-6.7
Balance sheet			
Current assets	6 138	6 131	-0.1
Non-current assets	15 261	16 070	5.3
Total assets	21 400	22 202	3.7
Current liabilities	4 551	4 099	-9.9
Non-current liabilities	6 093	6 393	4.9
Total liabilities	10 644	10 492	-1.4
Net worth	10 756	11 710	8.9
Capital outlays			
Net capital expenditure	387	325	-16.0

Source: ABS, unpublished data, Manufacturing Survey.

Printing, publishing and recorded media businesses

continued

The 1996–97 industry profit margin of 7.7% (i.e. \$7.70 of pre-tax profits per \$100 of operating income) was a substantial decrease compared to the 1995–96 result. However, despite the decrease, the industry profit margin remained above the overall manufacturing profit margin (6.2%). Except for a strengthening in the current ratio and a marginal improvement in long term debt to equity the other selected performance measures indicated a fall in industry performance between 1995–96 and 1996–97.

2.21 INDUSTRY PERFORMANCE

<i>Industry performance</i>	<i>1995–96</i>	<i>1996–97</i>	<i>Change</i>
			<i>%</i>
Selected performance measures			
Profit margin	9.1	7.7	–15.5
Return on assets	5.9	5.3	–10.0
Long term debt to equity	0.6	0.5	–3.6
Current ratio	1.3	1.5	10.9
Interest coverage	5.5	3.9	–28.6

Source: ABS, unpublished data, Manufacturing Survey.

PETROLEUM, COAL, CHEMICAL AND ASSOCIATED PRODUCT MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.22 presents establishment data for the seven largest of the 23 industry classes within the Petroleum, coal, chemical and associated product manufacturing industry. These seven classes accounted for over 55% of people employed and for 60% of 1996–97 production for the Petroleum, coal, chemical and associated product manufacturing industries as a whole.

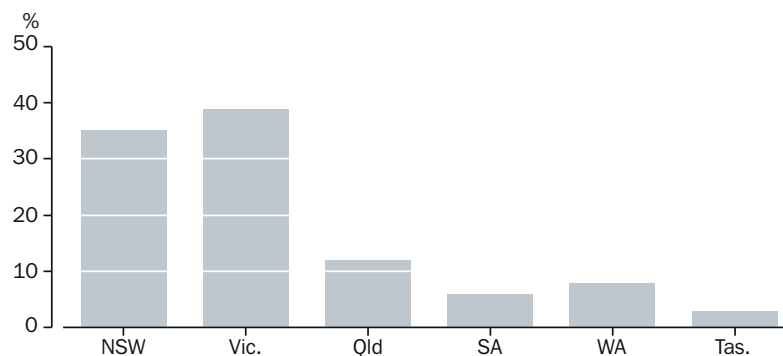
2.22 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Medicinal and pharmaceutical product mfg	12 020	4 061	1 293
Petroleum refining	3 673	7 647	1 245
Plastic injection moulded product mfg	17 001	2 397	899
Paint mfg	5 480	1 557	560
Plastic bag and film mfg	6 455	1 455	512
Synthetic resin mfg	4 695	2 141	500
Inorganic industrial chemical mfg n.e.c.	3 475	1 487	459
Balance of petroleum, coal, chemical and associated product mfg	40 577	12 118	3 624
Total petroleum, coal, chemical and associated product mfg	93 376	32 863	9 092

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.23 PRODUCTION(a)—1996–97



(a) NT and ACT each contributed less than 0.5% of production by this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Petroleum, coal, chemical and associated product manufacturing businesses

In 1996–97, Petroleum, coal, chemical and associated product manufacturing businesses employed over 100,000 people. These businesses generated over \$37 billion in sales of goods and services and \$2.2 billion in operating profit before tax. Among the manufacturing subdivisions, Petroleum, coal, chemical and associated product manufacturing ranks fourth in employment, third in turnover and fourth in operating profit before tax.

Between 1995–96 and 1996–97 sales of goods and services increased by 4.8%. The cost of sales rose even more however, leading to a small decrease in trading profit (down 0.8%). However, due principally to a decrease in labour costs, operating profits before tax increased (up 2.9%) despite the decrease in trading profits.

The industry balance sheet shows an increase from 1995–96 to 1996–97 in industry assets and a small decrease in industry liabilities. As a result, net worth (total assets minus total liabilities) increased by 7.7%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Petroleum, coal, chemical and associated product manufacturers decreased (down 7.4%) from 1995–96 to 1996–97.

2.24 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	35 470	37 158	4.8
Less cost of sales	26 345	28 104	6.7
Trading profit	9 126	9 054	-0.8
<i>Plus interest income</i>	100	105	5.1
<i>Plus other operating income</i>	399	364	-8.8
<i>Less labour costs</i>	5 249	5 035	-4.1
<i>Less depreciation</i>	1 204	1 296	7.6
<i>Less other operating expenses</i>	512	480	-6.2
Earnings before interest and tax	2 661	2 713	1.9
<i>Less interest expenses</i>	521	510	-2.1
Operating profit before tax	2 141	2 203	2.9
<i>Balance sheet</i>			
Current assets	11 761	12 355	5.0
Non current assets	14 777	14 884	0.7
<i>Total assets</i>	<i>26 538</i>	<i>27 238</i>	<i>2.6</i>
Current liabilities	8 925	9 586	7.4
Non-current liabilities	5 575	4 692	-15.8
<i>Total liabilities</i>	<i>14 500</i>	<i>14 278</i>	<i>-1.5</i>
Net worth	12 037	12 960	7.7
<i>Capital outlays</i>			
Net capital expenditure	1 611	1 491	-7.4

Source: ABS, unpublished data, Manufacturing Survey.

Petroleum, coal, chemical
and associated product
manufacturing businesses

continued

The 1996–97 industry profit margin of 5.9% (i.e. \$5.90 of pre-tax profits per \$100 of operating income) was a small decrease on the 1995–96 result. The industry profit margin remained below the overall manufacturing profit margin (6.2%). While the current ratio fell slightly, the ratio of long term debt to equity improved substantially and interest coverage ratio improved slightly between 1995–96 and 1996–97.

2.25 INDUSTRY PERFORMANCE

<i>Industry performance</i>	<i>Change</i>		
	1995–96	1996–97	%
<i>Selected performance measures</i>			
Profit margin	6.0	5.9	-1.6
Return on assets	8.1	8.1	0.3
Long term debt to equity	0.5	0.4	-21.8
Current ratio	1.3	1.3	-2.2
Interest coverage	5.1	5.3	4.1

Source: ABS, unpublished data, Manufacturing Survey.

NON-METALLIC MINERAL PRODUCT MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.26 presents establishment data for the six largest of the 12 industry classes within the Non-metallic mineral product manufacturing industry. These six classes accounted for almost 80% of people employed and for 80% of 1996–97 production of the Non-metallic mineral product manufacturing industries as a whole.

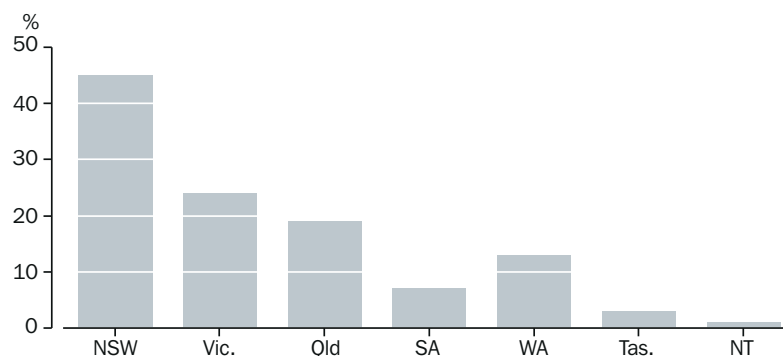
2.26 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Cement and lime mfg	2 428	1 100	440
Concrete product mfg n.e.c.	7 379	1 377	392
Glass and glass product mfg	5 280	1 060	382
Non-metallic mineral product mfg n.e.c.	4 909	864	313
Clay brick mfg	4 089	674	297
Concrete slurry mfg	5 440	2 181	294
Balance of non-metallic mineral product mfg	7 592	1 366	527
Total non-metallic mineral product mfg	37 117	8 622	2 645

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.27 PRODUCTION(a)—1996–97



(a) The ACT contributed less than 0.5% of production by this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Non-metallic mineral
product manufacturing
businesses

In 1996–97, Non-metallic mineral product manufacturing businesses employed almost 45,000 people. These businesses generated almost \$10 billion in sales of goods and services and \$800 million in operating profit before tax. Among the manufacturing subdivisions, Non-metallic mineral product manufacturing is one of the smaller industries ranking last in employment and seventh in operating profits before tax.

Between 1995–96 and 1996–97 sales of goods and services increased by 2.4%. The cost of sales rose even more however, leading to a small decrease in trading profit (down 1.5%). In addition to the decrease in trading profits the industry also experienced decreases in other sources of income and an overall increase in other costs which together led to a decrease of almost 11% in operating profit before tax.

The industry balance sheet shows a decrease from 1995–96 to 1996–97 in industry assets and an increase in industry liabilities. As a result, net worth (total assets minus total liabilities) decreased substantially (by 33.6%). Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Non-metallic mineral product manufacturers grew by over 60% from 1995–96 to 1996–97.

2.28 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	9 532	9 760	2.4
Less cost of sales	5 933	6 215	4.7
Trading profit	3 599	3 546	-1.5
Plus interest income	28	17	-38.3
Plus other operating income	144	108	-24.9
Less labour costs	2 074	2 041	-1.6
Less depreciation	443	534	20.5
Less other operating expenses	133	103	-22.1
Earnings before interest and tax	1 122	993	-11.5
Less interest expenses	217	187	-14.0
Operating profit before tax	905	807	-10.9
<i>Balance sheet</i>			
Current assets	3 694	3 421	-7.4
Non-current assets	8 523	7 217	-15.3
<i>Total assets</i>	<i>12 215</i>	<i>10 638</i>	<i>-12.9</i>
Current liabilities	3 013	2 834	-6
Non-current liabilities	3 125	3 768	20.6
<i>Total liabilities</i>	<i>6 139</i>	<i>6 602</i>	<i>7.5</i>
Net worth	6 078	4 036	-33.6
<i>Capital outlays</i>			
Net capital expenditure	279	458	64.2

Source: ABS, unpublished data, Manufacturing Survey.

Non-metallic mineral
product manufacturing
businesses *continued*

The 1996–97 industry profit margin of 8.2% (i.e. \$8.20 of pre-tax profits per \$100 of operating income) was a substantial decrease compared to the 1995–96 result. However, despite the decrease, the industry profit margin remained well above the overall manufacturing profit margin (6.2%). In fact, this industry had the highest profit margin of all the manufacturing subdivisions. While there was a slight fall in the current ratio, of greater significance is the substantial rise in the ratio of long term debt to equity between 1995–96 and 1996–97.

2.29 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i> %
Selected performance measures			
Profit margin	9.3	8.2	-12.5
Return on assets	7.4	7.6	2.4
Long term debt to equity	0.5	0.9	81.6
Current ratio	1.2	1.2	-1.5
Interest coverage	5.2	5.3	3.0

Source: ABS, unpublished data, Manufacturing Survey.

METAL PRODUCT MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.30 presents establishment data for the six largest of the 21 industry classes within the Metal product manufacturing industry. These six classes accounted for almost 60% of people employed and around two thirds of the production of the Metal product manufacturing industries as a whole.

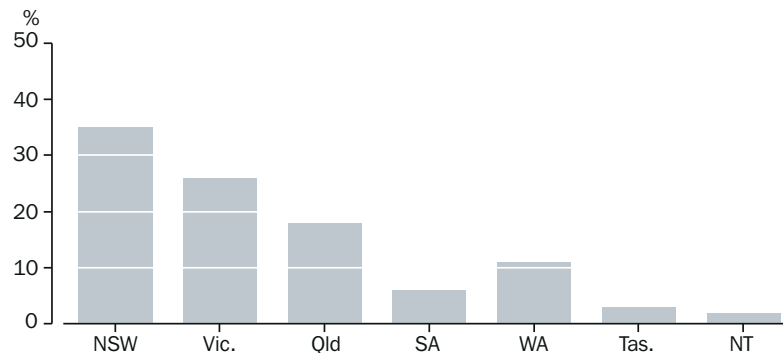
2.30 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Basic iron and steel mfg	20 420	8 980	2 476
Fabricated metal product mfg n.e.c.	23 564	2 818	1 093
Structural steel fabricating	18 112	3 411	1 082
Aluminium smelting	5 221	3 159	1 011
Alumina production	5 752	3 013	966
Sheet metal product mfg n.e.c.	15 097	2 277	806
Balance of metal product mfg	62 035	14 236	3 672
Total metal product mfg	150 201	37 894	11 106

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.31 PRODUCTION(a)—1996–97



(a) The ACT contributed less than 0.5% of production by this industry.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Metal product manufacturing businesses

In 1996–97, Metal product manufacturing businesses employed over 150,000 people. These businesses generated almost \$35 billion in sales of goods and services and \$2.6 billion in operating profit before tax. Among the manufacturing subdivisions, Metal product manufacturing is one of the larger industries ranking third in employment, fourth in turnover and first in operating profit before tax.

Between 1995–96 and 1996–97 sales of goods and services by Metal product manufacturing businesses fell by 1.7%. However, the cost of sales fell by even more, leading to a small increase in trading profit. Operating profit before tax fell in line with sales.

The industry balance sheet shows a substantial decrease from 1995–96 to 1996–97 in industry assets and an increase in industry liabilities (especially non-current liabilities). As a result, net worth (total assets minus total liabilities) fell by over 20%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) for Metal product manufacturers fell substantially from 1995–96 to 1996–97.

2.32 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
	\$ million	\$ million	%
<i>Industry performance</i>			
<i>Income statement</i>			
Sales of goods and services	35 394	34 782	-1.7
Less cost of sales	24 473	23 760	-2.9
Trading profit	10 921	11 022	0.9
Plus interest income	115	97	-15.8
Plus other operating income	232	155	-33.2
Less labour costs	6 652	6 622	-0.4
Less depreciation	1 235	1 301	5.3
Less other operating expenses	284	268	-5.8
Earnings before interest and tax	3 098	3 084	-0.4
Less interest expenses	451	485	7.4
Operating profit before tax	2 646	2 599	-1.8
<i>Balance sheet</i>			
Current assets	11 740	10 572	-10
Non-current assets	23 219	20 937	-9.8
<i>Total assets</i>	<i>34 959</i>	<i>31 509</i>	<i>-9.9</i>
Current liabilities	7 566	7 847	3.7
Non-current liabilities	6 951	7 840	12.8
<i>Total liabilities</i>	<i>14 517</i>	<i>15 687</i>	<i>8.1</i>
Net worth	20 442	15 822	-22.6
<i>Capital outlays</i>			
Net capital expenditure	2 702	1 322	-51.1

Source: ABS, unpublished data, Manufacturing Survey.

Metal product
manufacturing businesses

continued

The 1996–97 industry profit margin of 7.4% (i.e. \$7.40 of pre-tax profits per \$100 of operating income) was virtually the same as the 1995–96 result. The industry profit margin remained above the overall manufacturing profit margin (6.2%). The relationship between assets and liabilities changed markedly between 1995–96 and 1996–97. The current ratio (current assets as a proportion of current liabilities) fell from 1.6 to 1.3 while the ratio of long term debt to equity grew by over 45%.

2.33 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i> %
Selected performance measures			
Profit margin	7.4	7.4	0.2
Return on assets	7.6	8.2	9.0
Long term debt to equity	0.3	0.5	45.7
Current ratio	1.6	1.3	-13.2
Interest coverage	6.9	6.4	-7.3

Source: ABS, unpublished data, Manufacturing Survey.

