



## Australian manufacturing—structural trends 2001–02 to 2006–07

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### Executive summary

- Manufacturing is a key Australian industry equal to 10 per cent of gross domestic product.
- Global and domestic economic trends are producing structural change in the industry.
- There has been a shift away from manufacturing goods exposed to international competition to manufacturers aligned with Australia's commodities based industries.

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## Glossary and abbreviations

*Gross domestic product* — the total market value of goods and services produced in Australia within a given period after deducting the cost of goods and services used up in the process of production but before deducting allowances for the consumption of fixed capital. Thus gross domestic product, as here defined, is 'at market prices'. It is equivalent to gross national expenditure plus exports of goods and services less imports of goods and services.

*Gross operating profit* — selected items are excluded from company profits before income tax to provide a measure of underlying company profits. These items include interest income and expenses; depreciation and amortisation; and selected items which do not involve the production of goods and services such as net foreign exchange gains/losses, gains/losses arising from the sale of non-current assets and net unrealised gains/losses from the revaluation of current or non-current assets.

*Gross value added* — the value of output at basic prices minus the value of intermediate consumption at purchasers' prices. The term is used to describe gross product by industry and by sector. Basic prices valuation of output removes the distortion caused by variations in the incidence of commodity taxes and subsidies across the output of individual industries.

*Large business*—businesses employing 200 or more persons.

*Medium business*—businesses employing 20 to 199 persons.

*mfg*— abbreviation for manufacturing

*n.e.c*—not elsewhere classified.

*Net terms*—takes into account gains and losses, e.g. in the number of businesses, in a given period

*Real growth*—growth measured in constant prices removing the inflationary impact on prices so that analysis of trends can be made on the basis of volumes produced.

*Small business*—businesses employing fewer than 20 persons, including non-employed.

*TCF*—textiles, clothing and footwear.

## Introduction

Manufacturing is an important part of Australia's economy. In 2006–07 it accounted for 10 per cent of Australia's gross domestic product (GDP) and employment and for about 25 per cent of merchandise exports. However, forces at work in the Australian economy combined with international developments and increased globalisation are having a profound effect on the size and structure of the industry.

In recent years, competition from cheap imports, a strong dollar, the drought and rising costs for raw materials and labour have created a very competitive business environment for many Australian manufacturers. At the same time the mining boom and infrastructure development have created opportunities for other manufacturers.<sup>1</sup>

The result is an industry that is more aligned with Australia's comparative advantage in resource based industries and less focussed on the production of consumer goods such as clothing and furniture.

Using data on output, employment, business numbers, expenditure on research and development (R&D) and profits, this paper analyses the structural changes that have occurred in the Australian manufacturing industry during the period 2001–02 to 2006–07.

The Australian Bureau of Statistics (ABS) has developed a classification for defining industries by the nature of the goods and services produced; this is the Australian New Zealand Standard Industry Classification (ANZSIC). For the purposes of this paper the manufacturing industry is as defined by the 1993 edition of the ANZSIC.<sup>2</sup>

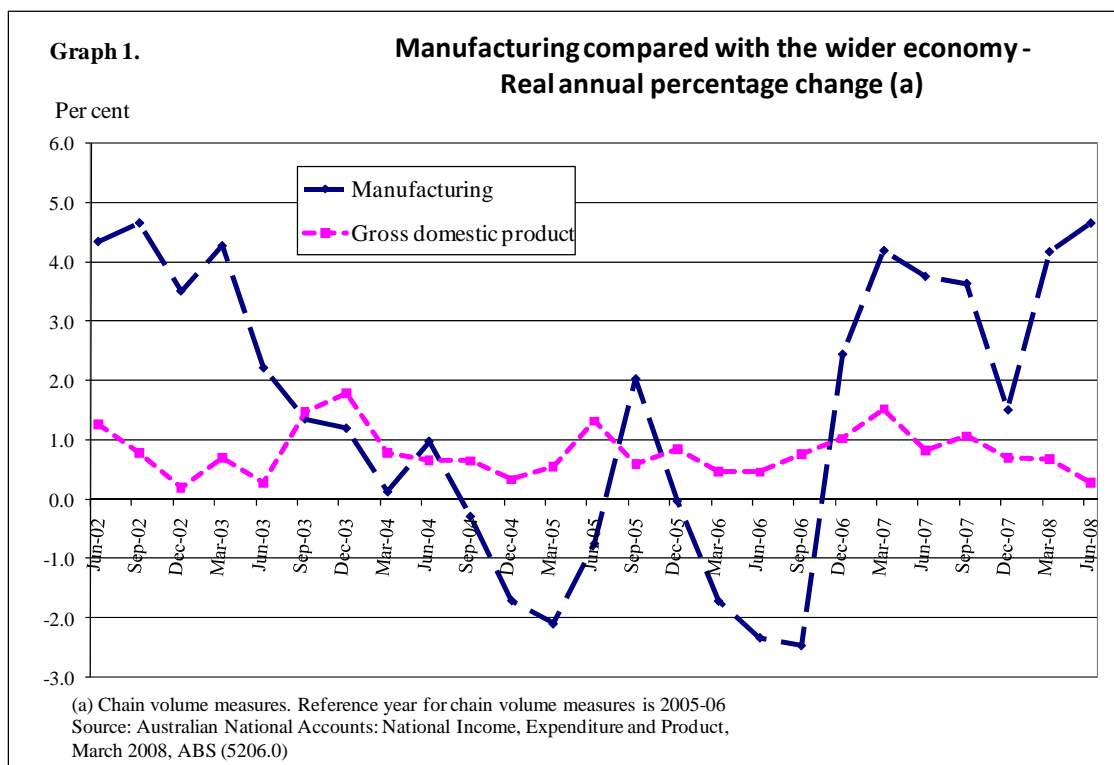
Any reference to industry in this paper refers to the manufacturing industry unless otherwise specified.

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1. *Australian PMI*, Australian Industry Group, Price Waterhouse Coopers, July 2008.
  2. Australian and New Zealand Standard Classification (ANZIC), 1993, ABS, (1292.0)

## Output

### Average growth

In real terms, i.e. adjusted for inflation, manufacturing growth has been erratic in recent years. The industry has fluctuated between periods of above average growth and periods of contraction (see Graph 1). At the same time, the wider economy, as measured by GDP, has grown more consistently. As a result, the annual average growth rate for manufacturing over the five years ending 2006–07 was just one per cent. This compares with 3.2 per cent for the wider economy.

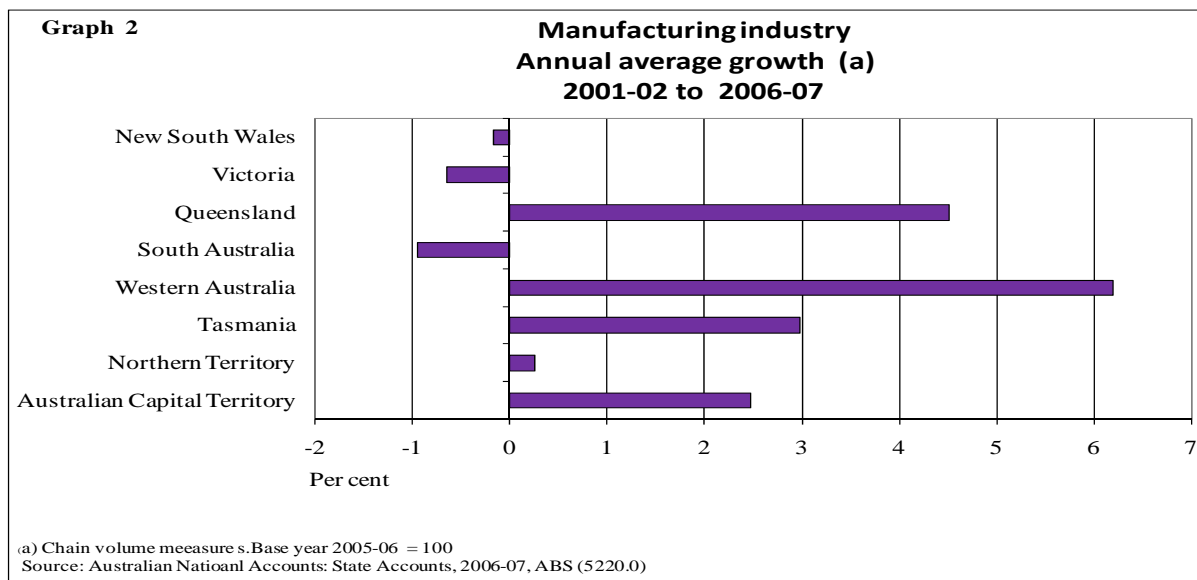


However, this aggregate level data presents a misleading impression of the industry. When the data are examined at the state level a much more varied picture emerges (see Graph 2).

Growth rates in the major manufacturing states of New South Wales and Victoria have been very weak. Measured in real terms, absolute levels of output declined in both of these states. In New South Wales manufacturing industry gross value added (GVA) declined by just under one per cent between 2001–02 and 2006–07; in Victoria, it declined by just over three per cent.

