



Manufacturing Industry Profile

Troy Wheatley
Australian Fair Pay Commission Secretariat
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Executive summary

This report provides a profile of the Manufacturing industry and its workforce. The Manufacturing industry plays a significant role in the Australian economy in terms of both output and employment. Within the industry are several sectors in which low-paid employees are relatively concentrated. Therefore, the questions of how businesses are performing in these sectors and how they might respond to changes in the cost of low-skilled labour are of potential significance to the setting of minimum wages.

Overview of Manufacturing

In 2007–08, the Manufacturing industry accounted for \$109 billion, or 11.5 per cent, of value added to the economy.

Manufacturing has a mixture of low and high-paying sectors. Some of the lowest-paid sectors of Manufacturing (in terms of average hourly earnings) include Textile, clothing, footwear and leather manufacturing, Furniture manufacturing, Wood product manufacturing, Rubber product manufacturing, and some sectors of Food product manufacturing.

Industry structure and performance

The metal products, food product and machinery and equipment sectors are the largest sectors in the Manufacturing industry. The most significant change in the composition of the Manufacturing industry over the past 20 years has been the decline of the Textile, clothing, footwear and leather manufacturing subdivision. In this sector, productivity levels in developing countries often match those of Australia, while their wage rates are lower.

There are considerable differences in the structure of firms in the low-paid sectors of Manufacturing compared with Manufacturing as a whole. For Manufacturing as a whole, small businesses (businesses with fewer than 20 people employed) comprise a smaller percentage of activity than they do in other industries. However, this is not the case for many of the low-paid sectors of the industry. Also, the low-paid sectors are more labour intensive than the other sectors in Manufacturing, with labour costs making up a higher percentage of total expenses.

Manufacturing is one of the industries that is most exposed to competition from overseas firms. In general, given international wage relativities, Manufacturing firms in Australia will have the most difficulty competing in non-differentiated traded goods that rely on low-skilled, labour-intensive processes, and have less difficulty competing in processes that draw on high-skilled workers. The high degree of trade exposure in Manufacturing means that it is less able than other industries to adjust its prices, which in turn means that it is one of the industries whose output is more sensitive to changes in minimum wages.

Over the past three decades, economic activity in all of the other non-farm industry divisions grew at a faster pace than Manufacturing. As a result, the contribution of Manufacturing has been steadily decreasing over the past three decades, which is likely to reflect a shift in consumer preferences across the developed world for services over goods. Growth in Manufacturing is relatively closely correlated with the economic cycle, as the industry produces a large proportion of intermediate goods. The current downturn in the economy suggests a pessimistic outlook for the industry in the near-term, a forecast that is supported by recent data and business surveys.

The Manufacturing labour market

As of February 2009, there were over 1 million people employed in Manufacturing. Of these people, around 70 per cent were males working full-time, compared with less than 50 per cent for the workforce as a whole.

As they are relatively labour-intensive, many of the low-paid sectors tend to have a greater share of employment than they do of output. The workforce in Textile, clothing, footwear and leather manufacturing is clearly different from that of the other sectors in Manufacturing in terms of its composition — around two-thirds of the workforce in this sector is female, and around one-quarter works part-time.

Total employment in Manufacturing has been stagnant since the recession in the early 1990s. The slight decline in full-time employment over this period has been offset by a rise in part-time employment.

The most significant trend in employment in Manufacturing over the past couple of decades has been the large fall in employment in Textile, clothing, footwear and leather manufacturing. For other low-paid sectors in Manufacturing, employment has generally either been stagnant or declining in recent years.

In July 2008, the Department of Education, Employment and Workplace Relations predicted that, in the five years to 2012–13, employment would decline in Manufacturing by an average of 0.5 per cent per annum. Given the downturn in the economy since these employment projections were released, it might now be expected that employment will fall in all subdivisions over the medium term.

Earnings and wage instruments

As of November 2008, average weekly earnings in Manufacturing (\$1079.40 per week) were 19 per cent higher than the average across all industries. However, the higher average earnings for workers in Manufacturing relative to the workforce as a whole are the result of a higher average number of hours worked. In terms of hourly wage rates, adult employees in Manufacturing tend to be more concentrated towards the lower end of the wage distribution than adult employees as a whole, although the difference is only slight.

Growth in total hourly rates of pay excluding bonuses in Manufacturing has broadly tracked growth in total hourly rates of pay excluding bonuses across all industries since the introduction of the Australian Bureau of Statistics' (ABS) Wage Price Index in 1997, with both series growing at an average annualised rate of 3.6 per cent over that period.

As of May 2006, almost half of all employees in Manufacturing (47.4 per cent) had their pay set by an individual arrangement.¹ Only 10.6 per cent of employees in the industry were paid the award rate of pay, well below the corresponding percentage for all employees (19.0 per cent). However, the incidence of low pay was slightly higher than for the workforce as whole.