MACHINERY AND EQUIPMENT MANUFACTURING

Largest industry classes (in terms of 1996–97 production)

Table 2.34 presents establishment data for the 10 largest of the 27 industry classes within the Machinery and equipment manufacturing industry. These 10 classes accounted for almost 65% of people employed and for almost 70% of 1996–97 production by the Machinery and equipment manufacturing industries as a whole.

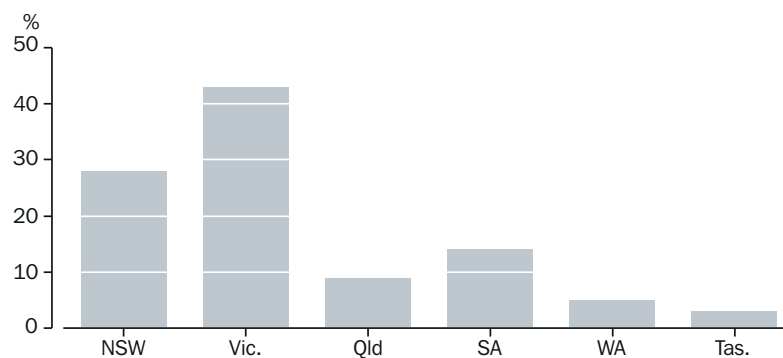
2.34 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Motor vehicle mfg	20 702	10 159	2 379
Automotive component mfg n.e.c.	21 771	3 209	1 240
Telecommunication, broadcasting and transceiving equipment mfg	7 517	2 212	939
Electrical equipment mfg n.e.c.	16 099	2 455	867
Industrial machinery and equipment mfg n.e.c.	14 133	1 934	763
Electronic equipment mfg n.e.c.	10 553	1 870	678
Aircraft mfg	12 165	1 459	662
Household appliance mfg	12 909	2 092	637
Shipbuilding	7 130	1 595	490
Mining and construction machinery mfg	7 906	1 493	488
Balance of machinery and equipment mfg	76 569	12 782	4 095
Total machinery and equipment mfg	207 454	41 260	13 238

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.35 PRODUCTION(a)—1996–97



(a) NT and ACT each contributed less than 0.5% of production by this industry.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Machinery and equipment manufacturing businesses

In 1996–97, Machinery and equipment manufacturing businesses employed over 210,000 people. These businesses generated almost \$42 billion in sales of goods and services and over \$2.4 billion in operating profits before tax. Among the manufacturing subdivisions, Machinery and equipment manufacturing is one of the larger industries ranking first in employment, fourth in turnover and third in operating profits before tax.

Between 1995–96 and 1996–97 sales of goods and services by Machinery and equipment manufacturing businesses rose by 0.9%. However, the cost of sales rose by more, leading to a decrease in trading profit (down 1.9%). The decrease in trading profits was compounded by decreases in other sources of income and despite a small fall in other costs, operating profits before tax fell by 5.8%.

The industry balance sheet shows a decrease from 1995–96 to 1996–97 in both industry assets and in industry liabilities. Net worth (total assets minus total liabilities) fell by 4.5%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) by Machinery and equipment manufacturers fell substantially from 1995–96 to 1996–97.

2.36 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
<i>Industry performance</i>	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
<i>Income statement</i>			
Sales of goods and services	41 618	41 983	0.9
Less cost of sales	28 807	29 411	2.1
Trading profit	12 811	12 572	-1.9
Plus interest income	270	197	-28.1
Plus other operating income	472	420	-11.0
Less labour costs	8 975	8 678	-3.3
Less depreciation	1 055	1 245	17.9
Less other operating expenses	487	418	-14.1
Earnings before interest and tax	3 035	2 848	-6.2
Less interest expenses	440	403	-8.5
Operating profit before tax	2 595	2 446	-5.8
<i>Balance sheet</i>			
Current assets	17 425	15 097	-13.4
Non-current assets	10 861	11 449	5.4
<i>Total assets</i>	28 286	26 546	-6.2
Current liabilities	11 627	10 292	-11.5
Non-current liabilities	5 008	5 126	2.4
<i>Total liabilities</i>	16 635	15 418	-7.3
Net worth	11 650	11 128	-4.5
<i>Capital outlays</i>			
Net capital expenditure	1 159	926	-20.1

Source: ABS, unpublished data, Manufacturing Survey.

Machinery and equipment
manufacturing businesses
continued

The 1996–97 industry profit margin of 5.7% (i.e. \$5.70 of pre-tax profits per \$100 of operating income) represented a 6.3% decrease on the 1995–96 result. The industry profit margin remained below the overall manufacturing profit margin (6.2%). The current ratio (current assets as a proportion of current liabilities) fell marginally while the ratio of long term debt to equity grew by over 7%.

2.37 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i>
			%
<i>Selected performance measures</i>			
Profit margin	6.1	5.7	–6.3
Return on assets	9.2	9.2	0.4
Long term debt to equity	0.4	0.5	7.2
Current ratio	1.5	1.5	–2.1
Interest coverage	6.9	7.1	2.6

Source: ABS, unpublished data, Manufacturing Survey.

OTHER MANUFACTURING

Industry classes Table 2.38 presents establishment data for all nine industry classes within the Other manufacturing subdivision of the manufacturing industry. The largest of those classes is the Wooden furniture and upholstered seat manufacturing industry which accounts for almost half of the people employed and over 40% of production for the total Other manufacturing subdivision.

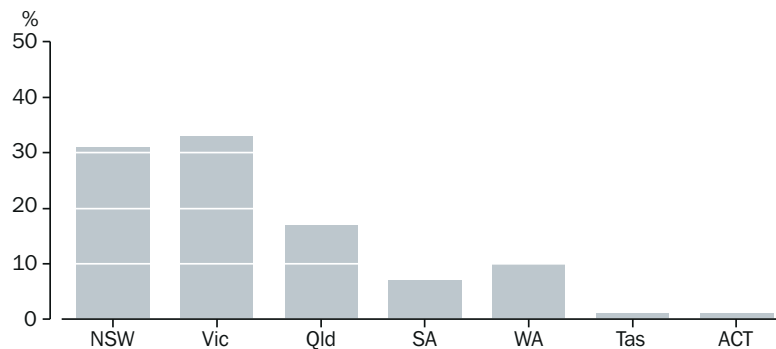
2.38 INDUSTRY COMPOSITION—1996–97

	Employment at end of June(a)	Turnover	Industry Gross Product (production)
	no.	\$ million	\$ million
Wooden furniture and upholstered seat mfg	28 484	2 733	933
Manufacturing n.e.c.	7 564	829	307
Furniture mfg n.e.c.	7 185	781	344
Prefabricated metal building mfg	2 447	501	162
Mattress mfg (except rubber)	3 207	477	139
Sheet metal furniture mfg	3 287	429	152
Jewellery and silverware mfg	2 932	366	109
Toy and sporting good mfg	2 386	263	82
Prefabricated building mfg n.e.c.	389	67	22
Total other mfg	57 881	6 446	2 252

(a) Includes working proprietors.

Source: ABS, *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

2.39 PRODUCTION(a)—1996–97



(a) NT contributed less than 0.5% of production by this industry.

Source: *Manufacturing Industry, Australia, 1996–97* (Cat. no. 8221.0).

Other manufacturing businesses In 1996–97, Other manufacturing businesses employed over 55,000 people. These businesses generated \$6.2 billion in sales of goods and services and almost \$300 million in operating profits before tax. Among the manufacturing subdivisions, Other manufacturing is one of the smaller industries ranking eighth in employment and last in operating profits before tax.

Between 1995–96 and 1996–97 sales of goods and services by Other manufacturing businesses rose by 8.1% and trading profit rose by almost 5%. However, the increase in trading profits was outweighed by decreases in other sources of income and in particular by an increase in labour costs such that operating profits before tax fell by 13.5%.

The industry balance sheet shows an increase from 1995–96 to 1996–97 in both industry assets and in industry liabilities, though the increase in assets was considerably larger. As a result, net worth (total assets minus total liabilities) rose by 16%. Net capital expenditure (capital outlays minus receipts from sale of capital goods) by Other manufacturers rose substantially in percentage terms from 1995–96 to 1996–97.

2.40 INCOME STATEMENT AND BALANCE SHEET

	1995–96	1996–97	Change
	\$ million	\$ million	%
<i>Industry performance</i>			
<i>Income statement</i>			
Sales of goods and services	5 734	6 200	8.1
Less cost of sales	3 706	4 077	10.0
Trading profit	2 028	2 123	4.7
Plus interest income	10	13	25.1
Plus other operating income	64	17	-72.8
Less labour costs	1 514	1 599	5.6
Less depreciation	96	111	16.0
Less other operating expenses	83	81	-1.4
Earnings before interest and tax	410	362	-11.6
Less interest expenses	76	74	-3.4
Operating profit before tax	334	289	-13.5
<i>Balance sheet</i>			
Current assets	1 921	1 794	-6.6
Non-current assets	1 102	1 409	27.8
<i>Total assets</i>	<i>3 023</i>	<i>3 203</i>	<i>5.9</i>
Current liabilities	1 376	1 340	-2.6
Non-current liabilities	0 643	696	8.2
<i>Total liabilities</i>	<i>2 019</i>	<i>2 036</i>	<i>0.9</i>
Net worth	1 004	1 166	16.2
<i>Capital outlays</i>			
Net capital expenditure	133	205	54.5

Source: ABS, unpublished data, Manufacturing Survey.

Other manufacturing
businesses *continued*

The 1996–97 industry profit margin of 4.6% (i.e. \$4.60 of pre-tax profits per \$100 of operating income) represented a substantial decrease (of almost 20%) on the 1995–96 result. The industry profit margin fell even further below the overall manufacturing profit margin (6.2%). The current ratio (current assets as a proportion of current liabilities) fell marginally. However in contrast, the ratio of long term debt to equity fell by almost 7%.

2.41 INDUSTRY PERFORMANCE

<i>Industry performance</i>	1995–96	1996–97	<i>Change</i> %
Selected performance measures			
Profit margin	5.7	4.6	–19.4
Return on assets	11.0	9.0	–18.4
Long term debt to equity	0.6	0.6	–6.9
Current ratio	1.4	1.3	–4.1
Interest coverage	5.4	4.9	–8.6

Source: ABS, unpublished data, Manufacturing Survey.

CHAPTER 3

INTRODUCTION

LATEST INDICATORS

Chapter 3 provides indicative information about the manufacturing industry from a number of quarterly surveys. A general picture of the manufacturing industry can be built up from these surveys but readers should be aware that the results of these surveys, though generally consistent, are not always identical. Readers should also note that quarterly information provided by businesses is generally preliminary in nature and when summed to represent financial years, may differ from data collected in the annual surveys for those years.

There are several reasons why these small differences arise including:

- *Sampling variability*: The surveys obtain information from samples of manufacturers and thus, the results are subject to sampling error (see the Glossary for explanation).
- *Scope differences*: While most surveys are set up to provide estimates for the whole manufacturing industry, some are constrained by practical considerations to estimate for a different population. For example, the quarterly Company Profits Survey estimates profits data only for incorporated businesses (companies) which employ more than 30 people.

Key features of the different surveys are mentioned in the relevant articles. However, no attempt has been made to provide exhaustive explanatory or definitional material. Readers wishing to pursue finer details of the various surveys should consult the Explanatory Notes to the relevant publications or contact the ABS.

SALES OF GOODS

This section presents summary information on manufacturer's sales of goods for the past two financial years. Sales data are presented in two forms. Estimates in current prices reflect the amounts actually received by the manufacturers. Those in constant prices reflect the same transactions after an adjustment has been made to remove the effects of price changes. Current price data are used to measure levels and year to year changes in the value of goods while constant price data are used to estimate year to year changes in the volume of goods.

Sales of goods Total sales of goods by manufacturers increased by 2.1% from 1996–97 to 1997–98 measured in current prices and by 0.7% measured in constant prices. As would be expected in periods of low price rises, changes from 1996–97 to 1997–98 tended to be in the same direction for both current price sales and constant prices sales. Five of the nine industry subdivisions increased sales in both current and constant price terms. Printing, publishing and recorded media recorded the largest percentage increases by far (up 16.8% and 15.1% respectively) with Food, beverage and tobacco manufacturers also experiencing strong growth in sales (up 6.8% and 4.2% respectively). Falls in sales in both current and constant price terms were recorded in Metal product

Sales of goods *continued* manufacturing (down 7.4% and 9.9% respectively), Non-metallic mineral product manufacturing (down 3.0% and 4.3% respectively) and Textile, clothing, footwear and leather manufacturing (down 1.5% and 1.9% respectively). Machinery and equipment manufacturing maintained its sales level in current prices but experienced a small percentage fall in constant price terms (down 0.9%).

A guide to changes in price levels for the industries shown in table 3.1 can be obtained by comparing changes to sales measured in current prices with changes to sales measured in constant prices. Current price sales by manufacturers increased by a greater percentage (2.1%) between 1996–97 and 1997–98 than constant price sales (0.7%), implying a slight rise (of a little over 1%) in average prices. Most industry subdivisions followed a similar pattern, however falls in average prices were recorded in Wood and paper product manufacturing and Petroleum, coal, chemical and associated product manufacturing. Average prices in Other manufacturing remained constant between the two years.

Readers should note that these implied price changes for manufacturing as a whole will not necessarily be identical to the price changes shown in table 3.9, although the two estimates are very similar (1.4% from table 3.1 and 1.3% from table 3.9). The difference mainly arises from differences in what is being measured; i.e. table 3.1 covers sales of all goods produced by manufacturing businesses whereas the price changes in table 3.9 exclude sales to other businesses in the same industry. Also, for manufacturing as a whole, there are small classification differences between the ANZSIC on which table 3.1 is based and the ASIC on which table 3.9 is based.

3.1 SALES OF GOODS

Industry	Current prices			Constant prices		
	1996–97 \$ million	1997–98 \$ million	Change %	1996–97 \$ million	1997–98 \$ million	Change %
Food, beverage and tobacco mfg	43 749	46 723	6.8	36 430	37 946	4.2
Textile, clothing, footwear and leather mfg	9 128	8 993	-1.5	8 094	7 944	-1.9
Wood and paper product mfg	13 150	13 727	4.4	11 552	12 081	4.6
Printing, publishing and recorded media	9 623	11 243	16.8	7 238	8 333	15.1
Petroleum, coal, chemical and associated product mfg	34 630	36 017	4.0	31 320	32 894	5.0
Non-metallic mineral product mfg	9 718	9 431	-3.0	8 341	7 985	-4.3
Metal product mfg	31 930	29 561	-7.4	30 321	27 322	-9.9
Machinery and equipment mfg	38 732	38 733	—	34 245	33 945	-0.9
Other mfg	6 508	6 863	5.5	5 552	5 856	5.5
Total mfg	197 168	201 292	2.1	173 095	174 305	0.7

Source: Stocks and Sales, Selected Industries, Australia, June Quarter 1998 (Cat. no. 5629.0).

CAPITAL EXPENDITURE

The manufacturing industry was responsible for almost a quarter of 1997–98 capital expenditure by private sector businesses in Australia. Capital expenditure by the manufacturing industry increased by over \$700 million (7.3%) between 1996–97 and 1997–98. Proportionally, the increase in expenditure on buildings and structures (up by 19.3%) was much greater than the increase in expenditure on equipment, plant and machinery (up by 4.9%). However, in value terms, the increase was greater for equipment, plant and machinery.