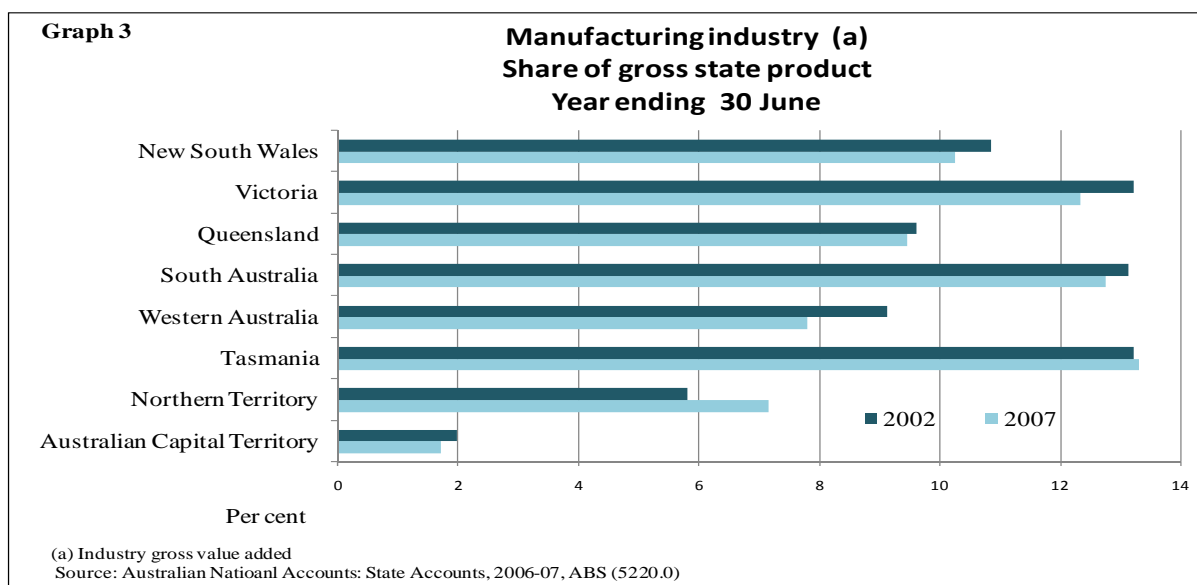
This trend was completely the opposite in Queensland and Western Australia. Queensland’s annual average growth rate was 4.5 per cent, increasing manufacturing GVA by nearly 25 per

cent over the five years. In Western Australia the annual average growth was just over six per cent, increasing manufacturing GVA by 35 per cent.

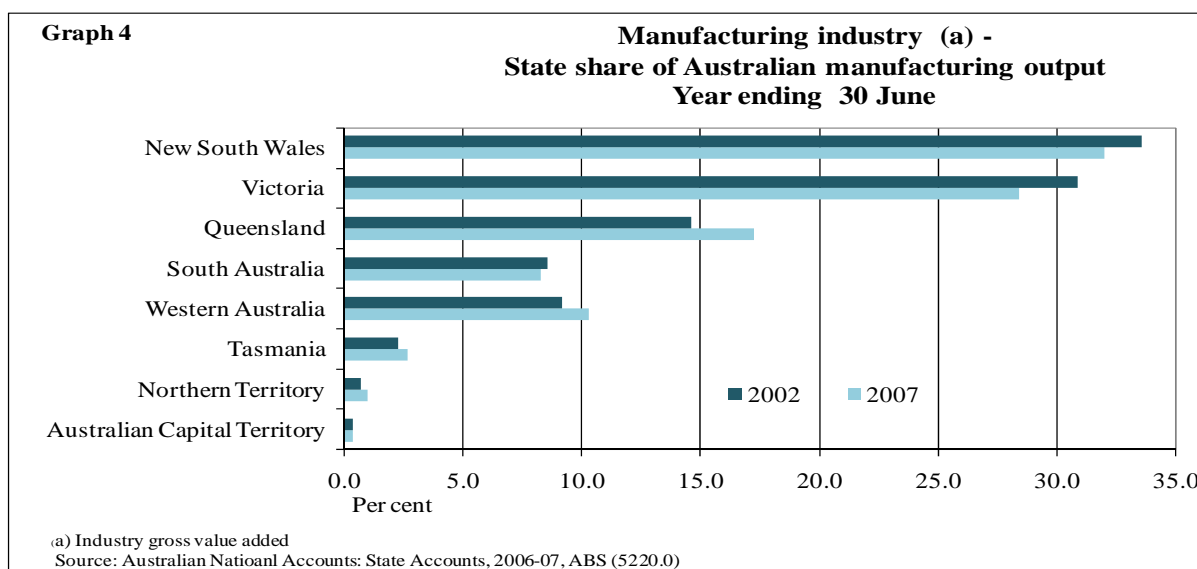


*Relative importance*

The economic importance of manufacturing varies significantly between the states (see Graph 3). Manufacturing is most important in South Australia and Tasmania where it accounts for 13 per cent of gross state product (GSP). During the five year period covered by this paper the importance of manufacturing declined in nearly every state and territory. The only two jurisdictions to go against this trend were Tasmania and the Northern Territory.



As well as changes in the importance of manufacturing output within states there has also been a shift in manufacturing output between states (see Graph 4). New South Wales and Victoria account for the lion’s share of manufacturing output. However, between 2001–02 and 2006–07 there was a shift away from these states. At the beginning of the period the two largest states accounted for 64 per cent of total manufacturing output. By the end, their share had fallen to 60 per cent. At the same time Queensland, Western Australia and Tasmania all increased their share of the national total. The biggest gain occurred in Queensland which increased its share of manufacturing from 15 to 17 per cent.



#### *Growth by industry sub-division*

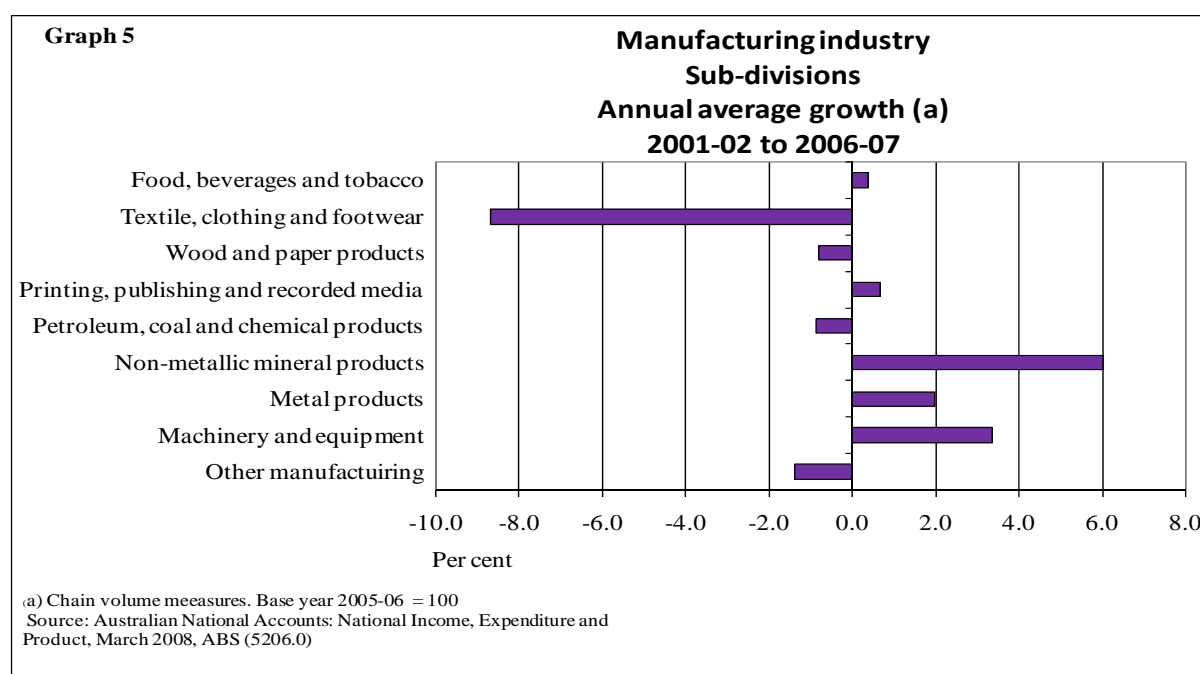
The ANZSIC divides the manufacturing industry into sub-divisions, groups and classes based on the nature of the goods produced. The sub-divisions for manufacturing are:

- Food, beverages and tobacco;
- Textile, clothing, footwear and leather work;
- Wood and paper products;
- Printing, publishing and recorded media;
- Petroleum, coal and chemical products;
- Non-metallic mineral products;
- Metal products;
- Machinery and equipment; and

- Other manufacturing.<sup>3</sup>

From 2001–02 to 2006–07 growth varied across these industry sub-divisions. Some experienced high rates of growth and others experienced a period of decline (see Graph 5).

- The Textiles, clothing, footwear and leather (TCF) sub-division experienced a significant decline in output. Over the five years TCF output declined by an annual average rate of nine per cent. As a result, output in 2006–07 was 36 per cent lower than in 2001–02.
- The Wood and paper products; Petroleum, coal and chemical products and the sub-division defined as Other manufacturing also experienced declines; although not on the same scale as the TCF industry.
- At the other end of the scale the Non-metallic mineral products; Metal products and Machinery and equipment sub-divisions experienced very strong growth rates.
  - The Non-metallic minerals products sub-division grew at an annual average rate of six per cent, increasing its output by 34 per cent.
  - The Metal products sub-division grew at an annual average rate of two per cent and increased its output by 10 per cent.
  - The Machinery and equipment sub-division grew at an annual average rate of three per cent and increased its output by 18 per cent.