¹ Employees are classified to the Individual arrangement category if they have the main part of their pay set by an individual contract, registered individual agreement (e.g. Australian Workplace Agreement), common law contract, or if they receive over-award payments by individual agreement. See ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS.

Introduction

This report provides a profile of the Manufacturing industry and its workforce. The Manufacturing industry plays a significant role in the Australian economy in terms of both output and employment. Within the industry are several sectors in which low-paid employees are relatively concentrated. Therefore, the questions of how businesses are performing in these sectors and how they might respond to changes in the cost of low-skilled labour are of potential significance to the setting of minimum wages.

The report concentrates on the characteristics of the Manufacturing industry that are most relevant to setting minimum wages. It is structured as follows:

- Chapter 1 provides an overview of the Manufacturing industry. It defines the types of businesses that are included in the industry, and gives a sense of how important the industry is to the overall economy. It also determines in which sectors low-paid employees are likely to be concentrated.
- Chapter 2 examines the structure and performance of the industry. In particular, it looks at the importance of wages to overall costs, especially in the low-paid sectors. It also discusses how well the industry has been performing over time, and what have been the main influences on that performance.
- Chapter 3 profiles the workforce of the industry. It looks at the composition of the workforce in terms of factors such as age, gender, industry subdivision and (importantly) skill level. It then looks at recent labour market trends, including growth in employment and productivity improvements.
- Finally, Chapter 4 focuses on the earnings of employees in Manufacturing. It considers topics such as the earnings distribution for employees in Manufacturing, how fast wages have grown within the industry in recent years and what percentage of employees are paid the award rate of pay.



1 Overview of Manufacturing

Definition of Manufacturing

According to the Australian Bureau of Statistics (ABS), Manufacturing ‘includes units mainly engaged in the physical or chemical transformation of materials, substances or components into new products (except agriculture and construction)’.²

Units in Manufacturing are often described as plants, factories or mills, but also include units that transform materials by hand. The materials, substances or components transformed by units in Manufacturing are raw materials that are products of agriculture, mining or other manufacturing units.

The boundaries between Manufacturing and other industries are sometimes difficult to define. For example, prefabricated building components (i.e. building components such as walls and floors that are assembled in a factory and transported to another location), are included as part of Manufacturing. However, buildings that are assembled from basic materials on-site are considered to be part of Construction. Manufacturing also includes activities undertaken by units that are incidental to their manufacturing activity, such as, for example, bakeries selling their goods directly to the public.³

Classification structure

Under the 1993 Australian and New Zealand Standard Industrial Classification (ANZSIC) system, the Manufacturing industry was divided into nine industry subdivisions. For the revised ANZSIC 2006 system, the nine industry subdivisions have been split into fifteen subdivisions – in both cases, the industry subdivisions are further divided into industry groups. A rough concordance between the subdivisions of the two classification systems is shown in Table 1.

This report uses data from both classification systems. When providing a ‘snapshot’ of the industry, the report generally uses data based on whichever system is used in the most recent relevant data release. Where available, data based on the ANZSIC 2006 system are used for making comparisons over time; otherwise, the report uses data based on the 1993 system. In each case the report notes the system that has been used, either in a footnote, or underneath the relevant table or chart.

² ABS, *Australian and New Zealand Standard Industrial Classification 2006*, Catalogue No. 1292.0, Canberra, ABS.

³ Before 2006, the ABS, in some cases, classified manufacturers who sold their produce directly to consumers as retailers.

Table 1: Manufacturing subdivisions, ANZSIC 1993 and ANZSIC 2006

ANZSIC 1993	ANZSIC 2006
Food, beverage and tobacco manufacturing	Food product manufacturing Beverage and tobacco product manufacturing
Textile, clothing, footwear and leather manufacturing	Textile, leather, clothing and footwear manufacturing
Wood and paper product manufacturing	Wood product manufacturing Pulp, paper and converted paper product manufacturing
Printing, publishing and recorded media	Printing (including the reproduction of recorded media)
Petroleum, coal, chemical and associated product manufacturing	Petroleum and coal product manufacturing Basic chemical and chemical product manufacturing Polymer product and rubber product manufacturing
Non-metallic mineral product manufacturing	Non-metallic mineral product manufacturing
Metal product manufacturing	Primary metal and metal product manufacturing Fabricated metal product manufacturing
Machinery and equipment manufacturing	Transport equipment manufacturing Machinery and equipment manufacturing
Other manufacturing	Furniture and other manufacturing

Source: ABS, *Australian and New Zealand Standard Industrial Classification, 2006*, Catalogue No. 1292.0, Canberra, ABS.

The low-paid sectors

Manufacturing has a mixture of low- and high-paying sectors. This report is primarily concerned with the low-paid sectors, as these are the sectors for which adjustments to minimum wages are most likely to have an effect.