The majority of manufacturing subdivisions recorded increases in capital expenditure, with the largest percentage increases being recorded by Other manufacturing (up 51.8%), Printing, publishing and recorded media (up 34.6%) and Food, beverage and tobacco manufacturing (up 20.6%). A large percentage decrease was recorded by Non-metallic mineral product manufacturing (down 17.8%), with smaller percentage decreases recorded by Petroleum, coal, chemical and associated product manufacturing (down 5.2%) and Wood and paper product manufacturing (down 2.1%).

In 1996–97, the manufacturing subdivisions undertaking most capital expenditure were Machinery and equipment manufacturing (19.7% of total manufacturing), Food, beverage and tobacco manufacturing (19.6%) and Petroleum, coal, chemical and associated product manufacturing (16.3%). However, the composition had changed by 1997–98 such that the three largest subdivisions were Food, beverage and tobacco manufacturing (22%), Machinery and equipment manufacturing (19.4%) and Metal product manufacturing (15.3%).

3.2 PRIVATE NEW CAPITAL EXPENDITURE

<i>Industry</i>	1996–97	1997–98	Change
	<i>\$ million</i>	<i>\$ million</i>	<i>%</i>
Food, beverage and tobacco mfg	1 997	2 408	20.6
Textile, clothing, footwear and leather mfg	251	287	14.3
Wood and paper product mfg	920	901	-2.1
Printing, publishing and recorded media	587	790	34.6
Petroleum, coal, chemical and associated product mfg	1 664	1 578	-5.2
Non-metallic mineral product mfg	1 071	880	-17.8
Metal product mfg	1 501	1 671	11.3
Machinery and equipment mfg	2 007	2 125	5.9
Other mfg	199	302	51.8
Total mfg	10 198	10 942	7.3
Of which			
Buildings and structures	1 686	2 011	19.3
Equipment, plant and machinery	8 511	8 930	4.9

Source: ABS, *Private New Capital Expenditure and Expected Expenditure, Australia, June Quarter 1998* (Cat. no. 5625.0).

COMPANY PROFITS

This section presents data for company profits. The information has been compiled from the ABS quarterly Survey of Company Profits. That survey covers only companies which employ more than 30 people (it excludes all companies employing 30 or fewer people and all unincorporated businesses regardless of size). Thus, it presents different profits data to those presented in chapter 2 where data for all manufacturing businesses were included. This article is primarily intended to provide indications of the direction and magnitude of changes to industry profits, though it also gives an approximate guide to profit levels.

Manufacturing industry profits rose by almost 8% between 1995–96 and 1997–98. The increase in profits (up 15%) between 1996–97 and 1997–98 was partially offset by the decrease (down 6%) which occurred between 1995–96 and 1996–97.

The rise of 8% in manufacturing industry profits over the two years was a better result than for the total for all industries (down by 2%). The all industries result was due to substantial losses in Property and business services (\$10m in 1995–96, \$204m in 1997–98) and large decreases in profits in a number of industries, including Services to finance and insurance (down 87%), Other services (down 31%) and Mining (down 11%). Industries that experienced marked increases in profits included Construction (up 29%), Transport and storage (26%) and Wholesale trade (up 12%).

Most manufacturing subdivisions, after a fall in profit between 1995–96 and 1996–97, experienced increases between 1996–97 and 1997–98. The only exception was Machinery and equipment manufacturing which experienced a small rise (of 3.8%) between 1995–96 and 1996–97 but a much greater decrease between 1996–97 and 1997–98 (down 18%). Over the two years 1995–96 to 1997–98 notable falls in profits were experienced by Machinery and equipment manufacturing (down 15%) and Textile, clothing, footwear and leather manufacturing (down 13%), whilst strong increases were experienced by Food, beverage and tobacco manufacturing (up 30%), Metal product manufacturing and Other manufacturing (both up 20%).

	1995-96	1996-97	1997-98	Change between	
				1995-96 and	1996-97 and
				1996-97	1997-98
	\$ million	\$ million	\$ million	%	%
Food, beverage and tobacco mfg	2 291	2 285	2 962	-0.3	29.6
Textile, clothing, footwear and leather mfg	269	203	233	-24.5	14.8
Wood and paper product mfg	731	625	683	-14.5	9.3
Printing, publishing and recorded media	1 127	1 098	1 198	-2.6	9.1
Petroleum, coal, chemical and associated product mfg	2 114	1 925	2 259	-8.9	17.4
Non-metallic mineral product mfg	754	602	719	-20.2	19.4
Metal product mfg	1 656	1 502	1 985	-9.3	32.2
Machinery and equipment mfg	1 774	1 842	1 509	3.8	-18.1
Other mfg	56	42	67	-25.0	59.5
Total mfg	10 771	10 126	11 615	-6.0	14.7

Source: ABS, *Company Profits, Australia, June Quarter 1998* (Cat. no. 5651.0).

EMPLOYEES AND THEIR EARNINGS

In presenting data for employees only, this section differs from others in this publication. Other sections present data for total employment which includes working proprietors and partners of unincorporated manufacturing businesses as well as employees.

This section also presents average weekly earnings for employees, covering wages and salaries, overtime and penalty pay. Chapter 2 presents labour costs in a wider context including not only the wages and salaries etc. covered in this section but also such labour costs as redundancy payments, workers' compensation premiums and superannuation contributions by employers.

Wage and salary earners Table 3.4 shows the estimates of the average number of wages and salary earners (paid employees) in Australian manufacturing for the years ended May 1997 and May 1998. Manufacturing experienced a marginal decrease between the two years (down 0.1%), contrasting with a growth of 0.6% in the number of paid employees for all industries.

Despite the fall in paid employees of 0.1% in manufacturing, the number in full-time employment increased by 0.1% over the same period. This increase was offset by a drop of 2.6% in the number part-time employees. Estimates for all industries showed the opposite pattern where there was an increase in the total number of paid employees of 0.6%, but a fall in full-time employees (down 0.9%) and an increase in part-time employees (up 4.1%).

3.4 WAGE AND SALARY EARNERS

	<i>Manufacturing</i>	<i>Total all industries</i>
Year ended May 1997 ('000)		
Full-time	838.0	4 769.875
Part-time	100.5	2 060.9
Year ended May 1998 ('000)		
Full-time	839.2	4 725.15
Part-time	97.9	2 145.85
Change (%)		
Full-time	0.1	-0.9
Part-time	-2.6	4.1
Total	-0.1	0.6

Source: ABS, *Wage and Salary Earners, Australia, June Quarter 1998* (Cat. no. 6248.0).

Average weekly earnings of employees Average weekly earnings statistics represent average gross (before tax) earnings of employees excluding retrospective pay, pay in advance, leave loadings and severance and redundancy payments.

All employees In May 1998, average earnings in manufacturing (\$685.90) were substantially higher than the all industries average (\$596.20). The higher overall average in manufacturing is mainly a result of manufacturing having relatively more male employees and relatively more full-time employees than most other industries.

Between May 1997 and May 1998, manufacturing average earnings grew at a faster rate than overall average earnings (4.4% for manufacturing; 2.4% for all industries). Earnings of male employees increased by 5.0% for manufacturing and 4.1% for all industries whereas, earnings of female employees fell 0.4% for manufacturing and rose 2.4% for all industries.

Full-time adult employees In May 1998 average ordinary time earnings of \$707.60 for males and \$571.00 for females for manufacturing employees were well below the averages for all industries (\$773.20 and \$646.90 respectively). However, manufacturing average earnings grew at a faster rate between May 1997 and May 1998 than overall average earnings.

For full-time manufacturing employees total average earnings increased by 6.2% and average ordinary earnings increased by 5.4% from May 1997 to May 1998. For males both total and ordinary average earnings increased at a greater rate than the averages for all industries, whereas for females the converse was true.

Female/male earnings ratio The ratio of average female earnings to average male earnings fell in the manufacturing industry (from 74% of average male earnings in May 1997 to 70% in May 1998). If full time employees only are considered, the ratio of average female ordinary time earnings to average male ordinary time earnings in the manufacturing industry also fell from 83% in May 1997 to 81% in May 1998.

3.5 AVERAGE WEEKLY EARNINGS

	<i>Manufacturing</i>		<i>All industries</i>	
	<i>May 1997</i>	<i>May 1998</i>	<i>May 1997</i>	<i>May 1998</i>
<i>Employees</i>	\$	\$	\$	\$
Males	706.80	742.10	686.30	714.50
Females	520.50	518.40	457.40	468.30
Persons	656.90	685.90	577.50	596.20

Source: ABS, *Labour Force, Australia, May 1998* (Cat. no. 6203.0).

3.6 AVERAGE WEEKLY EARNINGS, BY FULL-TIME EMPLOYEES

	<i>Manufacturing</i>		<i>All industries</i>	
	<i>May 1997</i>	<i>May 1998</i>	<i>May 1997</i>	<i>May 1998</i>
<i>Earnings</i>	\$	\$	\$	\$
Ordinary time				
Males	665.00	707.60	740.70	773.20
Females	553.50	571.00	620.30	646.90
Persons	639.20	678.90	696.60	726.90
Total				
Males	743.50	783.80	795.80	829.90
Females	588.70	604.30	634.80	660.60
Persons	707.80	746.10	736.80	767.80

Source: ABS, *Average Weekly Earnings, States and Australia, May 1998* (Cat. no. 6302.0).

States and Territories The pattern of change in the number of paid employees in manufacturing from the year ended May 1997 to the year ended May 1998 varied across the States and Territories. Three States (South Australia, Western Australia and Tasmania) and both Territories recorded falls in the number of employees in manufacturing, while Queensland and Victoria recorded increases. When compared with the change in the number of employees in all industries, in general States having the largest percentage of their paid employees engaged in manufacturing maintained or increased manufacturing's share of paid employees. The exceptions were South Australia, where manufacturing fell from 17.1% to 16.9% of all paid employees and New South Wales with a drop of 0.1 percentage points to 12.3% of all paid employees.

3.7 WAGE AND SALARY EARNERS

	Manufacturing (average over year)			Manufacturing share of all industries	
	Year to May 1997	Year to May 1998	Change	Year to May 1997	Year to May 1998
State and Territory	'000	'000	%	'000	'000
New South Wales	293.4	293.4	—	12.4	12.3
Victoria	323.8	324.8	0.3	18.6	18.6
Queensland	134.6	139.2	3.4	11.5	11.7
South Australia	86.4	84.9	-1.7	17.1	16.9
Western Australia	71.3	66.7	-6.5	10.6	9.7
Tasmania	21.9	21.7	-1.0	13.3	13.6
Northern Territory	3.3	3.1	-6.8	4.6	4.4
Australian Capital Territory	3.7	3.4	-8.1	2.7	2.5
Australia	938.4	937.0	-0.1	13.7	13.6

Source: Source: Average Weekly Earnings, States and Australia, May 1998 (Cat. No. 6302.0).

ARTICLES PRODUCED BY MANUFACTURERS

Table 3.8 shows production of selected manufactured commodities for 1995-96, 1996-97 and 1997-98.

More of the selected commodities have increased production each year from 1995-96 to 1997-98 than have consistently decreased production. Amongst those recording consistently increased production were Ready mixed concrete (with production in 1997-98 up 12.0% on 1996-97 levels and up 19.6% on 1995-96 levels), Chicken meat (up 10.9% and 14.3% respectively), Portland cement (up 8.0% and 13.1% respectively), Aviation turbine fuel (up 2.6% and 11.1% respectively) and Textile floor coverings (up 1.2% and 10.9% respectively). Those commodities recording consistent decreases in production included Knitted or crocheted fabrics (down 25.7% and 35.8% respectively), Man-made fibre broadwoven fabric (down 4.5% and 26.6% respectively), Fuel oil (down 6.8% and 16.2% respectively) and Footwear (excluding waterproof and sports) (down 6.8% and 16.2% respectively).

Other commodities (of those selected) which recorded significant increases in 1997-98 production over the levels recorded in 1995-96 were Synthetic fibre yarn (up 20.3%), Hardwood woodchips (up 17.4%) and Superphosphates (up 7.2%).

3.8 PRODUCTION OF SELECTED MANUFACTURED COMMODITIES

<i>Commodity</i>	<i>Unit of quantity(a)</i>	<i>1995-96</i>	<i>1996-97</i>	<i>1997-98</i>
Red meat	'000 t	2 653	2 715	2 914
Chicken meat	'000 t	481	496	550
Cheese	t	264 439	284 951	288 499
Butter	t	145 418	146 949	153 653
Beer	million L	1 742	1 735	1 757
Tobacco and cigarettes	t	20 390	22 193	21 258
Scoured and carbonised wool	t	158 268	165 268	165 104
Wool and man-made fibre tops	t	54 282	57 645	60 084
Wool yarn	t	20 073	18 285	18 077
Cotton yarn	t	36 955	39 853	36 897
Synthetic fibre yarn	t	10 020	12 697	12 054
Wool woven fabric	'000 m ²	6 523	6 300	6 636
Cotton woven fabric	'000 m ²	63 886	60 617	62 280
Man-made fibre woven fabric	'000 m ²	185 060	142 194	135 760
Knitted or crocheted fabrics	t	18 653	16 117	11 969
Textile floor coverings	'000 m ²	40 118	43 981	44 494
Footwear (excl. waterproof and sports)	'000 pairs	14 357	13 156	12 367
Newsprint	'000 t	445	422	402
Wood pulp	'000 t	986	949	982
Undressed sawn timber	'000 m ³	3 444	3 382	3 658
Hardwood woodchips	'000 t	4 827	4 779	5 665
Paperboard containers	'000 t	1 091	1 138	1 177
Automotive gasoline	million L	18 357	18 084	18 591
Fuel oil	million L	1 997	1 796	1 673
Aviation turbine fuel	million L	4 882	5 284	5 423
Automotive diesel oil	million L	12 202	12 968	13 183
Superphosphates	'000 t	1 697	1 511	1 819
Cement, Portland	'000 t	6 397	6 701	7 235
Clay bricks	million	1 455	1 467	1 532
Ready mixed concrete	'000 m ³	14 556	15 545	17 411
Basic iron, spiegeleisen and sponge iron(b)	'000 t	7 553	7 346	7 928
Steel blooms and slabs(b)	'000 t	7 950	7 776	8 356
Electricity	million kWh	167 543	168 415	176 211
Gas	petajoules	621	637	650

(a) See 'Symbols and other usages' in the chapter entitled 'Background to this publication'.

(b) This data item comprises production of BHP Steel only

Source: ABS, *Manufacturing Production, Australia* (Cat. no. 8301.0).

CHANGES IN THE PRICE OF ARTICLES PRODUCED AND MATERIALS USED

This section presents information on changes in price for articles produced by Australian manufacturers and changes in price of materials used in processing by Australian manufacturers. Information on price movements of articles produced by manufacturers are not yet available on an ANZSIC basis. As a result changes are presented in tables 3.9 and 3.10 on an ASIC basis. Information on an ANZSIC basis is expected to become available shortly.

Price changes are net for the industry shown which means that changes shown in table 3.9 cover all goods produced by an industry except goods which are sold or transferred to establishments in the same industry. For example, the price changes shown in table 3.9 for the Textiles manufacturing industry cover all goods produced by establishments in the Textiles manufacturing industry except those goods which are sold or transferred to other establishments in the Textiles manufacturing industry. The same principle applies to other industries and to the Manufacturing industry as a whole.

Similarly, price movements in table 3.10 are also on a net basis. This means, for example, that the price changes shown in table 3.10 for the Textiles manufacturing industry cover all materials used by establishments in the Textiles manufacturing industry except those which were purchased or transferred from other establishments in the Textiles manufacturing industry. Again, the same principle applies to other industries and to the manufacturing industry as a whole.