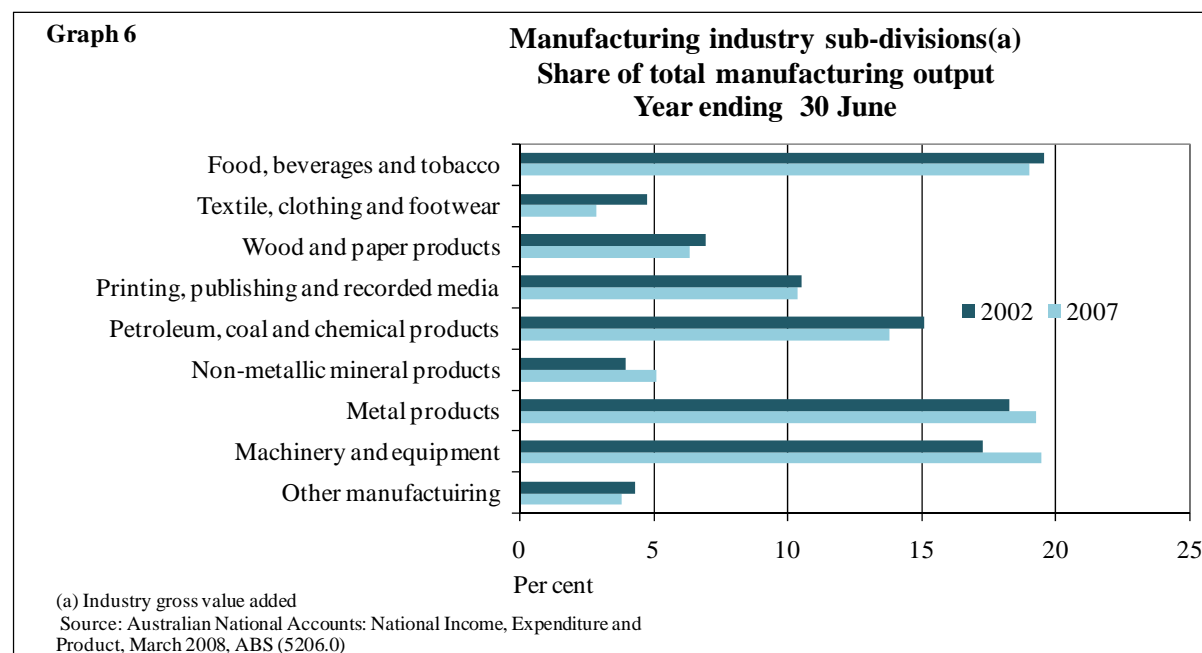


3. Includes prefabricated building, furniture, jewellery, toys and sports goods.

*Relative importance of sub-divisions*

The three biggest industry sub-divisions are; Food, beverages and tobacco; Metal products; and Machinery and equipment. These three sub-divisions account for nearly 60 per cent of manufacturing output. The first two are heavily involved in processing Australia’s abundant agricultural and mineral resources. There are also a large number of manufacturers in the Machinery and equipment sub-division involved in the production of equipment for the resources based sector of the economy. For instance, at the end of 2006–07, over a 1000, or five per cent, of businesses in this sub-division were engaged in the manufacture of mining and construction machinery.

The trend in recent years has been for the Non-metallic minerals products, Metal products and Machinery and equipment industry sub-divisions to increase their share of total manufacturing output. At the other end of the spectrum the TCF sub-division lost ground and is now the smallest of the manufacturing industry sub-divisions (see Graph 6).





## Employment

### *Aggregate growth*

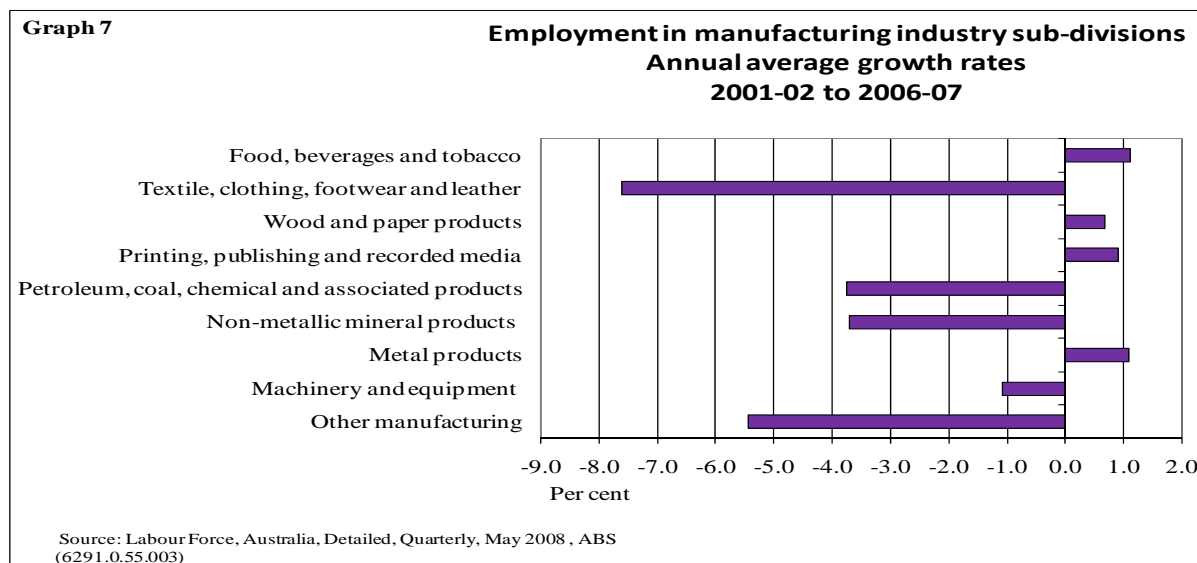
Manufacturing's share of employment has been declining for a number of years. Annual average employment for manufacturing was 1 081 300 persons in 2001–02 which was equal to about 12 per cent of total employment. In 2006–07 annual average employment in manufacturing was 1 063 900 which was 10 per cent of total employment. The lack of employment growth in manufacturing contrasts with the wider economy. In the wider economy employment grew at an average annual rate of 2.4 per cent over the same period.

However, given that overall output in manufacturing increased over the same period, the lack of growth in manufacturing employment could be indicative of increased productivity in the industry.

### *Industry sub-division*

As with GVA there were significant differences between the individual manufacturing industry sub-divisions. Some sub-divisions recorded positive growth while others dramatically declined (see Graph 7):

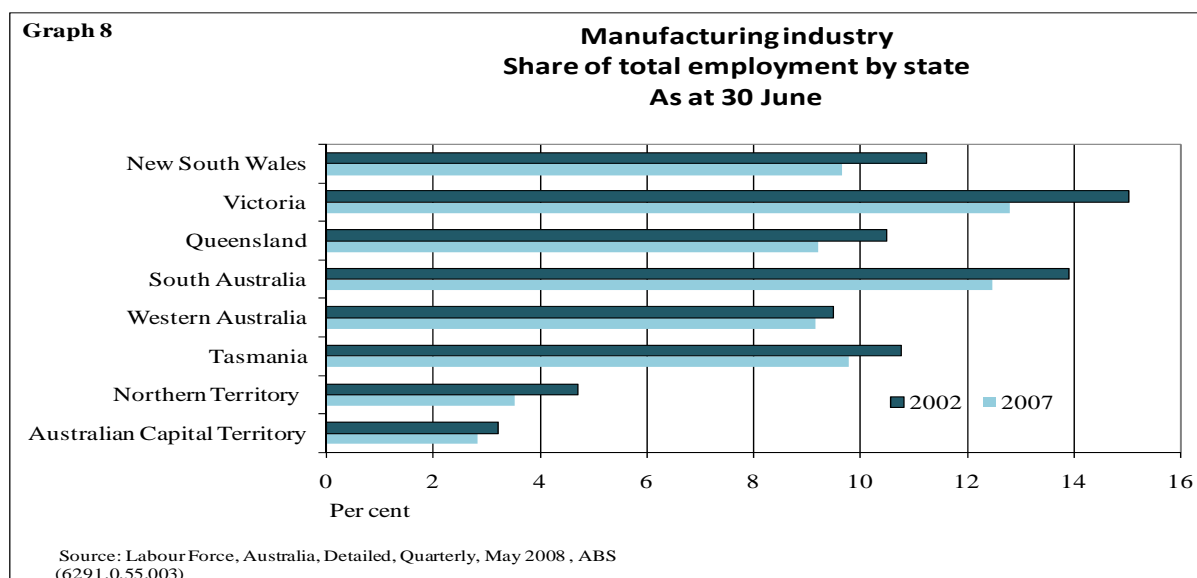
- The Food, beverages and tobacco and Metal products sub-divisions both grew at an annual average rate of just over one per cent in the five years to 2006–07.
- The Wood and paper products and the Printing, publishing and recorded media sub-divisions recorded annual average growth rates just under one per cent.
- The remaining industry sub-divisions recorded falls in employment.
- Again the worst performing industry was the TCF sub-division. Employment in the TCF sub-division fell at an annual average of 7.6 per cent in the five years to 2006–07. As a result, TCF employment was 32 per cent less than it had been in 2001–02.
- The Other manufacturing sub-division also declined. Employment in this industry fell by almost a quarter over the five years.



*Contribution to state employment*

At the state level manufacturing makes its most significant contribution to total employment in Victoria and South Australia. In Victoria it accounts for almost 13 per cent of total employment, and 12.5 per cent in South Australia. It is least important in the Australian Capital Territory and the Northern Territory where it accounts for three and four per cent of total employment respectively.

However, in the period 2001–02 to 2006–07 all states and territories experienced a decline in manufacturing’s contribution to total employment. This decline was most notable in the industry’s most important states. For instance, in Victoria it fell by over two percentage points from 15 to 13 per cent (see Graph 8).