Changes in prices of articles produced

Between 1995–96 and 1996–97 the price of articles produced by the manufacturing industry increased by 0.6%. While most industries within manufacturing recorded price increases, falls were recorded for Basic metal products (down 5.6%), Basic chemicals and other chemical products (down 0.8%) and Transport equipment (down 0.3%). The largest increases were recorded for Petroleum and coal products (up 4.2%) and Paper, paper products, printing and publishing (up 2.0%).

Between 1996–97 and 1997–98 the price of articles produced by the manufacturing industry increased by 1.3%. Falls were recorded for Petroleum and coal products (down 7.5%) and Basic chemicals and other chemical products (down 0.5%) and the largest price increases were recorded for Basic metal products (up 4.1%) and Food beverages and tobacco (up 2.5%).

3.9 PRICE CHANGES OF ARTICLES PRODUCED

<i>Industry</i>	<i>Change from</i>	<i>Change from</i>
	<i>1995-96 to</i>	<i>1996-97 to</i>
	<i>1996-97</i>	<i>1997-98</i>
	<i>%</i>	<i>%</i>
Food, beverages and tobacco	1.0	2.5
Textiles	0.4	1.2
Clothing and footwear	1.2	1.7
Wood, wood products and furniture	0.7	1.0
Paper, paper products, printing and publishing	2.0	1.4
Basic chemicals and other chemical products	-0.8	-0.5
Petroleum and coal products	4.2	-7.5
Non-metallic mineral products	0.6	1.1
Basic metal products	-5.6	4.1
Fabricated metal products	1.3	1.1
Transport equipment	-0.3	1.0
Other machinery and equipment	1.0	0.7
Miscellaneous mfg	0.9	0.2
Total mfg	0.6	1.3

Source: ABS, *Price Indexes of Articles Produced by Manufacturing Industry, Australia, June 1998* (Cat. no. 6412.0).

Changes in prices of materials used Between 1995-96 and 1996-97, the manufacturing industry recorded a decrease of 3.7% in the price of materials used in production. All of the industries within manufacturing recorded decreases, except Petroleum and coal products which recorded an increase of 13.2%. The largest decreases were recorded for Paper and paper products (down 10.4%), Textiles and textile products (down 7.8%) and Printing and publishing (down 7.3%).

However, between 1996-97 and 1997-98, the manufacturing industry recorded a price increase for materials used (up 0.9%) as did the majority of industries within manufacturing. The largest increases were recorded for Sawmilling and timber products (up 5.4%), Food beverages and tobacco (up 3.6%) and Textiles and textile products (up 3.5%). Of the industries which recorded falls, the largest were recorded for Petroleum and coal products (down 7.5%), Leather and leather products (down 3.3%) and Footwear (down 1.2%).

3.10 PRICE CHANGES OF MATERIALS USED

<i>Industry</i>	<i>Change from 1995-96 to 1996-97</i>	<i>Change from 1996-97 to 1997-98</i>
	%	%
Food, beverages and tobacco	-4.9	3.6
Textiles and textile products	-7.8	3.5
Knitting mills and clothing	-4.9	1.1
Footwear	-0.6	-1.2
Leather and leather products	-0.1	-3.3
Sawmilling and timber products	-0.3	5.4
Paper and paper products	-10.4	-0.6
Printing and publishing	-7.3	-0.3
Petroleum and coal products	13.2	-7.5
Chemicals	-2.8	1.1
Rubber and plastics	-7.0	0.0
Non-metallic mineral products	-0.5	-0.4
Basic metal products	-6.3	0.3
Fabricated metal products	-2.3	1.0
Transport equipment and parts	-4.3	3.1
Electronic equipment and other machinery	-4.7	1.9
Other mfg	-1.7	2.6
Total mfg	-3.7	0.9

Source: ABS, Price Indexes of Materials Used by Manufacturing Industries, Australia, June Quarter 1998 (Cat. no. 6411.0).

CHAPTER 4

INTERNATIONAL TRADE

INTRODUCTION

This chapter deals with international trade aspects of the Australian manufacturing industry.

The first article in this chapter shows the extent of export activity and import competition for manufacturing industries. The second presents information on performance by businesses which undertake direct export compared to performance by businesses which don't export. The final article identifies the major manufactured commodities exported from and imported into Australia.

EXPORTS AND IMPORTS BY INDUSTRY

Table 4.1 provides an approximate measure of import penetration of Australian markets. There are several classification, valuation and transaction timing differences affecting the various data sources for the table. As a result, the total market estimates and import penetration estimates should be regarded as only approximate. Also, exports data shown in table 4.1 exclude a small proportion of exports which cannot be allocated to industry because of Australian Bureau Statistics (ABS) confidentiality provisions. Industries most affected by the understatement of exports data are Food, beverage and tobacco manufacturing, Wood and paper product manufacturing, Petroleum, coal, chemical and associated product manufacturing and Metal product manufacturing.

The imports and exports data in this article are classified to 'Industry of origin'. This concept allocates internationally traded commodities back to the industry of original manufacture rather than to the industries of the businesses actually undertaking the imports or exports. However, because it is not always known which manufacturing industry actually produced a particular set of traded commodities, all commodities are allocated to the industry which produces most of that type of commodity i.e. the industry most likely to have been the source.

4.1 IMPORT PENETRATION OF AUSTRALIAN MARKET

<i>Industry/period</i>	<i>Manufacturers' sales(a)</i>	<i>Exports by industry of origin(b)</i>	<i>Imports by industry of origin(b)</i>	<i>Total Australian market(c)</i>	<i>Estimated import penetration(d)</i>
	<i>\$ billion</i>	<i>\$ billion</i>	<i>\$ billion</i>	<i>\$ billion</i>	<i>%</i>
Food, beverage and tobacco mfg					
1996-97	43.7	11.0	3.4	36.1	9
1997-98	46.7	12.2	3.8	38.4	10
Textile, clothing, footwear and leather mfg					
1996-97	9.1	2.8	5.3	11.6	46
1997-98	9.0	3.0	6.0	12.0	50
Wood and paper product mfg					
1996-97	13.2	1.0	2.5	14.6	17
1997-98	13.7	1.2	2.8	15.3	19
Printing, publishing and recorded media					
1996-97	9.6	0.4	1.6	10.8	15
1997-98	11.2	0.5	1.9	12.7	15
Petroleum, coal, chemical and associated product mfg					
1996-97	34.4	5.4	12.2	41.1	30
1997-98	36.0	5.6	13.8	44.2	31
Non-metallic mineral product mfg					
1996-97	9.7	0.4	1.0	10.4	10
1997-98	9.4	0.4	1.2	10.2	11
Metal product mfg					
1996-97	31.4	14.7	4.8	22.1	22
1997-98	29.6	16.9	7.3	20.0	37
Machinery and equipment mfg					
1996-97	38.7	12.0	40.4	67.1	60
1997-98	38.7	12.7	46.1	72.1	64
Other mfg					
1996-97	6.6	0.7	2.2	8.0	27
1997-98	6.9	0.7	2.8	8.9	31
Total mfg					
1996-97	197.2	48.4	73.8	222.5	33
1997-98	201.3	53.3	84.7	232.7	36

(a) Includes direct exports by manufacturers.

(b) Commodity exports and imports are classified to the industry of origin i.e. the industry most likely to have manufactured the commodity.

(c) Manufacturers sales minus exports plus imports.

(d) Imports as a proportion of the estimated total Australian market.

Source: ABS, *Stocks and Sales, Selected Industries, Australia (Cat. no. 5629.0)*; *International Merchandise Trade data*.

Exports by industry of origin Total exports for the Australian manufacturing industry of origin were estimated to be \$53.3 billion for 1997-98, a 10% increase over the 1996-97 level of exports. Increases in exports were recorded for all manufacturing subdivisions except Non-metallic mineral product manufacturing (down 4%). The largest increases in exports were generated by Wood and paper product manufacturing (up 16.2%), Metal product manufacturing (up 15%) and Food, beverage and tobacco manufacturing (up 10.8%).

The Metal product manufacturing industry had the highest value in terms of exports, with \$16.9 billion worth of goods being sold overseas, accounting for 32% of all manufacturing exports. Other industries to have exports valued at over \$10 billion were Machinery and equipment manufacturing (\$12.7 billion) and Food, beverage and tobacco manufacturing (\$12.2 billion).

Imports by industry of origin Imports increased by 15% between 1996–97 and 1997–98. This followed a 0.3% increase between 1995–96 and 1996–97. This resulted in Australian manufacturing experiencing a trade deficit of \$31.4 billion against the rest of the world, an increase of 24% over the trade deficit of \$25.4 billion experienced in 1996–97.

Goods classified to the Machinery and equipment manufacturing industry accounted for around 54% of manufacturing imports (\$46.1 billion). Petroleum, coal, chemical and associated product manufacturing was the next largest with its \$13.8 billion accounting for just over 16% of manufacturing imports. All manufacturing subdivisions experienced an increase in their level of imports with the greatest increases coming from Metal product manufacturing (up 49.5%), Other manufacturing (up 29%) and Printing, publishing and recorded media (up 18%).

Market size by industry of origin By adding imports to the sales of domestic manufacturers and then subtracting exports, an estimate of the size of the Australian market for manufactured goods can be calculated. The fourth column of table 4.1 contains such estimates for the years 1996–97 and 1997–98. Under this method the estimate for the Australian domestic market for manufactured goods in 1997–98 was \$232.7 billion, an increase of \$10.2 billion (4.6%) on the previous year.

The industry (of origin) with the largest Australian market for its products was the Machinery and equipment manufacturing industry with an estimated 1997–98 market size of \$72.1 billion. This was followed by Petroleum, coal, chemical and associated product manufacturing (\$44.2 billion) and Food beverage and tobacco manufacturing (\$38.4 billion).

The market for goods in seven of the nine manufacturing subdivisions grew between 1996–97 and 1997–98. The largest growth occurred in Printing, publishing and recorded media (up 17.4%), Other manufacturing (11.6%) and the Machinery and equipment manufacturing industry (up 7.4%). The two industries which recorded decreases in market size were Metal product manufacturing (down 9.8%) and Non-metallic mineral product manufacturing (down 1.3%).

Import penetration Import penetration estimates provide an insight into the level of imported goods which make their way into the Australian market. In 1997–98 imports were estimated to satisfy 36% of the Australian market for all manufactured goods.

The greatest level of import penetration for an industry (of origin) was for Machinery and equipment manufacturing where an estimated 64% of the market in 1997–98 was satisfied by imports. The Textile, clothing, footwear and leather manufacturing industry also recorded a high level of import penetration, with 50% of the Australian market being satisfied by overseas products.

Import penetration *continued* Industries dominated by domestic goods are the Food, beverage and tobacco manufacturing and Non-metallic mineral product manufacturing industries where import penetration is only 10% and 11% respectively.

PERFORMANCE OF DIRECT EXPORTERS

This article presents a range of statistics about manufacturing establishments which shed light on the performance of exporters. Key performance indicators are shown for direct exporters and non-exporters. Direct exporters are those manufacturers who are involved in export of goods which they have produced. Not all exports are directly exported by manufacturers. Substantial export of Australian manufactured goods is undertaken by non-manufacturers.

Proportion who export Direct exports by manufacturers as a proportion of goods manufactured continues to increase, reaching almost 15% of sales in 1996–97. The industries which directly export the highest proportion of their manufactured goods are Metal product manufacturing (24.6%), Food, beverage and tobacco manufacturing (18.0%) and Machinery and equipment manufacturing (16.6%). The proportion of goods directly exported by manufacturers has increased for all manufacturing subdivisions in the four years that the ABS has been collecting the data.

4.2 EXPORT PERCENTAGE(a)—1996–97

Industry	Employment under 100	Employment of 100 or more	Total
	%	%	%
Food, beverage and tobacco mfg	14.7	19.3	18.0
Textile, clothing, footwear and leather mfg	7.8	20.5	13.7
Wood and paper product mfg	8.9	4.4	6.4
Printing, publishing and recorded media	5.3	2.3	4.0
Petroleum, coal, chemical and associated product mfg	8.5	10.0	9.5
Non-metallic mineral product mfg	3.0	4.0	3.6
Metal product mfg(b)	22.4	26.4	24.6
Machinery and equipment mfg	11.7	18.7	16.6
Other mfg	2.5	5.7	2.9
Total mfg	12.0	16.6	14.9

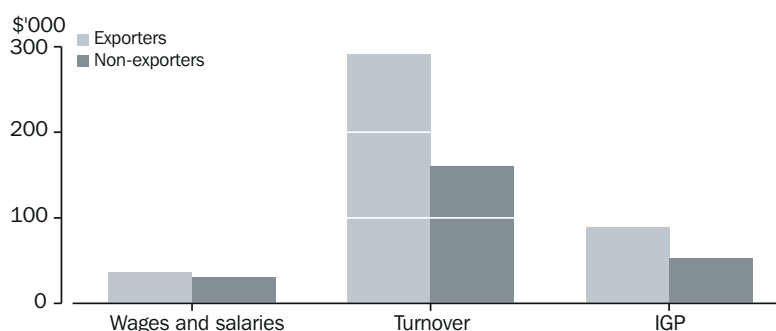
(a) The value of direct exports as a percentage of the value of goods manufactured for sale.

(b) Statistics classified by employment size category for this industry are influenced by operations of unincorporated joint business ventures. See the note preceding table 1.8.

Source: ABS, unpublished data, Manufacturing Survey.

Performance measures This analysis, based on data for manufacturing establishments, compares performance of direct exporters and non-exporters in terms of turnover per person employed and industry gross product (IGP) per person employed (IGP is the statistical measure of production). It also considers Wages and salaries per person employed. Profits are not directly measurable for establishments but IGP less wages and salaries can be regarded as a guide to pre-tax profits for performance comparison purposes.

4.3 PERFORMANCE OF EXPORTING MANUFACTURERS, PER PERSON EMPLOYED—1995–96



Source: ABS, unpublished data, Manufacturing Survey.

Table 4.4 shows that in 1996–97, for Australian manufacturing as a whole, Turnover per person employed for exporters was almost double that of non-exporters. IGP less wages and salaries for exporters was more than double that of non-exporters. Exporters wages and salaries per person was almost 25% higher than for non-exporters.

In 1996–97, for all but one of the broad manufacturing industries, exporters recorded higher turnover per person employed, higher production (IGP) per person employed and higher profitability (as approximated by IGP minus wages and salaries) per person employed than non-exporting manufacturers. The exception was Non-metallic mineral product manufacturing, a relatively small exporting industry (exporting 3.6% of the goods that it produces).

4.4 PERFORMANCE OF EXPORTING MANUFACTURERS, 1996–97

Industry	Wages and salaries per person employed		Turnover per person employed		IGP per person employed	
	Direct exporters	Non-exporters	Direct exporters	Non-exporters	Direct exporters	Non-exporters
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Food, beverage and tobacco mfg	36.5	31.6	320	222	83.9	54.1
Textile, clothing, footwear and leather mfg	31.8	22.4	170	103	51.1	36.7
Wood and paper product mfg	40.3	30.1	270	156	91.1	54.9
Printing, publishing and recorded media	37.4	33.8	207	141	85.2	66.0
Petroleum, coal, chemical and associated product mfg	42.7	37.8	420	252	113.1	74.3
Non-metallic mineral product mfg	39.6	35.7	216	241	77.4	68.2
Metal product mfg	45.1	31.8	391	160	139.5	30.4
Machinery and equipment mfg	37.3	34.8	247	141	72.7	53.1
Other mfg	28.4	23.5	140	105	46.3	37.2
Total mfg	38.6	31.4	298	163	89.7	50.8

Source: ABS 1996–97 Manufacturing Survey.