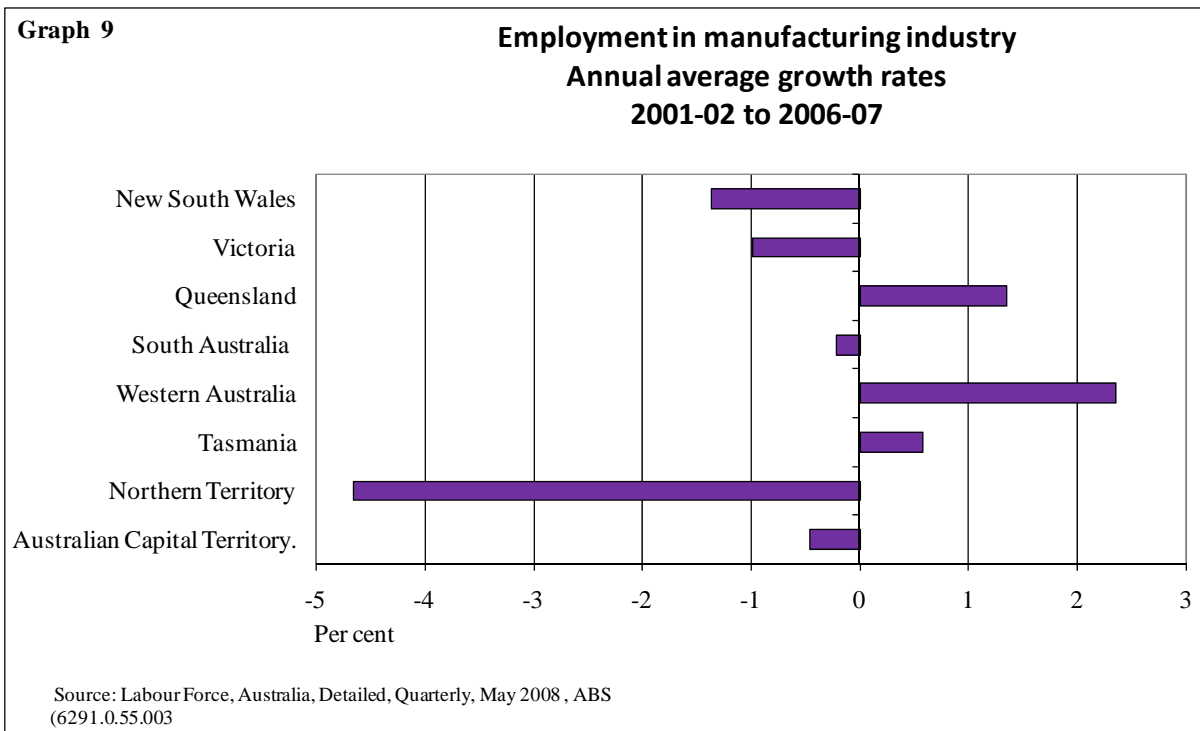


Despite the decline in the relative importance of manufacturing, the actual number of people employed in the industry did grow in some states (see Graph 9).

In the period 2001–02 to 2006–07 employment in manufacturing grew most strongly in Western Australia, where it grew at an annual average rate of 2.4 per cent. Also, it grew at an annual average rate of 1.3 per cent in Queensland and 0.6 per cent in Tasmania.

All the other states and territories experienced a decline in the total number of people employed in the industry. The most notable decline occurred in the Northern Territory where it fell at an annual average rate of 4.7 per cent.

These differing growth rates have resulted in a change to the relative importance of the states. Victoria and New South Wales are by far the biggest states in terms of manufacturing employment. In 2006–07 they accounted for 61 per cent of employment in the industry. However, this was down from 64 per cent in 2001–02. Whilst New South Wales and Victoria declined in importance, Queensland and Western Australia increased their share of manufacturing employment. Queensland increased its share from 17 to 18 per cent and Western Australia from eight to nine per cent.



At the industry sub-division level there were also some major differences in employment growth between the states and territories in the five years to 2006–07.

#### *New South Wales*

- Employment declined in every industry sub-division.
- The decline in the TCF sub-division was particularly severe. TCF employment fell by 37 per cent at an annual average rate of nine per cent.

#### *Victoria*

- The Food, beverages and tobacco sub-division grew at an annual average rate of three per cent, increasing employment by over three thousand.
- The Wood and paper products and Printing, publishing and recorded media sub-divisions both experienced an increase in employment.
- Employment growth was slightly positive in the Machinery and equipment sub-division.
- The rest of the sub-divisions experienced declining employment.
- Again, the TCF industry was notable in the level of its decline; employment fell by 31 per cent.
- Employment in Other manufacturing sub-division also declined sharply, falling by 36 per cent.

#### *Queensland*

- Printing, publishing and recorded media was the fastest growing sub-division with an annual average growth rate of eight per cent.
- This was followed by the Metal products sub-division which grew at an annual average rate of seven per cent.
- The Food, beverages and tobacco sub-division grew at an annual average rate of two per cent.
- The remaining sub-divisions all experienced a decline in employment.
- Employment in Petroleum, coal and chemical products fell by 21 per cent.
- Employment in the sub-division classified as Other manufacturing fell by 32 per cent.

### *South Australia*

- Employment grew by six per cent a year in the Wood and paper products sub-division.
- Employment also grew by five per cent a year in the Metal products sub-division
- The Food, beverages and tobacco sub-division experienced a growth rate of three per cent a year.
- All the other sub-divisions experienced declines in employment.
- Employment in the Non-metallic mineral products sub-division fell by almost 30 per cent.
- The most notable decline occurred in the TCF sub-division, where employment fell by almost 50 per cent.

### *Western Australia*

- The Metal products sub-division grew at an annual average rate of five per cent.
- Other sub-divisions experiencing growth were the Food beverages and tobacco sub-division which grew at an annual average rate of four per cent; the Printing publishing and recorded media, and Machinery and equipment sub-divisions both grew at an annual average rate of one per cent.
- Notable falls in employment occurred in the Wood and paper products (down 39 per cent) and the TCF sub-divisions (down 38 per cent).

### *Tasmania*

- The Printing, publishing and recorded media sub-division grew at an annual average rate of eight per cent.
- The Food, beverage and tobacco and the Petroleum, coal and chemical products sub-divisions both grew at an annual average rate of one per cent.
- All other sub-divisions experienced declines in employment.
- The biggest falls occurred in the TCF (down 15 per cent), Non-metallic mineral products (down 15 per cent) and Other manufacturing (down 13 per cent) sub-divisions.

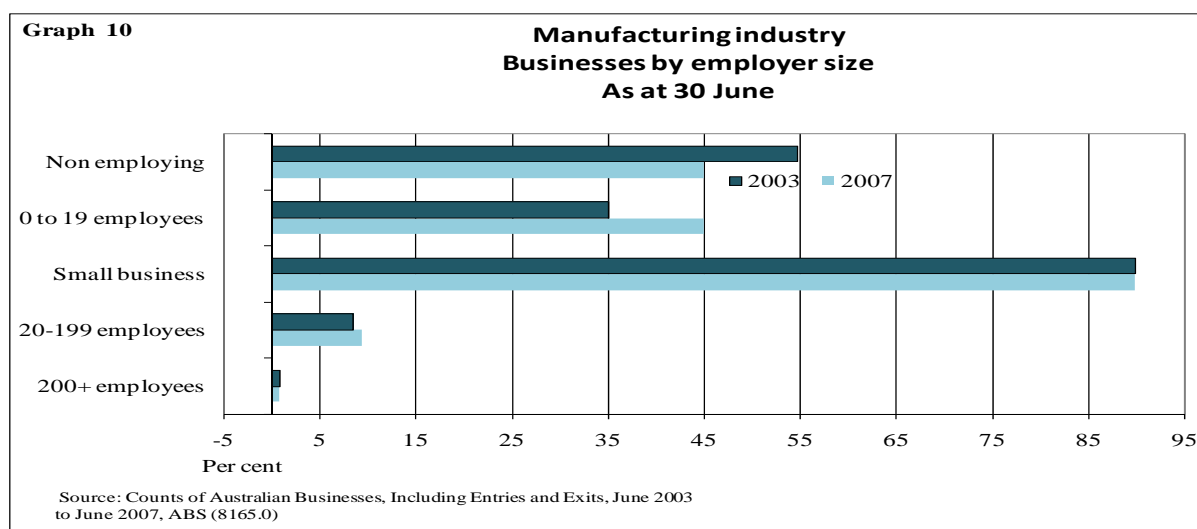
## Businesses

### *Business numbers*

Between 2002–03 and 2006–07 the total number of manufacturing businesses declined by four per cent from 111 000 to 106 000.<sup>4</sup> This compares with an increase in the total number of businesses, across all industries, of eight per cent; equal to about 143 000 businesses. The only other industry to experience a fall in the number of businesses was the cultural and recreational industry, which declined by two per cent or just over a thousand businesses.

### *Trends in business size*<sup>5</sup>

Over the period covered by the data, the proportion of non-employing businesses in manufacturing declined by ten percentage points from 55 to 45 per cent. The proportion of small employing businesses increased from 35 to 45 per cent. As a result the overall size of the small business sector in manufacturing remained about the same, but as the data shows there has been a move away from non-employing businesses to employing businesses. Over the same period the proportion of medium sized businesses increased from eight to nine per cent. The proportion of large business remained virtually the same (see graph 10).

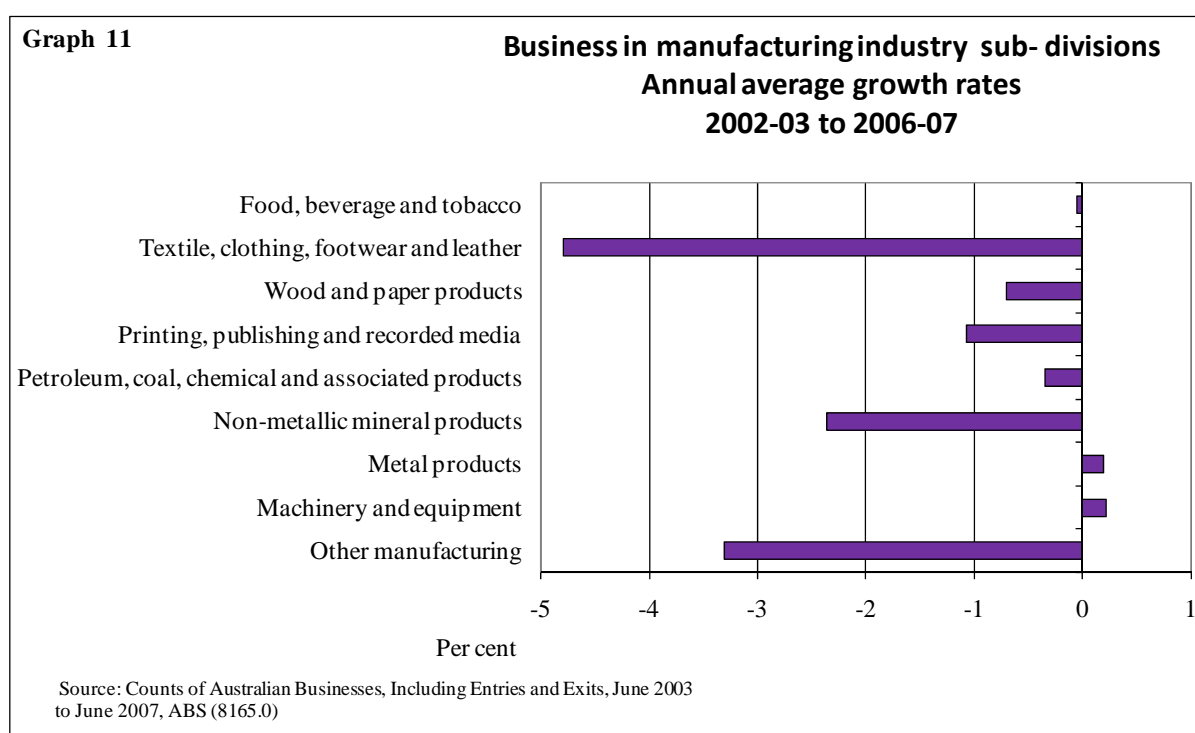


4. The ABS provides an annual snapshot of its business register. This snapshot can be used to obtain data on businesses by business size, industry and location. The data are only available from 2002–03, the analysis in this part of the paper is restricted to the period 2002–03 to 2006–07.
5. For the purposes of this paper the following definitions of business size are used:
  - Small—employing less than 20 persons.
  - Medium—employing 20 to 199 persons.
  - Large—employing more than 200

*Trends by industry sub-division*

By industry sub-division the biggest fall in the number of businesses occurred in the TCF sub-division, which declined by over 2000 businesses or 18 per cent. The Other manufacturing sub-division also declined by over 2000 businesses, which was a 13 per cent fall.

The Metal products and Machinery and equipment sub-divisions experienced slight rises in the number of businesses of about one per cent each.



*State trends*

The number of manufacturing business increased in Queensland at an annual average rate of 0.3 per cent. However, in every other state and territory, the number of manufacturing businesses declined. The biggest decline was in the Northern Territory which lost almost a quarter of its manufacturing businesses at an annual average rate of almost seven per cent. In the Australian Capital Territory and New South Wales the number of manufacturing businesses declined by about two per cent a year. The smallest decline was in Western Australia where the number declined by about 0.3 per cent a year (see Graph 12).

### *New South Wales*

- As noted, the number of businesses declined by almost two per cent a year. Declines occurred in every sub-division.
- The biggest decline occurred in the TCF sub-division. It experienced an annual average fall of nearly six per cent, losing over 21 per cent of businesses in the period.
- The smallest decline occurred in the Metal product sub-division. This sub-division experienced an annual average decline of 0.6 per cent, losing 2.5 per cent of businesses.

### *Victoria*

- The number of businesses declined by almost six per cent at an average annual rate of 1.5 per cent. Declines occurred in most industry sub-divisions.
- The TCF sub-division lost almost a quarter of its businesses at an annual average rate of just over six per cent.
- The Petroleum, coal and chemical products sub-division grew by 0.6 per cent at an annual average rate of 0.2 per cent.
- The Machinery and equipment sub-division also experienced some modest growth at an annual average rate of 0.2 per cent.

### *Queensland*

- The number of businesses increased by one per cent at an annual average rate of 0.3 per cent.
- The number of businesses in the Metal products and Machinery and equipment industry sub-divisions increased by over nine per cent with an annual average growth rate of over two per cent.
- The sub-division classified as Other manufacturing lost over 11 per cent of its businesses declining on average by almost three per cent a year.
- The number of businesses in the TCF and Food, beverages and tobacco sub-divisions declined by almost seven per cent at an annual average rate of nearly two per cent.

### *South Australia*

- The number of businesses declined by almost four per cent and at an annual average rate of one per cent.



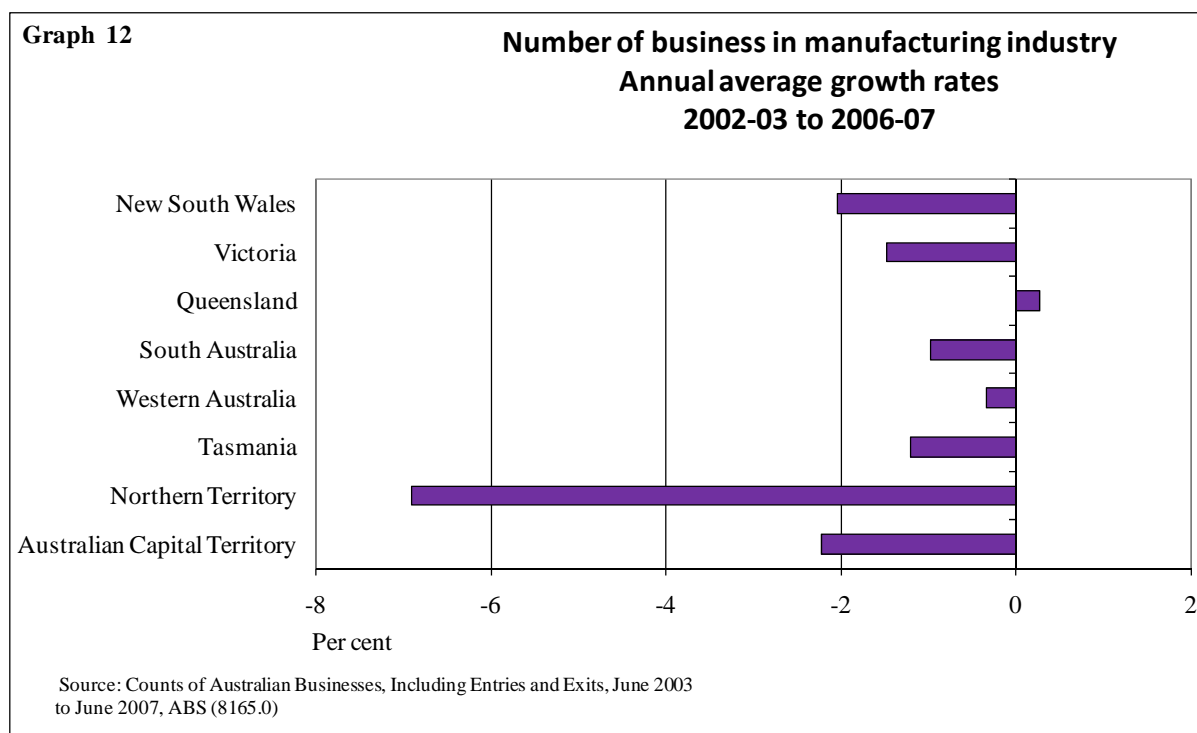
- The number of businesses in the sub-division classified as Other manufacturing declined by over 12 per cent at an annual average rate of 3.2 per cent.
- The TCF sub-division lost 11 per cent of its businesses at an annual average rate of almost three per cent.
- The Food, beverages and tobacco; Petroleum, coal and chemical products and machinery and equipment sub-divisions all experienced increases in the number of businesses.
- The fastest growing sub-division in the state was the Food, beverages and tobacco sub-division, which grew by 8.5 per cent at an annual average rate of 2.1 per cent.

#### *Western Australia*

- The number of businesses in the state declined by just over one per cent at an average annual rate of 0.3 per cent.
- The sub-division classified as Other manufacturing lost almost 12 per cent of its businesses at an annual average rate of 3.1 per cent.
- The TCF and Non-metallic minerals sub-divisions also experienced falls in the number of businesses.
- The number of businesses grew in the remaining industry sub-divisions.
- The fastest growing was the Petroleum, coal and chemical products sub-division. It grew by almost 8 per cent at an annual average rate of almost two per cent.

#### *Tasmania*

- The number of businesses declined by almost five per cent, at an annual average rate of just over one per cent.
- The TCF sub-division lost almost a quarter of its businesses at an average annual rate of over six per cent
- The Printing, publishing and recorded media sub-division lost over 12 per cent of its businesses and the number of Non-metallic mineral products businesses fell by almost 15 per cent.
- However, the number of businesses in the Metal products and Other manufacturing sub-divisions increased by two per cent and one per cent, respectively.



### *By industry class*

In addition to data at the sub-division level, data on the count of Australian businesses are also available at the next level of detail; that is, by industry class. At the industry class level a more refined picture of trends within an industry can be observed. In the case of manufacturing, the data can be used to ascertain what sort of goods are produced by those manufacturers who are prospering or struggling. From the data the following observations can be made.

For the period 2002–03 to 2006–07, the industries that gained the most businesses were:

- Fabricated metal products, Queensland, gained 258 businesses.
- Mining and construction machinery, Queensland, gained 144 businesses.
- Wine, South Australia, gained 126 businesses.
- Petroleum refining, Victoria, gained 111 businesses.
- Motor vehicle bodies, Queensland, gained 111 businesses.
- Industrial equipment, Queensland, gained 111 businesses.
- Fabricated metal products, Western Australia, gained 90 businesses.