EXPORTS AND IMPORTS OF MANUFACTURED GOODS

Exports of manufactured goods This section shows 1997–98 levels of imports and exports for major commodity items. Table 4.5 shows 1997–98 exports of selected manufactured products i.e. those with exports valued at \$400 million or more in 1997–98. Table 4.6 shows 1997–98 imports of selected manufactured products i.e. those with imports valued at \$1 billion or more in 1997–98.

Comparisons of 1997–98 exports data with corresponding data from 10 years earlier shows that overall exports of manufactured goods have more than doubled (up by around 110%) in current prices. Over the same 10 year period, overall volumes of exports of manufactured goods have also grown substantially (by around 90%) as measured by exports at constant prices. Of the selected manufactured commodities in table 4.5, the greatest percentage growth, in current price terms, over the 10 years was recorded for Milk, cream and milk products (except butter and cheese) for which the value of exports in 1997–98 was four and a half times the value of 1987–88 exports (i.e. exports were up by 350%). Other commodities with the most growth in current price exports over the 10 years were Office machines and automatic data processing equipment (up by 290%), Machinery specialised for particular industries (up by 270%) and Iron and steel (up by 270%).

4.5 EXPORTS OF SELECTED MANUFACTURED COMMODITIES—1997–98

<i>Commodity</i>	
Gold, non-monetary (excl. gold ores and concentrates)	6 263
Alumina	3 267
Aluminium	2 821
Meat of bovine animals, fresh, chilled or frozen	2 700
Petroleum products	1 873
Cars and other road vehicles (incl. air-cushion vehicles)	1 858
Iron and steel	1 729
Office machines and automatic data processing machines	1 724
Machinery specialised for particular industries	1 162
Milk and cream and milk products other than butter or cheese	1 058
Power generating machinery and equipment	986
Crustaceans, molluscs and aquatic invertebrates (except canned or bottled)	825
Fruit and nuts, fresh, dried or preserved and fruit preparations (incl. fruit juices)(a)	713
Aircraft and associated equipment, spacecraft (including satellites) and spacecraft launch vehicles	677
Meat of sheep and goats, fresh, chilled or frozen	648
Wood in chips or particles	617
Cheese and curd	607
Plastics in primary and non-primary form(a)	439
Nickel and nickel alloys, unwrought	419

(a) Excludes commodities subject to a 'No Commodity Details' restriction.

Source: ABS, *International Merchandise Trade, Australia, June Quarter 1997 (Cat. no. 5422.0) and International Trade Database.*

Passenger motor vehicles (other than public transport type vehicles), station wagons and racing cars	6 475
Automatic data processing machines and units thereof	4 344
Telecommunication equipment n.e.s. and parts n.e.s. and accessories	2 742
Medical and pharmaceutical products	2 544
Articles of apparel and clothing accessories	2 278
Parts and accessories for office and automatic data processing machines	2 236
Organic chemicals	2 135
Motor vehicles for the transport of goods	2 034
Paper and paperboard and articles of paper pulp, or paper or of paperboard	1 990
Parts and accessories of motor vehicles and tractors, track-laying and wheeled	1 897
Plastics in primary and non-primary form	1 813
Iron and steel	1 621
Measuring, checking, analysing and controlling instruments and apparatus n.e.s.	1 525
Aircraft and associated equipment, spacecraft (including satellites) and spacecraft launch vehicles	1 516
Electrical machinery and apparatus n.e.s.	1 416
Civil engineering and contractors' plant and equipment	1 226
Chemical materials and products n.e.s.	1 134
Machinery and equipment specialised for particular industries and parts thereof	1 086
Baby carriages, toys, games and sporting goods	1 067
Pumps, centrifuges, filtering or purifying apparatus and parts thereof	1 027
Internal combustion piston engines, and parts thereof n.e.s.	1 005

(a) Excludes commodities subject to a 'No Commodity Details' restriction.

Source: ABS, *International Merchandise Trade, Australia, June Quarter 1998 (Cat. no. 5422.0)* and *International Trade Database*.

EXPLANATORY NOTES

MAIN CONCEPT

1 This publication brings together information from a variety of Australian Bureau of Statistics (ABS) and non-ABS sources. Though considerable explanatory material has been provided below, it has not been feasible to explain every concept for every ABS series included. Readers who are interested in more comprehensive explanatory material than is provided here are encouraged to consult the relevant ABS publication or to contact the ABS (contact information appears on the back page).

Statistical business units

2 Data in this publication relate to either manufacturing management units or to manufacturing establishments. Technical definitions of 'Management unit' and 'establishment' appear in the Glossary.

3 Management unit statistics focus on businesses and business operations, particularly the financial aspects. The focus of these statistics is on profit levels, the main income and expense items which make up those profits, and on capital formation. Management unit statistics also include information on the value of assets and liabilities.

4 While management unit statistics focus on business operations, establishment statistics focus more on the production and distribution processes. They address topics such as goods produced, exports, value added and prices of materials and goods.

5 A rule of thumb which can be applied to statistics about manufacturing is that management unit statistics are about the operations of manufacturing businesses (with the focus on the business as a whole); establishment statistics are about the operations of factories (with the focus on activities at the factory location). Because of the differences in scope explained below, aggregate management unit data will not be identical to aggregate establishment data.

Scope of management unit statistics

6 Management unit statistics for a given industry include all operations by management units which are primarily engaged in activities covered by that industry. A management unit is classified to the manufacturing industry if manufacturing is its primary income earning activity. All operations (manufacturing and non manufacturing) of a mainly manufacturing business would be included in management unit statistics for the manufacturing industry. This principle also applies to finer levels of industry classification.

Scope of establishment statistics	<p>7 Following the same principle, establishment statistics for a particular industry include all operations by establishments which are primarily engaged in activities covered by that industry. For example, establishment statistics for the manufacturing industry would include all operations by establishments which are mainly engaged in manufacturing activities i.e. manufacturing activities are their main source of income. However, the operations of establishments which are not 'mainly engaged in manufacturing activities' will be excluded even when the parent management unit belongs to the manufacturing industry.</p>
Implications of unit scope differences	<p>8 The choice of statistical unit can have subtle but important implications for interpreting the results from surveys.</p> <p>9 For a large majority of manufacturers, it matters little whether the statistics are compiled for management units or for establishments. More than 90% of Australian manufacturers operate under a simple structure whereby a management unit (business) runs a single manufacturing establishment (factory). Operations by this type of business are relevant to both management unit statistics and establishment statistics and are therefore included in both.</p> <p>10 The treatment of the operations of more complex businesses is not so straightforward. For example, a management unit which operates both a factory and a retail store, but which has manufacturing as its primary income source, will be classified as a manufacturing management unit. Operations of the management unit as a whole (employment, sales, profits and other data from both the factory and the store) will be included in manufacturing management unit statistics. For manufacturing establishment statistics, operations of the factory will be included but operations of the retail store will be excluded.</p> <p>11 On the other hand, a management unit which operates both a factory and a retail store but which has retailing as its primary income source will be classified to retail trade. Operations of this business will not be included in manufacturing management unit statistics. However, the operations of the factory will be included in manufacturing establishment statistics.</p>
Coverage of the statistics	<p>12 The business surveys from which data for nearly all tables in this publication have been compiled are sourced from the ABS Business Register. The Business Register does not include all businesses operating in Australia. Excluded are those businesses which do not employ staff and have not registered with the Australian Taxation Office as group employers.</p> <p>13 Though these very small businesses are fairly numerous, their exclusion has very little effect on the statistics compiled for the manufacturing industry as a whole. It is estimated that if these businesses were to be included, the effect on results for total manufacturing would be less than 1%.</p>

Coverage of the statistics **15** For some industries, particularly those like the clothing industry where numbers of small home based businesses are involved, the underestimation from excluding non-employing businesses may be a little higher. However, no serious understatement of economic activity from this cause is likely for any manufacturing industry.

Sampling error **16** Most of the estimates in this publication are based on information gathered from sample surveys. Because the entire population of businesses was not surveyed to obtain these estimates, they are subject to sampling error i.e. the imprecision which arises when a sample of businesses is not perfectly representative of the population of businesses from which the sample was drawn.

INDUSTRY CLASSIFICATION

The ANZSIC **17** The framework used in this publication to present information about the manufacturing industry and other industries is provided by the Australian and New Zealand Standard Industrial Classification (ANZSIC). It also provides the structure for presenting breakdowns of the manufacturing industry.

18 The ANZSIC distinguishes four levels of industry classification to accommodate both broad analysis and fine dissection of statistical data about the Australian economy. The four levels constitute a hierarchy, with Division the broadest classification level, followed by Subdivision, Group and Class as increasingly finer dissections. To illustrate, a manufacturing example of the four levels is:

Division	Manufacturing
Subdivision	Metal product manufacturing
Group	Iron and steel manufacturing
Class	Steel pipe and tube manufacturing

19 A list of all manufacturing subdivisions, groups and classes is contained in the ANZSIC listing section of this publication.

ANZSIC Divisions **20** Manufacturing as a whole comprises one of the 17 ANZSIC Divisions covering the Australian economy. Examples of other ANZSIC divisions are Agriculture, Mining, Retail trade, Health and community services and Construction.

ANZSIC Subdivisions **21** There are nine subdivisions within the Manufacturing Division. Each represents a grouping of broadly related outputs and activities. Where numerical codes are used to identify ANZSIC subdivisions, such codes are comprised of two digits. In the case of manufacturing, the digits 21 to 29 are used. For example Subdivision 28—Machinery and equipment manufacturing and Subdivision 23—Wood and paper product manufacturing.

ANZSIC groups	22 Each manufacturing subdivision is further divided into several groups of reasonably homogeneous industries. The ANZSIC Group level is distinguished by use of three digit numerical codes, the first two digits designating the ANZSIC Subdivision to which the group belongs. For example, Group 212—Dairy product manufacturing belongs to ANZSIC Subdivision 21—Food, beverage and tobacco manufacturing.
ANZSIC classes	23 The fourth and finest level of dissection is the ANZSIC class level. Each ANZSIC group is divided into one or more classes. The ANZSIC Class level is distinguished by use of four digit numerical codes, the first three digits designating the ANZSIC Group to which the class belongs. For example, Class 2122—Ice cream manufacturing belongs to Group 212—Dairy product manufacturing. 24 In the ANZSIC, classes are created if certain criteria are met. The most important of these are that classes <ul style="list-style-type: none"> ■ represent recognisable segments of Australian industry; ■ are consistent with the requirements of users of the statistics; ■ are homogeneous in terms of activities i.e. that classes are made up of business units which undertake similar economic activities; ■ are economically significant; and ■ wherever possible align with the corresponding international classification.
Referencing	25 Where ABS time series data have been presented in tables or graphs, only the most recent edition of the product or publication used as a source is listed. Earlier editions are available from ABS libraries and selected other libraries.
Reference periods	26 Yearly periods shown, for example, as 1997 refer to the year ended 31 December 1997. Those shown for example as 1997–98 refer to the year ended 30 June 1998.
Rounding	27 Where figures have been rounded, discrepancies may occur between sums of the component items and totals shown.

RELATED PUBLICATIONS

28 A full list of the material used to compile this publication is contained in the bibliography.

29 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.

Unpublished data

30 In addition to the data contained in this publication, more detailed industry information can often be made available on request. For example, data may be available at the ANZSIC group (3 digit level) or ANZSIC Class (4 digit level) for some of the annual data series. This is particularly true of data in chapter 2 of this publication.

31 For further information about unpublished data relating to the manufacturing industry or to manufacturing activities, readers should consult John Ridley in the ABS Sydney Office on 02 9268 4541.

APPENDIX**LIST OF MANUFACTURING INDUSTRIES**

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES

C	Manufacturing
21	Food, Beverage and Tobacco Manufacturing
211	Meat and Meat Product Manufacturing
2111	Meat Processing
2112	Poultry Processing
2113	Bacon, Ham and Smallgood Manufacturing
212	Dairy Product Manufacturing
2121	Milk and Cream Processing
2122	Ice Cream Manufacturing
2129	Dairy Product Manufacturing n.e.c.
213	Fruit and Vegetable Processing
2130	Fruit and Vegetable Processing
2140	Oil and Fat Manufacturing
215	Flour Mill and Cereal Food Manufacturing
2151	Flour Mill Product Manufacturing
2152	Cereal Food and Baking Mix Manufacturing
216	Bakery Product Manufacturing
2161	Bread Manufacturing
2162	Cake and Pastry Manufacturing
2163	Biscuit Manufacturing
217	Other Food Manufacturing
2171	Sugar Manufacturing
2172	Confectionery Manufacturing
2173	Seafood Processing
2174	Prepared Animal and Bird Feed Manufacturing
2179	Food Manufacturing n.e.c.
218	Beverage and Malt Manufacturing
2181	Soft Drink, Cordial and Syrup Manufacturing
2182	Beer and Malt Manufacturing
2183	Wine Manufacturing
2184	Spirit Manufacturing
219	Tobacco Product Manufacturing
2190	Tobacco Product Manufacturing
22	Textile, Clothing, Footwear and Leather Manufacturing
221	Textile Fibre, Yarn and Woven Fabric Manufacturing
2211	Wool Scouring
2212	Synthetic Fibre Textile Manufacturing
2213	Cotton Textile Manufacturing
2214	Wool Textile Manufacturing
2215	Textile Finishing
222	Textile Product Manufacturing
2221	Made-Up Textile Product Manufacturing
2222	Textile Floor Covering Manufacturing
2223	Rope, Cordage and Twine Manufacturing
2229	Textile Product Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

223	Knitting Mills
2231	Hosiery manufacturing
2232	Cardigan and Pullover Manufacturing
2239	Knitting Mill Product Manufacturing n.e.c.
224	Clothing Manufacturing
2241	Men's and Boy's Wear Manufacturing
2242	Women's and Girl's Wear Manufacturing
2243	Sleepwear, Underwear and Infant Clothing Manufacturing
2249	Clothing Manufacturing n.e.c.
225	Footwear Manufacturing
2250	Footwear Manufacturing
226	Leather and Leather Product Manufacturing
2261	Leather Tanning and Fur Dressing
2262	Leather and Leather Substitute Product Manufacturing
23	Wood and Paper Product Manufacturing
231	Log Sawmilling and Timber Dressing
2311	Log Sawmilling
2312	Wood Chipping
2313	Timber Resawing and Dressing
232	Other Wood Product Manufacturing
2321	Plywood and Veneer Manufacturing
2322	Fabricated Wood Manufacturing
2323	Wooden Structural Component Manufacturing
2329	Wood Product Manufacturing n.e.c.
233	Paper and Paper Product Manufacturing
2331	Pulp, Paper and Paperboard Manufacturing
2332	Solid Paperboard Container Manufacturing
2333	Corrugated Paperboard Container Manufacturing
2334	Paper Bag and Sack Manufacturing
2339	Paper Product Manufacturing n.e.c.
24	Printing, Publishing and Recorded Media
241	Printing and Services to Printing
2411	Paper Stationery Manufacturing
2412	Printing
2413	Services to Printing
242	Publishing
2421	Newspaper Printing or Publishing
2422	Other Periodical Publishing
2423	Book and Other Publishing
243	Recorded Media Manufacturing and Publishing
2430	Recorded Media Manufacturing and Publishing
25	Petroleum, Coal, Chemical and Associated Product Manufacturing
251	Petroleum Refining
2510	Petroleum Refining
252	Petroleum and Coal Product Manufacturing n.e.c.
2520	Petroleum and Coal Product Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