- Wooden structural components, Victoria, gained 90 businesses.
- Petroleum refining, New South Wales, gained 81 businesses.
- Non-metallic mineral products, Queensland, gained 78 businesses.

At the other end of the scale, the industries suffering the biggest losses were:

- Clothing manufacturing, n.e.c, Victoria, lost 444 businesses.
- Clothing manufacturing, n.e.c, New South Wales, lost 444 businesses.
- Wooden furniture and upholstered seat, New South Wales, lost 408 businesses.
- Manufacturing, n.e.c,<sup>6</sup> New South Wales, lost 249 businesses.
- Women's and girls' wear, New South Wales, lost 192 businesses.
- Manufacturing, n.e.c, Victoria, lost 183 businesses.
- Wooden furniture and upholstered seat, Victoria, lost 171 businesses.
- Furniture manufacturing, n.e.c, Queensland, lost 159 businesses.
- Furniture manufacturing, n.e.c, New South Wales, lost 147 businesses.

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6. Includes the manufacture of ball point pens; brooms; brushes; floor mops; hair brushes; musical instruments; paint brushes; pencils; pens; stamp pads; staplers; tooth-brushes; umbrellas; vacuum flasks and wigs.

## Research and experimental development

In 2005–06, manufacturers spent \$3.9 billion on research and experimental development (R&D). This was equal to nearly 40 per cent of total R&D by businesses in Australia. As a proportion of GVA manufacturing, R&D is twice as high as the national average making it the most R&D intensive sector of the economy.

As with the rest of the economy, R&D expenditure in manufacturing went through a slump in the late 1990s, but in recent years this trend has reversed. The latest data show that, in real terms,<sup>7</sup> manufacturing R&D grew at an annual average rate of seven per cent in the period 2002–02 to 2005–06. However, this was less than the 11 per cent for total business expenditure on R&D.

As with other indicators the aggregate picture for R&D in manufacturing conceals some notable differences between the various industry sub-divisions. In the period 2002–02 to 2005–06, the fastest growing sub-divisions for R&D were Printing, publishing and recorded media with an annual average rate of 45 per cent; Machinery and equipment at 22 per cent and Metal products at 20 per cent.

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7. Adjusted by non-farm GDP implicit price deflator.

## Profit growth

In real terms company profits grew at an annual average rate of 4.4 per cent for the period 2001–02 to 2006–07; compared with 6.1 per cent for all industries.<sup>8</sup> Again there were significant differences between the industry sub-divisions.

- Profits in the Metal products sub-division grew at an annual average rate of almost 20 per cent. The Printing publishing and recorded media; Petroleum, coal and chemical products; and the Non-metallic mineral products sub-divisions all grew at an annual average rate of about four per cent.
- In some industry sub-divisions profits contracted. The Food, beverage and tobacco; TCF and the Machinery and equipment sub-divisions saw profits fall by an average rate of about two per cent a year. Profits in the Wood and paper products sub-division fell by an annual average rate of six per cent.

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8. As measured by gross operating profit.

## Conclusion

The data presented in this paper reveal the changing nature, size and location of the manufacturing industry. In aggregate, the industry has not performed as well as the rest of the economy in recent years. However, when the data are examined in more detail a much more complex picture emerges. In the time period covered by this research paper, some parts of the industry have grown at rates well above the average for the rest of the economy and others have declined.

Manufacturers closely linked to the mining industry have experienced a period of strong growth. For instance, the Metal products sub-division has experienced significant growth in output, profits and expenditure on R&D in recent years.

At the same time, other manufacturers exposed to increased competition from overseas producers have not fared so well. This trend has particularly affected the TCF and Furniture manufacturers, which have experienced significant declines.

There have also been geographic changes to the industry. Historically, New South Wales and Victoria have been the base states for manufacturing. However, in the last few years the industry has experienced a period of decline in these two states and their dominance has waned. At the same time, the industry has grown in Queensland and Western Australia. This growth is probably, in part, due to the general economic conditions in these states. It is also likely to be closely linked to the commodities boom and demand from the mining industry for manufacturers to process its products and provide it with machinery and equipment.

On the whole, the data present a picture of a key industry undergoing a period of structural change. Some parts of the industry have declined in the face of increased international competition and others have thrived on the back of the commodities boom.

## Postscript—the 2008 financial crisis

The unfolding financial crisis and subsequent credit crunch have had a major impact on economic activity around the world. As 2008 draws to an end, the USA, Japan and most of the major European economies are either in recession or are very close to it. In China, growth has slowed from double digit figures to about eight per cent and may slow further.

The economic slow down has had a major impact on commodity prices which have fallen dramatically from the historic highs reached at the beginning of the year. This has impacted on the value of the Australian dollar which has fallen by over 30 per cent against the US dollar in recent weeks.

Despite all this, the major international and national economic policy institutions are predicting that, although economic growth in Australia will slow, it should avoid a recession. This is largely due to the continuing strength of the Chinese economy and stimulatory policies adopted by the Australian Government and Reserve Bank.

The impact of all this on Australia's manufacturers is probably quite mixed. Falling interest rates should be beneficial. However, the credit crunch is making it difficult for businesses to obtain new credit. The falling dollar will improve the competitiveness of export orientated manufacturers, although slowing demand in overseas markets may counter this to some extent. The current slow down in Germany, for instance, has been blamed on its reliance on exports of manufactured goods. On the other side of the trade coin, the falling dollar will make imported goods more expensive. This will help to improve the competitiveness of Australian manufactures in the domestic market. Again, though this is not entirely clear cut. Many manufacturers rely on imported components; the falling dollar will make these components more expensive which will raise the cost of producing the finished goods.

In all likelihood, the economic slow down may hasten the trends highlighted by this paper. The commodity boom of the last few years may have ended for now, but demand for raw materials from a modernising China should continue for many years to come. Also, the Australian Government has said it will spend billions of dollars on infrastructure projects. Those manufacturers that are aligned with these two economic drivers will probably weather the economic slow down relatively well. However, those manufacturers that were struggling with competitive forces in the economy before the financial crisis may not fare so well.





## **Annex tables**

1. Real growth by state and territory
2. Share of output
3. Real growth by industry sub-division
4. Employment by industry sub-division and state
5. ABS count of businesses by industry sub-division, state and business size
6. Expenditure on research and development
7. Profits

**Table 1.**

**Manufacturing industry (a)**  
**Real growth by state and territory**

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
<b>\$ millions (b)</b>									
Jun-2002	32 251	31 275	13 985	9 073	6 872	2 286	710	301	96 481
Jun-2003	33 127	31 691	14 904	9 285	7 652	2 323	784	319	99 999
Jun-2004	33 144	31 535	15 456	9 212	8 114	2 375	773	326	100 909
Jun-2005	32 400	30 767	15 852	8 909	8 318	2 409	722	326	99 688
Jun-2006	31 760	30 114	16 555	8 634	8 604	2 476	700	329	99 173
Jun-2007	31 975	30 274	17 440	8 652	9 278	2 648	719	340	101 325
<b>Annual percentage change</b>									
Jun-2002	1.4	-0.9	5.8	1.2	10.5	-3.8	13.8	7.1	2.1
Jun-2003	2.7	1.3	6.6	2.3	11.4	1.6	10.4	6.0	3.6
Jun-2004	0.1	-0.5	3.7	-0.8	6.0	2.2	-1.4	2.2	0.9
Jun-2005	-2.2	-2.4	2.6	-3.3	2.5	1.4	-6.6	0.0	-1.2
Jun-2006	-2.0	-2.1	4.4	-3.1	3.4	2.8	-3.0	0.9	-0.5
Jun-2007	0.7	0.5	5.3	0.2	7.8	6.9	2.7	3.3	2.2
Annual average percentage change 2002 to 2007	-0.2	-0.6	4.5	-0.9	6.2	3.0	0.3	2.5	1.0

(a) Industry gross value added

(b) Chain volume measures. Reference year for chain volume measures is 2005-06

Source: *Australian National Accounts: State Accounts*, 2006-07, ABS (5220.0)

**Table 2.**

**Manufacturing industry (a)**  
**Share of total output**

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Northern Territory	Australian Capital Territory	Australia
<b>Percentage of state GSP (b)</b>									
2002	11	13	10	13	9	13	6	2	11
2007	10	12	9	13	8	13	7	2	10
<b>Percentage of national manufacturing</b>									
2002	33.6	30.8	14.6	8.5	9.1	2.3	0.7	0.4	100
2007	32.0	28.4	17.2	8.3	10.2	2.6	1.0	0.3	100

(a) Industry gross value added

(b) Percentage of GDP for Australia

Source: *Australian National Accounts: Australian State Accounts*, 2006-07, ABS (5220.0)

**Table 3.**

**Manufacturing industry (a)**

**Real growth by industry sub-divisions**

	Food, beverages and tobacco	Textile, clothing and footwear	Wood and paper products	Printing, publishing and recorded media	Petroleum, coal and chemical products	Non-metallic mineral products	Metal products	Machinery and equipment	Other manufacturing	Total manufacturing
\$ millions (b)										
Jun-2002	18 865	4 616	6 712	10 122	14 567	3 848	17 625	16 652	4 146	96 481
Jun-2003	19 054	4 252	6 843	10 370	15 397	4 175	18 256	17 829	4 365	99 999
Jun-2004	19 023	3 927	6 817	10 684	14 717	4 317	18 290	18 750	4 654	100 909
Jun-2005	19 195	3 195	6 870	10 419	14 717	4 529	17 770	18 851	4 283	99 688
Jun-2006	19 055	2 979	6 601	10 221	14 117	5 048	17 591	19 692	3 869	99 173
Jun-2007	19 228	2 932	6 443	10 463	13 935	5 156	19 437	19 644	3 867	101 104
Annual percentage change										
Jun-2002	-0.5	-12.3	4.2	1.8	0.9	6.4	7.5	0.2	9.6	2.1
Jun-2003	1.0	-7.9	2.0	2.5	5.7	8.5	3.6	7.1	5.3	3.6
Jun-2004	-0.2	-7.6	-0.4	3.0	-4.4	3.4	0.2	5.2	6.6	0.9
Jun-2005	0.9	-18.6	0.8	-2.5	0.0	4.9	-2.8	0.5	-8.0	-1.2
Jun-2006	-0.7	-6.8	-3.9	-1.9	-4.1	11.5	-1.0	4.5	-9.7	-0.5
Jun-2007	0.9	-1.6	-2.4	2.4	-1.3	2.1	10.5	-0.2	-0.1	1.9
Annual average change 2002 to 2007										
2007	0.4	-8.7	-0.8	0.7	-0.9	6.0	2.0	3.4	-1.4	0.9

(a) industry gross value added

(b) Chain volume measures. Reference year for chain volume measures is 2005-06

Source: *Australian National Accounts: State Accounts, 2006-07*, ABS (5220.0)

**Table 4.**

**Manufacturing industry  
Employment by industry sub-division  
Annual average employment year ending 30 June**

	Food, beverages and tobacco	Textile, clothing, footwear and leather	Wood and paper products	Printing, publishing and recorded media	Petroleum, coal, chemical and associated products	Non-metallic mineral products	Metal products	Machinery and equipment	Other manufacturing	Manufacturing - nfd	Total
<b>Australia</b>											
Persons (thousands)											
2002	182	74	70	105	107	43	155	242	82	21	1 081
2007	192	50	72	110	89	36	164	230	62	60	1 064
Percentage share of total manufacturing employment											
2002	16.8	6.8	6.4	9.7	9.9	4.0	14.4	22.4	7.6	1.9	100
2007	18.1	4.7	6.8	10.3	8.3	3.3	15.4	21.6	5.8	5.7	100
Annual average percentage growth rate											
2002 to 2007	1.1	-7.6	0.7	0.9	-3.8	-3.7	1.1	-1.1	-5.4	23.6	-0.3
<b>New South Wales</b>											
Persons (thousands)											
2002	56	22	25	45	32	11	57	71	19	5	343
2007	50	14	23	43	29	9	45	59	17	31	320
Percentage share of total manufacturing employment											
2002	16.3	6.5	7.2	13.2	9.3	3.2	16.6	20.7	5.7	1.4	100
2007	15.7	4.4	7.2	13.5	8.9	2.9	14.0	18.3	5.2	9.8	100
Annual average percentage growth rate											
2002 to 2007	-2	-9	-2	-1	-2	-3	-5	-4	-3	46	-1.4
<b>Victoria</b>											
Persons (thousands)											
2002	56	31	18	30	43	11	38	79	27	10	343
2007	64	21	22	31	32	10	41	79	17	10	327
Percentage share of total manufacturing employment											
2002	16.2	9.2	5.3	8.8	12.4	3.2	11.1	22.9	7.9	2.9	100
2007	19.4	6.6	6.8	9.5	9.9	3.0	12.5	24.1	5.3	2.9	100
Annual average percentage growth rate											
2002 to 2007	3	-7	4	1	-5	-3	1	0	-9	-1	-1.0

*Continued next page*

**Manufacturing industry**  
**Employment by industry sub-division**  
**Annual average employment year ending 30 June**

	Food, beverages and tobacco	Textile, clothing, footwear and leather	Wood and paper products	Printing, publishing and recorded media	Petroleum, coal, chemical and associated products	Non-metallic mineral products	Metal products	Machinery and equipment	Other manufacturing	Manufacturing - nfd	Total
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**Queensland**

Persons (thousands)											
2002	36	10	11	12	15	10	24	38	20	2	180
2007	40	8	11	18	12	8	34	37	14	10	193
Percentage share of total manufacturing employment											
2002	20.1	5.4	6.2	6.8	8.5	5.7	13.4	21.2	11.2	1.4	100
2007	20.6	4.1	6.0	9.2	6.2	4.4	17.7	19.3	7.1	5.4	100
Annual average percentage growth rate											
2002 to 2007	2	-4	0	8	-5	-4	7	-1	-7	34	1.3

**South Australia**

Persons (thousands)											
2002	15	4	6	7	8	4	11	31	6	3	95
2007	18	2	8	6	6	3	15	30	5	1	94
Percentage share of total manufacturing employment											
2002	16.1	4.5	6.6	7.5	8.0	4.0	11.9	32.4	5.9	3.3	100
2007	18.6	2.3	9.0	6.6	6.8	2.9	15.5	31.5	5.7	1.1	100
Annual average percentage growth rate											
2002 to 2007	3	-13	6	-3	-3	-7	5	-1	-1	-20	-0.2

**Western Australia**

Persons (thousands)											
2002	12	4	5	7	9	5	18	20	8	1	89
2007	14	3	3	7	8	4	24	21	7	7	100
Percentage share of total manufacturing employment											
2002	13.2	4.5	5.7	8.0	9.8	6.0	20.8	22.6	8.8	0.6	100
2007	14.5	2.5	3.1	7.5	8.4	4.3	23.9	21.3	7.1	7.4	100
Annual average percentage growth rate											
2002 to 2007	4	-9	-9	1	-1	-4	5	1	-2	70	2.4

*Continued next page*

**Manufacturing industry**

**Employment by industry sub-division**

**Annual average employment year ending 30 June**

	Food, beverages and tobacco	Textile, clothing, footwear and leather	Wood and paper products	Printing, publishing and recorded media	Petroleum, coal, chemical and associated products	Non-metallic mineral products	Metal products	Machinery and equipment	Other manufacturing	Manufacturing - nfd	Total
<b>Tasmania</b>											
Persons (thousands)											
2002	6	2	3	1	1	1	4	3	1	0	21
2007	6	1	3	2	1	1	4	3	1	0	22
Percentage share of total manufacturing employment											
2002	27.6	7.1	15.3	6.2	4.0	3.2	20.2	12.2	3.6	0.5	100
2007	28.9	5.8	13.8	8.8	4.1	2.6	20.1	11.4	3.1	1.4	100
Annual average percentage growth rate											
2002 to 2007	1	-3	-1	8	1	-3	0	-1	-3	25	0.6
<b>Northern Territory</b>											
Persons (thousands)											
2002	0.4	0.4	0.2	0.4	0.3	0.5	2	1	0.2	n.a	5
2007	0.2	0.3	0.1	1	0.1	0.2	1	1	0.4	0.1	4
Percentage share of total manufacturing employment											
2002	8.2	8.7	5.1	8.2	6.0	9.8	36.4	14.1	4.3	n.a	100.0
2007	4.8	7.4	2.8	13.8	2.8	6.4	29.0	25.5	9.7	3.4	100.0
Annual average percentage growth rate											
2002 to 2007	-14	-8	-16	6	-18	-12	-9	7	12	n.a	-5
<b>Australian Capital Territory</b>											
Persons (thousands)											
2002	0.6	0.4	0.7	1	0.2	0.4	0.6	0.6	0.7	0.1	5
2007	0.4	0.2	0.8	2	0.2	0.3	0.3	0.9	0.7	0.4	5
Percentage share of total manufacturing employment											
2002	11.4	7.9	11.9	26.0	3.7	6.8	10.0	11.0	13.2	1.8	100
2007	7.0	4.4	15.4	29.0	4.2	5.6	4.7	15.9	13.1	7.5	100
Annual average percentage growth rate											
2002 to 2007	-10	-12	5	2	2	-4	-15	7	-1	32	-0.5

Source: *Labour Force, Australia, Detailed, Quarterly*, May 2008, ABS (6291.0.55.003)

**Table 5.**

**Manufacturing industry**  
**Count of businesses**  
**As at 30 June 2007**

	Operating at end of financial year	Business by employer size					Annual average percentage change 2002- 03 to 2006-07
		Non employing	0 to 19 employees	Small business	20-199 employees	200+ employees	
	No.	Percentage of total					%
<b>Australia</b>							
Food, beverage and tobacco	7 158	40	39	79	18	3	-0.1
Textile, clothing, footwear and leather	9 483	51	43	93	6	1	-4.8
Wood and paper products	8 106	44	47	91	9	1	-0.7
Printing, publishing and recorded media	12 507	46	46	92	7	1	-1.1
Petroleum, coal, chemical and associated products	6 591	41	43	84	15	1	-0.3
Non-metallic mineral products	4 197	45	45	91	9	1	-2.4
Metal products	19 257	42	47	89	10	1	0.2
Machinery and equipment	23 136	44	46	90	9	1	0.2
Other manufacturing	15 306	50	43	93	7	0	-3.3
<b>Total</b>	<b>105 741</b>	<b>45</b>	<b>45</b>	<b>90</b>	<b>9</b>	<b>1</b>	<b>-1.2</b>
<b>New South Wales</b>							
Food, beverage and tobacco	2 016	39	41	80	18	3	-0.1
Textile, clothing, footwear and leather	3 207	50	45	95	5	0	-5.8
Wood and paper product	2 637	44	47	90	9	0	-1.4
Printing, publishing and recorded media	4 659	46	47	92	7	1	-1.4
Petroleum, coal and associated product	2 031	40	44	84	15	1	-2.2
Non-metallic mineral product	1 248	44	48	91	8	1	-3.4
Metal product	5 925	37	51	88	11	1	-0.6
Machinery and equipment	6 942	42	49	91	8	1	-1.0
Other manufacturing	4 758	49	45	94	6	0	-3.8
<b>Total</b>	<b>33 423</b>	<b>43</b>	<b>47</b>	<b>90</b>	<b>9</b>	<b>1</b>	<b>-2.0</b>
<b>Victoria</b>							
Food, beverage and tobacco	1 932	39	40	79	18	3	-0.3
Textile, clothing, footwear and leather	3 030	46	45	90	9	1	-6.2
Wood and paper product	2 199	39	50	89	10	1	-0.2
Printing, publishing and recorded media	3 438	46	46	92	8	1	-1.0
Petroleum, coal and associated product	1 995	41	42	82	16	2	0.2
Non-metallic mineral product	1 113	44	44	88	11	1	-3.3
Metal product	4 869	39	50	89	11	0	-0.2
Machinery and equipment	5 952	39	49	88	11	1	0.2
Other manufacturing	4 122	47	46	93	7	0	-3.1
<b>Total</b>	<b>28 650</b>	<b>42</b>	<b>47</b>	<b>89</b>	<b>10</b>	<b>1</b>	<b>-1.5</b>