253	Basic Chemical Manufacturing
2531	Fertiliser Manufacturing
2532	Industrial Gas Manufacturing
2533	Synthetic Resin Manufacturing
2534	Organic Industrial Chemical Manufacturing n.e.c.
2535	Inorganic Industrial Chemical Manufacturing n.e.c.
254	Other Chemical Product Manufacturing
2541	Explosive Manufacturing
2542	Paint Manufacturing
2543	Medicinal and Pharmaceutical Product Manufacturing
2544	Pesticide Manufacturing
2545	Soap and Other Detergent Manufacturing
2546	Cosmetic and Toiletry Preparation Manufacturing
2547	Ink manufacturing
2549	Chemical Product Manufacturing n.e.c.
255	Rubber Product Manufacturing
2551	Rubber Tyre Manufacturing
2559	Rubber Product Manufacturing n.e.c.
256	Plastic Product Manufacturing
2561	Plastic Blow Moulded Product Manufacturing
2562	Plastic Extruded Product Manufacturing
2563	Plastic Bag and Film Manufacturing
2564	Plastic Product Rigid Fibre Reinforced Manufacturing
2565	Plastic Foam product Manufacturing
2566	Plastic Injection Moulded Product Manufacturing
26	Non-Metallic Mineral Product Manufacturing
261	Glass and Glass Product Manufacturing
2610	Glass and Glass Product Manufacturing
2621	Clay Brick Manufacturing
2622	Ceramic Product Manufacturing
2623	Ceramic Tile and Pipe Manufacturing
2629	Ceramic Product Manufacturing n.e.c.
263	Cement, Lime, Plaster and Concrete Product Manufacturing
2631	Cement and Lime Manufacturing
2632	Plaster Product Manufacturing
2633	Concrete Slurry Manufacturing
2634	Concrete Pipe and Box Culvert Manufacturing
2635	Concrete Product Manufacturing n.e.c.
264	Non-Metallic Mineral Product Manufacturing n.e.c.
2640	Non-Metallic Mineral Product Manufacturing n.e.c.
27	Metal Product Manufacturing
271	Iron and Steel Manufacturing
2711	Basic Iron and Steel Manufacturing
2712	Iron and Steel Casting and Forging
2713	Steel Pipe and Tube Manufacturing
272	Basic Non-Ferrous Metal Manufacturing
2721	Alumina Production

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

2722	Aluminium Smelting
2723	Copper, Silver, Lead and Zinc Smelting, Refining
2729	Basic Non-Ferrous Metal Manufacturing n.e.c.
273	Non-Ferrous Basic Metal Product Manufacturing
2731	Aluminium Rolling, Drawing, Extruding
2732	Non-Ferrous Metal Rolling, Drawing, Extruding n.e.c.
2733	Non-Ferrous Metal Casting
274	Structural Metal Product Manufacturing
2741	Structural Steel Fabricating
2742	Architectural Aluminium Product Manufacturing
2749	Structural Metal Product Manufacturing n.e.c.
275	Sheet Metal Product Manufacturing
2751	Metal Container Manufacturing
2759	Sheet Metal Product Manufacturing n.e.c.
276	Fabricated Metal Product Manufacturing
2761	Hand Tool and General Hardware Manufacturing
2762	Spring and Wire Product Manufacturing
2763	Nut, Bolt, Screw and Rivet Manufacturing
2764	Metal Coating and Finishing
2765	Non-Ferrous Pipe Fitting Manufacturing
2769	Fabricated Metal Product Manufacturing n.e.c.
28	Machinery and Equipment Manufacturing
281	Motor Vehicle and Part Manufacturing
2811	Motor Vehicle Manufacturing
2812	Motor Vehicle Body Manufacturing
2813	Automotive Electrical and Instrument Manufacturing
2819	Automotive Component Manufacturing n.e.c.
282	Other Transport Equipment Manufacturing
2821	Shipbuilding
2822	Boatbuilding
2823	Railway Equipment Manufacturing
2824	Aircraft Manufacturing
2829	Transport Equipment Manufacturing n.e.c.
283	Photographic and Scientific Equipment Manufacturing
2831	Photographic and Optical Good Manufacturing
2832	Medical and Surgical Equipment Manufacturing
2839	Professional and Scientific Equipment Manufacturing n.e.c.
284	Electronic Equipment Manufacturing
2841	Computer and Business Machine Manufacturing
2842	Telecommunication, Broadcasting and Transceiving Equipment Manufacturing
2849	Electronic Equipment Manufacturing n.e.c.
285	Electrical Equipment and Appliance Manufacturing
2851	Household Appliance Manufacturing
2852	Electric Cable and Wire Manufacturing
2853	Battery Manufacturing
2854	Electric Light and Sign Manufacturing
2859	Electrical Equipment Manufacturing n.e.c.

ANZSIC DIVISION, SUBDIVISION, GROUP AND CLASS TITLES AND CODES *continued*

286	Industrial Machinery and Equipment Manufacturing
2861	Agricultural Machinery Manufacturing
2862	Mining and Construction Machinery Manufacturing
2863	Food Processing Machinery Manufacturing
2864	Machine Tool and Part Manufacturing
2865	Lifting and Material Handling Equipment Manufacturing
2866	Pump and Compressor Manufacturing
2867	Commercial Space Heating and Cooling Equipment Manufacturing
2869	Industrial Machinery and Equipment Manufacturing n.e.c.
29	Other Manufacturing
291	Prefabricated Building Manufacturing
2911	Prefabricated Metal Building Manufacturing
2919	Prefabricated Building Manufacturing n.e.c.
292	Furniture Manufacturing
2921	Wooden Furniture and Upholstered Seat Manufacturing
2922	Sheet Metal Furniture Manufacturing
2923	Mattress Manufacturing (Except Rubber)
2929	Furniture Manufacturing n.e.c.
294	Other Manufacturing
2941	Jewellery and Silverware Manufacturing
2942	Toy and Sporting Good Manufacturing
2949	Manufacturing n.e.c.

Source: ABS, Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993 (Cat. no. 1292.0).

GLOSSARY

Averaged hours worked	Aggregate hours worked by a group divided by the number of persons in that group.
Business	See Management unit.
Business size	<p>For the purposes of table 1.6, business size groups are defined as follows</p> <ul style="list-style-type: none">■ Micro businesses are businesses which employ fewer than 5 people.■ Other small businesses are businesses which employ 5–19 people.■ Small businesses are businesses which employ fewer than 20 people.■ Medium-sized businesses are businesses which employ 20–199 people.■ Large businesses are businesses which employ 200 or more people. <p>For other tables which distinguish business size, the boundary which divides medium sized from large is set at 100 rather than 200.</p>
Capital expenditure	Acquisition of fixed tangible assets (e.g. plant and machinery), property and intangible assets (e.g. computer software, patents and licences) including those assets acquired under a finance lease. Also includes work done by own employees or proprietors of the business for its own use or for rental or lease purposes.
Capital expenditure on waste management and environmental protection	Acquisition of assets designed specifically to assist with waste management or protection of air, water or climate or noise or vibration abatement. Two types of capital goods are recognised, those providing end of line protection and those involving change in production methods (see definitions below for end of line and change in production).
Change in production	Includes purchases (primarily for waste management and environmental protection reasons) of new technologies in which waste management and environmental protection aspects are integrated within a changed production process.
Closing stocks	The value of all stocks of finished goods, work-in-progress, raw materials, fuels, containers and packaging as at the end of the financial year. Businesses are asked to value their stocks for statistical purposes using the same method as for their balance sheet.

Constant prices	Data are presented in constant prices to represent the volume of goods and services produced. By analysing year-to-year movements in constant price terms, changes in manufacturing activity levels can be analysed without distortions caused by price changes.
Cost of sales	The sum of purchases, selected expenses and the opening stocks minus closing stocks. Selected expenses include payments made for services provided by other businesses such as freight and cartage; repair and maintenance; rent, leasing and hiring of plant, motor vehicles or land and buildings; office supplies and services; telephone and postage; advertising, accounting and legal services; work performed on a contract, subcontract or commission basis; and charges by government such as rates and motor vehicle registration charges. 1992–93 cost of sales data in this publication also include payroll tax and fringe benefits tax.
Current assets	The book value of current assets as at the end of the financial year. This includes cash on hand, stocks, trade debtors and other accounts receivable.
Current expenditure on waste management and environmental protection	Expenditure of a non capital nature on waste management or on goods or services acquired for the purpose of protecting the environment. Includes payments to government agencies or private businesses for waste removal services, for environmental audits, for site cleaning, for environmental impact assessments and for testing or monitoring emissions. Also includes Research and Development expenditure on waste management and environmental protection and the cost of environmental taxes, levies, fines and licenses.
Current liabilities	The book value of current liabilities as at the end of the financial year. This includes provisions for taxation, leave, claims, trade creditors and other accounts payable, and bank overdrafts.
Current ratio	The number of times current assets cover current liabilities, i.e. the value of current assets divided by the value of current liabilities. This liquidity measure indicates ability to meet immediate financial obligations from current assets.
Degree of transformation	Degree of transformation is a classification variable within the Trade Export Classification (TREC). Degree of transformation categories and classification of commodities to those categories was initiated by the Department of Foreign Affairs and Trade (DFAT). The classification will be further developed over the next few years.
Depreciation	Includes depreciation allowed on buildings and other fixed tangible assets.
Dividends received	Payments received from related and unrelated businesses.
EBIT	Earnings before interest and tax.

- Employed** Persons aged 15 and over who, during the reference week:
- worked for one hour or more for pay, profit, commission or payment in kind in a job or business, or on a farm (comprising employees, employers and own account workers); or
 - worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or
 - were employees who had a job but were not at work and were: on paid leave; on leave without pay for less than four weeks up to the end of the reference week; stood down without pay because of bad weather or plant breakdown at their place of employment for less than four weeks up to the end of the reference week; on strike or locked out; on workers' compensation and expected to be returning to their job; or receiving wages or salary while undertaking full-time study; or
 - were employers, own account workers or contributing family workers who had a job, business or farm, but were not at work.

Employee A person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece-rates or pay in kind, or in their own business, either with or without employees, if that business was incorporated.

Employment at end of June The number of working proprietors, working partners, permanent, part-time, temporary and casual employees, and managerial and executive employees working for an establishment during the last pay period ending in June. Employees absent on paid or prepaid leave are included, as are employees on workers' compensation who continue to be paid through the payroll system. Non-salaried directors, self-employed persons such as consultants, contractors and persons paid solely by commission without a retainer, and volunteer workers are excluded.

End-of-line techniques Expenditure on filters and other 'add-on' equipment or modifications which are designed to reduce the level of emissions to the environment or to treat wastes prior to release but do not irreversibly affect the original production process. This category also includes capital works such as waste water dams, levees, holding tanks etc.

Enterprise group A unit covering all the operations in Australia of one or more legal entities under common ownership and/or control. It covers all the operations in Australia of legal entities which are related in terms of the current Corporations Law (as amended by the *Corporations Legislation Amendment Act 1991*). These may be legal entities such as trusts and partnerships as well as companies. Majority ownership is not required for control to be exercised.

Environmental taxes, levies, fines and licences Includes pollution control licence fees, waste disposal/landfill levies specified in government rates, environmental levies paid to water authorities and any penalties paid for emissions to air, water or soil.

Establishment	The establishment is the smallest accounting unit of a business, within a State or Territory, controlling its productive activities and maintaining a specified range of detailed data enabling value added to be calculated. In general, an establishment covers all operations at a physical location, but may consist of a group of locations provided that all are within the same State or Territory. The majority of establishments operate at one location only.
Frequency of new workers' compensation cases	The frequency of new workers' compensation cases is the number of new workers' compensation cases resulting in absence from work of five working days or more expressed as a rate per 1,000 wage and salary earners employed.
Full-time employees	Permanent, temporary and casual employees who normally work the agreed or award hours for a full-time employee in their occupation and who received pay for any part of the reference period. If agreed or award hours do not apply, employees are regarded as full-time if they ordinarily work 35 hours or more per week.
Full-time workers	Employed persons who usually worked 35 hours or more a week (in all jobs) and others who, although usually working less than 35 hours a week, worked 35 hours or more during the reference week.
GDP	Gross Domestic Product. Also known as gross product.
GOS	Gross Operating Surplus. Industry gross product less labour costs.
Gross earnings	Payments to employees before tax and other items (such as superannuation) are deducted. They comprise amounts paid from interstate or overseas; ordinary time and overtime earnings; over award payments; penalty payments, shift and other remunerative allowances; commissions and retainers; bonuses and similar payments; payments under incentive or piecework; payments under profit-sharing schemes; leave loadings; annual and long service leave payments; sick leave payments; advance and retrospective payments; salaries and fees paid to company directors, members of boards, committees, commissions, councils, etc.; amounts paid to employees on workers' compensation who continue to be paid through the payroll; and severance, termination and redundancy payments.
Gross output	Sales of goods and services plus government subsidies plus capital work done for own use plus closing stocks minus opening stocks.
Gross product at factor cost	The value of gross output minus the value of intermediate inputs. Very similar to industry gross product (see method of derivation below).
Incidence of new workers' compensation cases	The incidence of new workers' compensation cases is the number of new workers' compensation cases resulting in absence from work of five working days or more expressed as a rate per million hours worked by wage and salary earners.

Industry class Within the Australian New Zealand Standard Industrial Classification (ANZSIC), there is a structure comprising four levels ranging from industry division (broadest level) to the industry class (finest level). At the industry class level, the activities are narrowly defined and recognised by a four-digit code, e.g. industry class 2331 for Pulp paper and paperboard manufacturing.

Industry Gross Product Industry Gross Product (IGP) is very similar to the national accounting measure gross product at factor cost which is the official statistical measure of production. IGP for an industry is a measure of the value which is added by the industry's production processes to the raw materials and services which are input to those processes. Another way of describing IGP is the value of an industry's output minus the value of intermediate inputs.

The formula used to calculate IGP is as follows. Definitions of the relevant component items also appear in this Glossary.

Calculation of IGP = Turnover
+ Change in stocks
– Purchases of materials, fuels and goods
– Selected expenses
= Establishment value added
– Fringe benefits tax
– Payroll tax
– Other operating expenses
= Industry Gross Product

Industry group This is the intermediate level within the manufacturing industry division of Australian New Zealand Standard Industrial Classification (ANZSIC) and is recognised by a three-digit code, e.g. industry group 233 for Paper and paper product manufacturing. It gives more detail than the industry subdivision and is created in a way that groups like industry classes together.

Industry of origin This concept allocates traded commodities back to the industry of original manufacture. However, it is not always known which industry actually produced a particular set of traded commodities. For statistical purposes, commodities are allocated to the industry in which most of that type of good is produced and therefore, the industry most likely to have been the source.

Industry subdivision This is the broadest level category within the manufacturing industry division of Australian New Zealand Standard Industrial Classification (ANZSIC) and is recognised by a two-digit code, e.g. industry subdivision 23 for Wood and paper product manufacturing. Industry subdivisions are built up from industry groups which, in turn, are built up from industry classes.

Industry subdivision The following list gives the manufacturing industry subdivision codes and their descriptions:
continued

- 21 Food, beverage and tobacco manufacturing
- 22 Textile, clothing, footwear and leather manufacturing
- 23 Wood and paper product manufacturing
- 24 Printing, publishing and recorded media
- 25 Petroleum coal, chemical and associated product manufacturing
- 26 Non-metallic mineral product manufacturing
- 27 Metal product manufacturing
- 28 Machinery and equipment manufacturing
- 29 Other manufacturing

Insurance premiums Payments in respect of different types of insurance, excluding workers' compensation costs (included in labour costs) and compulsory third party motor vehicle insurance premiums (included in selected expenses).

Interest coverage The number of times over that businesses can meet their interest expenses from their earnings before interest, i.e. the value of earnings before interest and tax divided by the value of interest expenses.

Interest expenses Includes interest paid on loans from banks, finance companies, insurance companies and related companies.