*Continued next page.*

**Manufacturing industry**

**Count of businesses**

**As at 30 June 2007**

	Operating at end of financial year	Non employing	Business by employer size				Annual average percentage change 2002- 03 to 2006-07
			0 to 19 employees	Small business	20-199 employees	200+ employees	
	No.		Percentage of total				%
<b>Queensland</b>							
Food, beverage and tobacco	1 206	37	38	75	20	4	-1.7
Textile, clothing, footwear and leather	1 680	55	39	94	5	1	-1.7
Wood and paper product	1 596	47	43	91	9	1	-0.4
Printing, publishing and recorded media	2 199	45	47	92	7	1	0.3
Petroleum, coal and associated product	1 212	43	44	88	12	1	0.1
Non-metallic mineral product	822	47	43	90	9	1	0.2
Metal product	4 176	45	44	90	10	1	2.2
Machinery and equipment	5 100	48	42	90	9	1	2.3
Other manufacturing	3 111	52	40	93	7	0	-2.9
Total	21 102	47	42	90	9	1	0.3
<b>South Australia</b>							
Food, beverage and tobacco	954	46	37	83	15	2	2.1
Textile, clothing, footwear and leather	552	52	38	90	9	1	-2.9
Wood and paper product	510	49	43	92	7	2	-1.1
Printing, publishing and recorded media	738	46	45	91	8	1	-2.4
Petroleum, coal and associated product	468	40	43	83	15	2	0.8
Non-metallic mineral product	321	47	46	93	7	0	-1.6
Metal product	1 248	46	41	88	12	0	-1.3
Machinery and equipment	1 644	48	41	89	9	1	0.3
Other manufacturing	1 116	53	38	91	8	0	-3.2
Total	7 551	48	41	89	10	1	-1.0
<b>Western Australia</b>							
Food, beverage and tobacco	801	44	36	79	18	2	1.1
Textile, clothing, footwear and leather	801	58	37	95	5	0	-2.5
Wood and paper product	831	48	44	92	8	1	0.5
Printing, publishing and recorded media	1 035	44	47	91	9	0	-1.4
Petroleum, coal and associated product	741	43	41	85	15	0	1.9
Non-metallic mineral product	516	50	44	94	6	0	-2.1
Metal product	2 409	52	39	91	8	1	1.1
Machinery and equipment	2 817	48	44	92	8	1	0.5
Other manufacturing	1 749	51	42	93	6	0	-3.1
Total	11 700	49	42	91	9	1	-0.3

*Continued next page.*



**Manufacturing industry**

**Count of businesses**

**As at 30 June 2007**

	Business by employer size						Annual average percentage change 2002-03 to 2006-07
	Operating at end of financial year	Non employing	0 to 19 employees	Small business	20-199 employees	200+ employees	
	No.		Percentage of total				%
<b>Tasmania</b>							
Food, beverage and tobacco	186	31	47	78	21	1	-1.2
Textile, clothing, footwear and leather	108	63	25	88	10	3	-5.9
Wood and paper product	213	49	47	96	4	0	-2.3
Printing, publishing and recorded media	174	49	48	97	3	0	-3.2
Petroleum, coal and associated product	90	48	33	82	15	3	-0.8
Non-metallic mineral product	105	42	55	97	3	0	-3.9
Metal product	363	46	43	89	9	2	0.4
Machinery and equipment	399	45	49	94	6	0	0.0
Other manufacturing	282	55	39	94	6	0	0.3
<b>Total</b>	<b>1 920</b>	<b>47</b>	<b>44</b>	<b>91</b>	<b>8</b>	<b>1</b>	<b>-1.2</b>
<b>Nothern Territory</b>							
Food, beverage and tobacco	12	25	50	75	25	0	-9.6
Textile, clothing, footwear and leather	24	78	22	100	0	0	-11.4
Wood and paper product	42	17	83	100	0	0	-3.3
Printing, publishing and recorded media	57	63	38	100	0	0	-1.3
Petroleum, coal and associated product	24	17	83	100	0	0	-5.4
Non-metallic mineral product	30	44	33	78	22	0	2.7
Metal product	165	52	36	89	10	2	-5.9
Machinery and equipment	150	50	46	96	4	0	-3.2
Other manufacturing	30	108	33	142	17	0	-27.4
<b>Total</b>	<b>534</b>	<b>53</b>	<b>43</b>	<b>96</b>	<b>7</b>	<b>1</b>	<b>-6.9</b>
<b>Australian Capital Territory</b>							
Food, beverage and tobacco	51	41	47	88	12	0	3.2
Textile, clothing, footwear and leather	81	50	50	100	0	0	0.9
Wood and paper product	78	48	44	93	4	4	0.0
Printing, publishing and recorded media	207	47	43	90	7	3	-1.7
Petroleum, coal and associated product	30	40	50	90	10	0	25.7
Non-metallic mineral product	42	75	25	100	0	0	-1.7
Metal product	102	49	41	89	11	0	-2.7
Machinery and equipment	132	60	33	93	7	0	-7.8
Other manufacturing	138	50	41	91	9	0	-4.4
<b>Total</b>	<b>861</b>	<b>51</b>	<b>41</b>	<b>92</b>	<b>7</b>	<b>1</b>	<b>-2.2</b>

Source: *Counts of Australian Businesses, Including Entries and Exits, 2003 to 2007*, ABS (8165.0)

**Table 6**

**Manufacturing**

**Real expenditure on R&D - \$ thousands (average 2005-06 prices) (a)**

**Year ending 30 June**

	2002	2003	2004	2005	2006	Annual average percentage change 2002 to 2006
Food, beverage & tobacco	269 470	309 477	332 320	360 251	331 350	5
Textile, clothing, footwear & leather	26 169	31 438	44 532	36 814	38 537	10
Wood & paper product	98 296	110 680	128 878	113 071	121 391	5
Printing, publishing & recorded media	21 162	28 284	49 438	74 602	92 919	45
Petroleum, coal, chemical & assoc. product	501 616	539 309	599 192	626 577	707 197	9
Non-metallic mineral product	86 879	98 332	105 411	73 260	103 880	5
Metal product	299 176	363 027	399 675	438 472	628 778	20
Machinery & equipment						
Motor vehicle & part	571 953	700 701	695 610	637 215	654 204	3
Other transport equipment	76 027	141 764	193 641	204 850	268 532	37
Photographic & scientific equip.	325 175	331 575	329 617	335 211	222 885	- 9
Electronic equipment	409 827	282 185	410 947	388 994	410 598	0
Electrical equipment & appliance	90 505	100 627	129 859	103 829	76 115	- 4
Industrial machinery & equipment	156 461	186 889	214 236	183 156	170 717	2
Total	1 629 949	1 743 742	1 973 910	1 853 254	1 803 051	3
Other manufacturing	27 509	23 650	43 486	63 344	61 639	22
<b>Manufacturing total</b>	<b>2 960 226</b>	<b>3 247 939</b>	<b>3 676 841</b>	<b>3 639 644</b>	<b>3 888 742</b>	<b>7</b>

(a) adjusted by non-farm GDP implicit price deflator

Source: *Research and Experimental Development, Business, Australia*, ABS (8401.0). *Australian National Accounts, National Income, Product and Expenditure*, ABS (5206.0)

**Table 7**

**Manufacturing industry**

**Real company gross operating profits**

**\$ millions (average 2007 prices) (a)**

	Food beverage and tobacco	Textile, clothing, footwear and leather	Wood and paper product	Printing, publishing and recorded media	Petroleum, coal, chemical and associated product	Non-metallic mineral product	metal product	Machinery and equipment m	Other manufacturing	Manufacturing	Total industry
2002	8 316	591	2 445	2 791	4 825	1 734	5 055	4 647	817	31 219	134 834
2003	8 251	731	2 414	3 057	5 868	2 137	5 846	4 647	1 020	33 967	142 832
2004	7 958	1 015	2 679	3 399	6 717	2 079	6 813	4 933	1 209	36 717	147 516
2005	8 505	595	2 182	3 206	7 049	2 138	7 785	4 961	919	37 443	157 097
2006	8 090	538	1 818	2 712	7 524	2 315	7 679	4 859	761	36 364	170 068
2007	7 667	526	1 764	3 437	5 808	2 116	12 469	4 090	841	38 757	180 887
Annual average growth 2001-02 to 2006-07	-1.6	-2.3	-6.3	4.2	3.8	4.1	19.8	-2.5	0.6	4.4	6.1

(a) Adjusted by implicit price deflator for non-farm GDP

Source: *Business Indicators, Australia*, ABS (5676.0)

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