Interest income Includes interest received from bank accounts, loans and finance leases, and earnings on discounted bills.

Intermediate inputs Purchases plus selected expenses.

Job leavers Unemployed persons who have worked full-time for two weeks or more in the past two years and left that job voluntarily, that is, because of unsatisfactory work arrangements/pay/hours; the job was seasonal, temporary or a holiday job and they left that job to return to studies; their last job was running their own business and they closed down or sold that business for reasons other than financial difficulties; or any other reason.

Job losers Unemployed persons who have worked full-time for two weeks or more in the past two years and left that job involuntarily, that is, were laid off or retrenched from that job; left that job because of their own ill-health or injury; the job was seasonal, temporary or a holiday job and they did not leave that job to return to studies; or their last job was running their own business and the business closed down because of financial difficulties.

Labour costs Wages and salaries (including severance and termination pay), superannuation contributed by employers, workers' compensation premiums, payroll tax and fringe benefits tax. 1992-93 labour costs data in this publication do not include the latter two items.

Labour costs for Research and Development	Wages and salaries, overtime allowances, penalty rates, leave loadings, bonuses, commission payments, all paid leave, employer contributions to superannuation and pension schemes, payroll tax, fringe benefits tax, payments to contract staff on the payroll, severance, termination and redundancy payments and workers' compensation insurance for staff engaged in research and experimental development activities.
Large business	In table 1.6, large businesses (excluding agriculture) are defined as employing 200 or more people. However, in all other tables large businesses are defined as having more than 100 employees.
Long-term debt to equity	The value of non-current liabilities divided by the value of net worth.
Management unit	The management unit is the highest-level unit within a business, having regard to industry homogeneity, for which accounts are maintained. In nearly all cases, the management unit is simply the legal entity which owns the business (that is, company, partnership, trust, sole operator, etc.). In the case of large diversified businesses, however, there may be more than one management unit, each coinciding with a 'division' or 'line of business'. A division or line of business is recognised where separate and comprehensive accounts are compiled for it.
Manufacturing establishment	An establishment predominantly engaged in manufacturing activities. The data collected for such establishments cover all activities of the establishment (including non-manufacturing activities). Conversely, there are some establishments predominantly engaged in non-manufacturing activities which also undertake limited manufacturing activities and which are excluded.
Manufacturing management unit	A management unit predominantly engaged in manufacturing activities. The data collected for such management units cover all activities of the management unit (including in respect of non-manufacturing activities). Conversely, there are some management units predominantly engaged in non-manufacturing activities which have establishments engaged in manufacturing activities and which are excluded.
Medium business	In table 1.6, medium-sized businesses (excluding agriculture) are defined as employing 20–99 people.
Micro business	In table 1.6, micro businesses (excluding agriculture) are defined as employing less than five people.
New capital expenditure	Refers to the acquisition of new tangible assets either on own account or under a finance lease and includes major improvements, alterations and additions. In general, this is expenditure charged to fixed tangible assets accounts excluding expenditure on second-hand assets unless these are imported for the first time.
Net worth	Total assets minus total liabilities and is equal to the interests of shareholders or other owners in the assets of the business.

Non-current assets	The book value of non-current assets as at the end of the financial year. Includes plant and machinery needed for normal operations, capitalised interest, property and goodwill.
Non-current liabilities	The book value of non-current liabilities as at the end of the financial year. Includes bank loans, debentures and unsecured notes.
Number of employees	All wage and salary earners who received pay for any part of the relevant pay period. All permanent, temporary, casual, managerial and executive employees are included. Part-time and casual employees who may have received pay for only a few hours during the reference period are included. Employees on paid leave and those employees on workers' compensation who continue to be paid through the employer's payroll are also included. Casual employees who work on an irregular basis and who were not paid for the relevant pay period, employees on leave without pay, on strike or stood down without pay for the whole of the pay period are excluded.
OECD	Organisation for Economic Co-operation and Development.
Operating profit before tax (OPBT)	Operating profit before tax: a measure of profit before extraordinary items are brought into account and prior to the deduction of income tax and appropriations to owners (e.g. dividends paid).
Opening stocks	The value of all stocks of finished goods, work-in-progress, raw materials, fuels, containers and packaging as at the beginning of the financial year. Businesses are asked to value their stocks for statistical purposes using the same method as for their balance sheet.
Operating expenses	The total expenses of a business, excluding extraordinary items.
Operating income	The total income of a business, excluding extraordinary items.
Other environmental protection activities	Includes measures to protect the environment from radiation; protection of soil and groundwater, and measures to protect native plants, animals and habitats.
Other operating expenses	Includes all operating expenses not included under other categories of expense such as purchases, selected expenses, cost of sales, labour costs, depreciation. Also excludes income tax and extraordinary expenses. Examples of expenses which are included in other operating expenses are advertising expenses, accounting and legal expenses, cleaning expenses, printing costs (except for publishers), rates, telephone and postage charges, travelling and entertainment expenses, and management fees.
Other operating income	Includes government subsidies, royalty income, dividends received, net profit (or loss) on the sale of fixed tangible assets and net profit (or loss) on foreign exchange transactions. It excludes unrealised gains or losses, and extraordinary profits or losses such as those associated with the sale of a segment of the business or goodwill revaluations.

Other small businesses	For table 1.5, other small businesses (excluding agriculture) are defined as businesses employing 5–19 people.
Own account capital work	Capitalised work done by employees in manufacturing, constructing or installing assets (including computer software developed in house) for use by the business or for renting or leasing to other businesses. This item is valued at the capitalised value of the materials, and wages and salaries involved.
Part-time employees	Permanent, temporary and casual employees who are not classified as full-time employees as defined.
Profit margin	The percentage of operating income available as operating profit, i.e. the value of operating profit before tax (OPBT) multiplied by 100 and the result divided by the value of operating income.
Purchases	Purchases of materials, components, supplies, consumables, containers, packaging materials, electricity, fuels (except for motor vehicles) and water. It also includes purchases of goods for resale without processing.
R&D	Research and development
Research and development 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. R&D activity ceases and pre-production begins when work is no longer experimental.
Research and development expenditure on waste management and environmental protection	Includes wages and salaries of employees engaged in research and development (R&D) as well as payments made to private businesses for R&D relating to the prevention, reduction or elimination of pollution or any other degradation of the environment.
Return on assets	Operating profit before tax (OPBT) as a percentage of the total book value of assets, i.e. the value of OPBT multiplied by 100 and the result divided by the value of total assets.
Return on net worth	Operating profit before tax (OPBT) as a percentage of the shareholders' funds, i.e. the value of OPBT multiplied by 100 and the result divided by the value of net worth.
Royalty expenses	Payments made by a business for the use of rights owned by another business or person. Included in other operating expenses.
Sales of goods and services	Includes sales of goods whether or not manufactured by the business, sales or transfers to related businesses, all repair and service income and fees, income from rent, leasing and hiring, contract, subcontract and commission revenue, and management fees. Rent, leasing and hiring income is revenue derived from the ownership of land, buildings, vehicles, machinery or equipment, excluding income from finance leases.

Sampling error Most of the estimates in this publication are based on information gained from sample surveys. Because the entire population of businesses was not surveyed to obtain these estimates, they are subject to sampling error, i.e. the imprecision which arises when a sample of businesses is not perfectly representative of the population of businesses from which the sample was drawn.

Selected expenses Includes payments made for services provided by other businesses (including self-employed persons) such as rent, leasing and hiring of plant, motor vehicles, land and buildings; freight and cartage expenses; office supplies and services; telephone and postage; advertising, accounting and legal services; repairs and maintenance; work performed on a contract, subcontract or commission basis; and charges by government such as rates and motor vehicle registration.

Small business For this publication, small businesses (excluding agriculture) are defined as businesses employing less than 20 people. In Table 1.6, a separate category for 'Micro businesses' (employing less than five people) has been recognised.

Trading profit A measure of profit directly attributable to trading in goods and services. It is derived by deducting the cost of sales from sales of goods and services.

Turnover Sales (exclusive of excise and sales tax) of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same business, plus bounties and subsidies on production, plus all other operating income from outside the establishment (such as commission income, repair and service income, and rent, leasing and hiring income), plus capital work done by an establishment's own employees for the business' own use, or for rental or lease. Receipts from interest, royalties dividends and the sale of fixed tangible assets are excluded.

Note: Transfers to other establishments of the same business referred to in the definition of turnover are valued, for statistical purposes, at prices commensurate with the prices which would have been received if the establishments concerned had been under separate ownership, that is, at commercial selling price. A significant proportion of the commodities manufactured by some industries is manufactured on commission for non-manufacturing businesses from materials owned and supplied by those businesses. In these circumstances, the manufacturing turnover figures do not reflect the gross value of those commodities but only the commission earned relating to them.

Unemployed Persons aged 15 and over who were not employed during the reference week, and:

- had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and;
- were available for work in the reference week, or would have been available except for temporary illness (i.e. lasting for less than four weeks to the end of the reference week); or
- were waiting to start a new job within four weeks from the end of the reference week and would have started in the reference week if the job had been available then; or
- were waiting to be called back to a full-time or part-time job from which they had been stood down without pay for less than four weeks up to the end of the reference week (including the whole of the reference week) for reasons other than bad weather or plant breakdown.

Unemployed persons classified by industry and occupation Unemployed persons who had worked full-time for two weeks or more in the last two years are classified according to the industry and occupation of their most recent full-time job.

Value added Turnover, plus the increase (or less the decrease) in the value of stocks, less purchases, transfers in and selected expenses.

Wages and salaries The gross wages and salaries (including capitalised wages and salaries) of all employees of the establishment. The item includes severance, termination and redundancy payments, but excludes reimbursements or allowances to employees for travel, entertainment, etc. For the 1995–96 collection, provisions for employee entitlements (e.g. provisions for annual leave and leave bonus, long service leave, sick leave and severance, termination and redundancy payments) are excluded. The drawings of working proprietors are also excluded.

Wages and salaries to turnover ratio The wages and salaries paid by manufacturing establishments which operated during the year ended 30 June as a proportion of the turnover of manufacturing establishments which operated during the same year.

LIST OF REFERENCES

Where ABS time series data has been presented in tables, only the latest edition of the product used to extract the data is listed as source material and in the references below. Earlier editions of the product are available from ABS libraries and selected other libraries. Only the last publication issued and used in this publication has been sourced. Time series information is available from previous issues.

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INDEX

A

accidents, 38–40
age profile of workforce, 32
articles (commodities), 49–50, 95–9, 105–6
assets, *see* balance sheets; performance ratios
Australian and New Zealand Standard Industrial Classification (ANZSIC), 109–10, 112–16
Australian Capital Territory, 11, 22, 31, 70, 85, 95
average weekly earnings, 93–4

B

back injuries, 40
balance sheets, 57
 Food, beverage and tobacco manufacturing, 62
 Machinery and equipment manufacturing, 83
 Metal product manufacturing, 80
 Non-metallic mineral product manufacturing, 77
 Other manufacturing, 86
 Petroleum, coal, chemical and associated product manufacturing, 74
 Printing, publishing and recorded media, 71
 Textile, clothing, footwear and leather manufacturing, 65
 Wood and paper product manufacturing, 68
beverages, *see* Food, beverage and tobacco manufacturing
birthplace of employees, 33–4
black coal, 44
buildings and structures, 90
business size, 17–18, 52, 54, 103

C

capital expenditure, 57, 90
 on environmental protection, 46–7, 48
 Food, beverage and tobacco manufacturing, 46, 54, 62, 90
 Machinery and equipment manufacturing, 46, 54, 83, 90
 Metal product manufacturing, 46, 54, 80, 90
 Non-metallic mineral product manufacturing, 46, 54, 77, 90
 Other manufacturing, 46, 54, 86, 90
 Petroleum, coal, chemical and associated product manufacturing, 46, 54, 74, 90
 Printing, publishing and recorded media, 46, 54, 71, 90
 on research and development, 53–4
 Textile, clothing, footwear and leather manufacturing, 46, 54, 65, 90
 Wood and paper product manufacturing, 46, 54, 68, 90
chemicals, *see* Petroleum, coal, chemical and associated product manufacturing
classification, 109–10, 112–16
clothing, *see* Textile, clothing, footwear and leather manufacturing
coal, 44

see also Petroleum, coal, chemical and associated product manufacturing
commodities (goods), 49–50, 95–9, 105–6
company profits, *see* profits
compensation cases, 38–40
constant price sales, 88–9
consumption of energy, 43–6
cost of sales, *see* sales
coverage of statistics, *see* statistical sources and methods
current expenditure on environmental protection, 47, 48
current price sales, 88–9
current ratio, *see* performance ratios

D

data quality, *see* statistical sources and methods
deafness, 40
debt, *see* performance ratios
degree of transformation, 49–50
depreciation, *see* income
direct exporters, 103–4
disease (occupational), 40
disputes (industrial), 36–8

E

ear injuries, 40
elaborately transformed manufactures, 50
employment, 8, 9, 22, 31–43, 92–5
 Food, beverage and tobacco manufacturing, 33, 34, 61
 Machinery and equipment manufacturing, 33, 34, 82
 Metal product manufacturing, 33, 34, 79
 New South Wales, 22, 23, 95
 Non-metallic mineral product manufacturing, 33, 34, 76
 operating profits before tax (OPBT) per person employed, 59
 Other manufacturing, 33, 34, 85
 Petroleum, coal, chemical and associated product manufacturing, 33, 34, 73
 Printing, publishing and recorded media, 33, 34, 70
 Queensland, 22, 26, 95
 size of business, 17
 size of establishment, 18–20
 South Australia, 22, 28, 95
 Tasmania, 22, 31, 95
 Textile, clothing, footwear and leather manufacturing, 33, 34, 64
 Victoria, 22, 25, 95
 Western Australia, 22, 29, 95
 Wood and paper product manufacturing, 33, 34, 67
energy consumption, 43–6
environmental issues, 43–8
equipment, plant and machinery, 90
see also Machinery and equipment manufacturing

equity, *see* performance ratios
establishments, 18–31, 107, 108
expenditure
 on environmental protection, 46–8
 on innovation, 50
 on research and development, 53–4
 see also capital expenditure
exports and imports, 7–8, 100–6

F

female employees, 32–5, 41–3, 93–4
finance, *see* expenditure; income
Food, beverage and tobacco manufacturing, 9, 14, 61–3, 112
 degree of transformation, 50
 expenditure, 46, 54, 62, 90
 employment, 33, 34, 61
 energy consumption, 45
 industrial disputes, 37–8
 international trade, 100, 101, 103, 104
 New South Wales, 23, 61
 operating profits before tax (OPBT), 59, 60, 62
 profits, 15, 62, 92
 Queensland, 26, 61
 sales, 15, 89
 size of establishment, 20
 South Australia, 27, 28, 61
 Tasmania, 30–1, 61
 technological innovation, 52
 trade union membership, 42, 43
 Victoria, 24, 25, 61
 Western Australia, 29, 61
 workers' compensation cases, 40
footwear, *see* Textile, clothing, footwear and leather
fuel consumption, 43–6
full/part time employees, 32, 42, 92–4

G

GDP, share of, 8–9
geographical locations, *see* States and Territories
goods (commodities), 49–50, 95–9, 105–6
growth/decline, 9, 12–17

H

hand injuries, 40
health and safety, 38–40
historical perspective, 7–9
hours worked, 32
 see also full/part time employees

I

immigrant employees, 33–4
import penetration, 101, 102
imports and exports, 7–8, 100–6
income, 57
 business size, 17, 18
 Food, beverage and tobacco manufacturing, 62
 Machinery and equipment manufacturing, 83
 Metal product manufacturing, 80
 Non-metallic mineral product manufacturing, 77

operating profits before tax (OPBT) per \$000, 59
Other manufacturing, 86
Petroleum, coal, chemical and associated product manufacturing, 74
Printing, publishing and recorded media, 71
Textile, clothing, footwear and leather manufacturing, 65
Wood and paper product manufacturing, 68
 see also expenditure; profits; sales
industrial accidents, 38–40
industrial disputes, 36–8
industry classification, 109–10, 112–16
industry gross production, 18–20, 22
 direct exporters/non-exporters, 104
 Food, beverage and tobacco manufacturing, 61, 104
 Machinery and equipment manufacturing, 82, 104
 Metal product manufacturing, 79, 104
 Non-metallic mineral product manufacturing, 76, 104
 Other manufacturing, 85, 104
 Petroleum, coal, chemical and associated product manufacturing, 73, 104
 Printing, publishing and recorded media, 70, 104
 Textile, clothing, footwear and leather manufacturing, 64, 104
 Wood and paper product manufacturing, 67, 104
industry of origin, 101–2
industry shares, 10–13
 industrial disputes, 36
 performance ratios, 56
 trade union membership, 41
 unemployed persons, 35
injuries and accidents, 38–40
innovation, 50–2
interest coverage ratio, *see* performance ratios
interest expenses, *see* income
international trade, 7–8, 100–6

L

labour costs, *see* income; wages and salaries
labour force, *see* employment
leather, *see* Textile, clothing, footwear and leather manufacturing
liabilities, *see* balance sheets; performance ratios
locations, *see* States and Territories
long term debt to equity, *see* performance ratios

M

Machinery and equipment manufacturing, 9, 14, 82–4, 115–16
 degree of transformation, 50
 employment, 33, 34, 82
 energy consumption, 45
 expenditure, 46, 53–4, 83, 90
 industrial disputes, 37–8
 international trade, 101, 103, 104
 New South Wales, 23, 54, 82
 Northern Territory, 31
 operating profits before tax (OPBT), 59, 83
 profits, 15, 83, 92
 Queensland, 26, 54, 82

research and development expenditure, 54
 sales, 15, 89
 size of establishment, 20
 South Australia, 27, 54, 82
 technological innovation, 52
 trade union membership, 42
 Victoria, 24, 54, 82
 Western Australia, 29, 54, 82
 workers' compensation cases, 40
 machinery, plant and equipment, 90
 male employees, 32–5, 41–3, 93–4
 management unit statistics, 107
 managerial policy, 38
 market size, 101, 102
 materials, 98–9
 media, *see* Printing, publishing and recorded media
 Metal product manufacturing, 14, 79–81, 114–15
 degree of transformation, 50
 employment, 33, 34, 79
 energy consumption, 45
 expenditure, 46, 54, 80, 90
 industrial disputes, 37–8
 international trade, 100, 101, 103, 104
 New South Wales, 23, 54, 79
 Northern Territory, 31
 operating profits before tax (OPBT), 59, 60, 80
 profits, 15, 80, 92
 Queensland, 26, 54, 79
 research and development expenditure, 54
 sales, 15, 89
 size of establishment, 19, 20
 South Australia, 27, 79
 Tasmania, 30, 31, 79
 technological innovation, 52
 trade union membership, 42
 Victoria, 24, 79
 Western Australia, 29, 54, 79
 workers' compensation cases, 40
 migrant employees, 33–4

N

national production, contribution to, 7–31
 net worth, *see* balance sheet
 New South Wales, 21, 22–3
 employment, 22, 23, 95
 energy consumption, 46
 Food, beverage and tobacco manufacturing, 23, 61
 industry shares of total production, 11
 Machinery and equipment manufacturing, 23, 54, 82
 Metal product manufacturing, 23, 54, 79
 Non-metallic mineral product manufacturing, 76
 Other manufacturing, 85
 Petroleum, coal, chemical and associated product manufacturing, 23, 73
 Printing, publishing and recorded media, 23, 70
 research and development expenditure, 54
 Textile, clothing, footwear and leather manufacturing, 64
 Wood and paper product manufacturing, 67
 Non-metallic mineral product manufacturing, 9, 14, 76–8, 114
 degree of transformation, 50

 employment, 33, 34, 76
 energy consumption, 45
 expenditure, 46, 54, 77, 90
 industrial disputes, 37
 international trade, 101, 103, 104
 operating profits before tax (OPBT), 59, 60, 77
 profits, 15, 77, 92
 sales, 15, 89
 size of establishment, 20
 technological innovation, 52
 trade union membership, 42
 workers' compensation cases, 40
 Northern Territory, 21, 22, 31, 95
 energy consumption, 46
 industry shares of total production, 11, 12
 Metal product manufacturing, 79
 Non-metallic mineral product manufacturing, 76
 technological innovation, 52

O

occupational health and safety, 38–40
 operating profits before tax (OPBT), *see* profits
 Other manufacturing, 14, 85–7, 116
 degree of transformation, 50
 employment, 33, 34, 85
 energy consumption, 45
 expenditure, 46, 54, 86, 90
 industrial disputes, 37
 international trade, 101, 103, 104
 operating profits before tax (OPBT), 59, 60, 83
 profits, 15, 86, 92
 sales, 15, 89
 size of establishment, 20
 technological innovation, 52
 trade union membership, 42, 43
 workers' compensation cases, 40
 overseas born employees, 33–4

P

paper products, *see* Wood and paper product manufacturing
 part time employees, 32, 42, 92–3
 performance, 55–99
 direct exporters, 103–4
 performance ratios, 56, 58
 Food, beverage and tobacco manufacturing, 63
 Machinery and equipment manufacturing, 84
 Metal product manufacturing, 81
 Non-metallic mineral product manufacturing, 78
 Other manufacturing, 87
 Petroleum, coal, chemical and associated product manufacturing, 75
 Printing, publishing and recorded media, 72
 Textile, clothing, footwear and leather manufacturing, 66
 Wood and paper product manufacturing, 69
 Petroleum, coal, chemical and associated product manufacturing, 9, 14, 73–5, 113–14
 employment, 33, 34, 73
 expenditure, 46, 54, 74, 90
 industrial disputes, 37
 international trade, 100, 101, 103, 104

New South Wales, 23, 73
 operating profits before tax (OPBT), 59, 74
 profits, 15, 74, 92
 Queensland, 26, 73
 research and development expenditure, 54
 sales, 15, 89
 size of establishment, 20
 technological innovation, 52
 trade union membership, 42, 43
 Victoria, 24, 54, 73
 Western Australia, 29, 73
 workers' compensation cases, 40
 plant, machinery and equipment, 90
 see also Machinery and equipment manufacturing
 prices, 97–9
 Printing, publishing and recorded media, 9, 14,
 70–2, 113
 Australian Capital Territory, 31
 degree of transformation, 50
 employment, 33, 34, 70
 energy consumption, 45
 expenditure, 46, 54, 71, 90
 industrial disputes, 37
 international trade, 101, 103, 104
 New South Wales, 23, 70
 operating profits before tax (OPBT), 59, 60, 71
 profits, 15, 71, 92
 sales, 15, 89
 size of establishment, 20
 technological innovation, 52
 trade union membership, 42, 43
 workers' compensation cases, 40
 production, 7–31, 95–9
 Food, beverage and tobacco manufacturing, 61
 Machinery and equipment manufacturing, 82
 Metal product manufacturing, 79
 Non-metallic mineral product manufacturing, 76
 Other manufacturing, 85
 Petroleum, coal, chemical and associated product
 manufacturing, 73
 Printing, publishing and recorded media, 70
 Textile, clothing, footwear and leather
 manufacturing, 64
 Wood and paper product manufacturing, 67
 profit margins, *see* performance ratios
 profits, 15–17, 57, 58–60, 91–2
 Food, beverage and tobacco manufacturing, 15, 62
 Machinery and equipment manufacturing, 15, 83
 Metal product manufacturing, 15, 80
 Non-metallic mineral product manufacturing, 15,
 77
 Other manufacturing, 15, 86
 Petroleum, coal, chemical and associated product
 manufacturing, 15, 74
 Printing, publishing and recorded media, 15, 71
 Textile, clothing, footwear and leather
 manufacturing, 15, 65
 Wood and paper product manufacturing, 15, 68
 publishing, *see* Printing, publishing and recorded
 media

Q

Queensland, 21, 22, 25–6

employment, 22, 26, 95
 energy consumption, 46
 Food, beverage and tobacco manufacturing, 26, 61
 industry shares of total production, 11
 Machinery and equipment manufacturing, 26, 54,
 82
 Metal product manufacturing, 26, 54, 79
 Non-metallic mineral product manufacturing, 76
 Other manufacturing, 85
 Petroleum, coal, chemical and associated product
 manufacturing, 26, 73
 Printing, publishing and recorded media, 70
 research and development expenditure, 54
 Textile, clothing, footwear and leather
 manufacturing, 64
 Wood and paper product manufacturing, 67
 recorded media, *see* Printing, publishing and
 recorded media
 refinery feedstock, 44
 research and development expenditure, 53–4
 retail businesses, 18
 return on assets, *see* performance ratios

S

safety, 38–40
 sales, 15–16, 57, 88–9
 Food, beverage and tobacco manufacturing, 15,
 62, 89
 Machinery and equipment manufacturing, 15, 83,
 89
 Metal product manufacturing, 15, 80, 89
 Non-metallic mineral product manufacturing, 15,
 77, 89
 Other manufacturing, 15, 86, 89
 Petroleum, coal, chemical and associated product
 manufacturing, 15, 74, 89
 Printing, publishing and recorded media, 15, 71,
 89
 Textile, clothing, footwear and leather
 manufacturing, 15, 65, 89
 Wood and paper product manufacturing, 15, 68,
 89
 see also turnover
 sampling error, 109
 size of business, 17–18, 52, 54, 103
 size of establishment, 18–20
 size of industry, 10–13
 size of market, 101, 102
 South Australia, 21, 27–8
 employment, 22, 28, 95
 energy consumption, 46
 Food, beverage and tobacco manufacturing, 27,
 28, 61
 industry shares of total production, 11, 12
 Machinery and equipment manufacturing, 27, 54,
 82
 Metal product manufacturing, 27, 79
 Non-metallic mineral product manufacturing, 76
 Other manufacturing, 85
 Petroleum, coal, chemical and associated product
 manufacturing, 54, 73
 Printing, publishing and recorded media, 70
 research and development expenditure, 54

- technological innovation, 52
- Textile, clothing, footwear and leather manufacturing, 64
- Wood and paper product manufacturing, 28, 67
- States and Territories, 20–31
 - employment, 22, 95
 - energy consumption, 45–6
- Food, beverage and tobacco manufacturing, 61
- industry shares, 11–12
- Machinery and equipment manufacturing, 54, 82
- Metal product manufacturing, 54, 79
- Non-metallic mineral product manufacturing, 76
- Other manufacturing, 85
- Petroleum, coal, chemical and associated product manufacturing, 54, 73
- Printing, publishing and recorded media, 70
- research and development expenditure, 54
- technological innovation, 52
- Textile, clothing, footwear and leather manufacturing, 64
- Wood and paper product manufacturing, 67
- Statistical Divisions, 22–31
- statistical sources and methods, 107–11
 - industrial accidents, 38
 - international trade, 100
 - size of establishment, 19
- strains (injuries), 40
- strikes and industrial disputes, 36–8
- structural change, 9
- structures and buildings, 90

T

- Tasmania, 21, 30–1
 - employment, 22, 31, 95
 - energy consumption, 46
- Food, beverage and tobacco manufacturing, 30–1, 61
- industry shares of total production, 11
- Machinery and equipment manufacturing, 82
- Metal product manufacturing, 30, 31, 79
- Non-metallic mineral product manufacturing, 76
- Other manufacturing, 85
- Petroleum, coal, chemical and associated product manufacturing, 73
- Printing, publishing and recorded media, 70
- technological innovation, 52
- Textile, clothing, footwear and leather manufacturing, 64
- Wood and paper product manufacturing, 30, 31, 67
- technological innovation, 50–2
- Textile, clothing, footwear and leather manufacturing, 9, 14, 64–6, 112–13
 - degree of transformation, 50
 - employment, 33, 34, 64
 - energy consumption, 45
 - expenditure, 46, 54, 65, 90
 - industrial disputes, 37
 - international trade, 101, 103, 104
 - operating profits before tax (OPBT), 59, 60, 65
 - profits, 15, 65, 92
 - sales, 15, 89
 - size of establishment, 20

- technological innovation, 52
- trade union membership, 42
- workers' compensation cases, 40
- tobacco, *see* Food, beverage and tobacco manufacturing
- trade, 7–8, 100–6
- trade union membership, 41–3
- trading profits, *see* profits
- transformation, 49–50
- turnover, 22
 - direct exports/non-exporters, 104
- Food, beverage and tobacco manufacturing, 61, 104
- Machinery and equipment manufacturing, 82, 104
- Metal product manufacturing, 79, 104
- New South Wales, 23
- Non-metallic mineral product manufacturing, 76, 104
- Other manufacturing, 85, 104
- Petroleum, coal, chemical and associated product manufacturing, 73, 104
- Printing, publishing and recorded media, 70, 104
- Queensland, 22, 26
- South Australia, 22, 28
- Tasmania, 22, 31
- Textile, clothing, footwear and leather manufacturing, 64, 104
- Victoria, 22, 25
- Western Australia, 22, 29
- Wood and paper product manufacturing, 67, 104

U

- unemployed persons, 35
- union membership, 41–3

V

- Victoria, 21, 22, 24–5
 - employment, 22, 25, 95
 - energy consumption, 46
- Food, beverage and tobacco manufacturing, 24, 25, 61
- industry shares of total production, 11
- Machinery and equipment manufacturing, 24, 54, 82
- Metal product manufacturing, 24, 79
- Non-metallic mineral product manufacturing, 76
- Other manufacturing, 85
- Petroleum, coal, chemical and associated product manufacturing, 24, 54, 73
- Printing, publishing and recorded media, 70
- research and development expenditure, 54
- technological innovation, 52
- Textile, clothing, footwear and leather manufacturing, 64
- Wood and paper product manufacturing, 24–5, 67

W

- wages and salaries, 38, 93–4, 104
- waste management, 46–8
- Western Australia, 21, 28–9
 - employment, 22, 29, 95
 - energy consumption, 46

Food, beverage and tobacco manufacturing, 29, 61
 industry shares of total production, 11, 12
 Machinery and equipment manufacturing, 29, 54, 82
 Metal product manufacturing, 29, 54, 79
 Non-metallic mineral product manufacturing, 76
 Other manufacturing, 85
 Petroleum, coal, chemical and associated product manufacturing, 29, 73
 Printing, publishing and recorded media, 70
 research and development expenditure, 54
 Textile, clothing, footwear and leather manufacturing, 64
 Wood and paper product manufacturing, 67
 women employees, 32–5, 41–3, 93–4
 Wood and paper product manufacturing, 14, 67–9, 113
 degree of transformation, 50
 employment, 33, 34, 67
 energy consumption, 45
 expenditure, 46, 54, 68, 90
 industrial disputes, 37
 international trade, 100, 101, 103, 104
 operating profits before tax (OPBT), 59, 68
 profits, 15, 68, 92
 sales, 15, 89
 size of establishment, 20
 South Australia, 28, 67
 Tasmania, 30, 31, 67
 technological innovation, 52
 trade union membership, 42, 43
 Victoria, 24–5, 67
 workers' compensation cases, 40
 workers' compensation, 38–40
 workforce characteristics, 31–43
 working days lost, in disputes, 36–8
 working hours, 32
 see also full/part time employees
 wounds (injuries), 40

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