Based on data from the ABS' 2006 Employee Earnings and Hours (EEH) survey (see Table 2), the lowest-paid sectors of Manufacturing (both subdivisions and groups) include:

- Textile, clothing, footwear and leather manufacturing;
- Furniture manufacturing;
- Other manufacturing (i.e. Jewellery and silverware manufacturing, and Toy and sporting good manufacturing);
- Wood product manufacturing;
- Food product manufacturing (in particular the Meat and meat product manufacturing, Fruit and vegetable processing, and Bakery product manufacturing groups);
- Rubber product manufacturing;
- Plastic (or Polymer) product manufacturing;
- Sheet metal product manufacturing, and Fabricated metal product manufacturing;
- Printing; and
- Electronic equipment manufacturing.

Table 2: Average hourly cash earnings for full-time non-managerial adult employees, May 2006

Industry subdivision/group	Hourly earnings \$
Food, beverage and tobacco manufacturing	23.20
Meat and meat product manufacturing	20.10
Fruit and vegetable processing	21.60
Bakery product manufacturing	22.10
Textile, clothing, footwear and leather manufacturing	22.40
Textile fibre, yarn and woven fabric manufacturing	18.50
Textile product manufacturing	22.80
Knitting mills	17.80
Clothing manufacturing	23.60
Footwear manufacturing	18.00
Leather and leather product manufacturing	19.60
Wood and paper product manufacturing	24.10
Log sawmilling and timber dressing	20.30
Other wood product manufacturing	21.80
Printing, publishing and recorded media	27.60
Printing and services to printing	22.90
Petroleum, coal, chemical and associated product manufacturing	26.30
Rubber product manufacturing	20.90
Plastic product manufacturing	22.90
Non-metallic mineral product manufacturing	25.20
Metal product manufacturing	26.50
Sheet metal product manufacturing	20.40
Fabricated metal product manufacturing	22.70
Machinery and equipment manufacturing	25.60
Electronic equipment manufacturing	22.40
Other manufacturing	18.90
Furniture manufacturing	18.60
Other manufacturing	20.00
Total	24.90

Note: Based on ANZSIC 1993 classification system. For industry groups (3-digit ANZSIC level), only the low-paid groups are shown.

Source: ABS, *Employee Earnings and Hours*, Australia, May 2006, Catalogue No. 6306.0, Canberra, ABS.

The Productivity Commission noted that the low-paid sectors of Manufacturing tend to have 'lower skills, a greater share of small, less capital intensive firms, lower profitability, and face greater import competition'.⁴ These findings will be expanded upon throughout the report.

4 Productivity Commission, *Trends in Australian Manufacturing*, Commission Research Paper, August 2003, Melbourne, p. 94.

The contribution of Manufacturing

Manufacturing is a significant industry in the economy in terms of both output and employment (Table 3).

- In 2007–08, the Manufacturing industry accounted for \$393 billion of sales. The industry itself accounted for \$109 billion, or 11.5 per cent, of value added to the economy.
- On average, over the four quarters to June 2008, Manufacturing accounted for 10.4 per cent of employment and 11.4 per cent of hours worked. Its share of wages and salaries in 2007–08 was slightly higher, at 12.4 per cent.
- The Manufacturing industry is a large contributor to research and development (R&D), accounting for \$4.0 billion, or one-third of business expenditure on R&D in 2006–07. About half of that expenditure was spent by the Machinery and equipment subdivision.

Table 3: Contribution of Manufacturing, 2007–08

	Manufacturing	Percentage of total
Value added (\$m)	108,834	11.5
Sales (\$m)	392,520	N/A
Employment ('000s)	1,096	10.4
Hours worked per week ('000s)	41,823	11.4
Wages and salaries (\$m)	59,496	12.4
Investment (\$m)	20,859	9.0
Capital stock (\$m)	145,270	7.1
R&D expenditure (\$m, 2006–07)	3,963	32.9

Note: Based on ANZSIC 1993 classification system. Figures are expressed in terms of current prices. Total figures are the sum of all industries, and exclude categories such as ownership of dwellings. Employment and hours worked figures are averaged over the four quarters of the financial year. See Productivity Commission, *Trends in Australian Manufacturing*, Commission Research Paper, August 2003, Melbourne, p. 252 for further details on the data that are used.

Source: ABS, *Australian National Accounts, 2007–08*, Catalogue No. 5204.0, Canberra, ABS; ABS, *Business Indicators*, September 2008, Catalogue No. 5676.0, Canberra, ABS; ABS, *Labour Force, Detailed, Quarterly*, November 2008, Catalogue No. 6291.0.55.003, Canberra, ABS; and ABS, *Research and Experimental Development, Businesses, 2006–07*, Catalogue No. 8104.0, Canberra, ABS.

The contribution of Manufacturing has been steadily decreasing over the past three decades. For example, in the mid-1970s, Manufacturing accounted for about one-sixth of the value added to the Australian economy, whereas now it is around one-ninth. The possible reasons for this decline are discussed in the 'Output growth' section.

2 Industry structure and performance

Industry structure

Output by subdivision

Under the ANZSIC 1993 classification system, the largest subdivisions of Manufacturing are Metal product manufacturing, Machinery and equipment manufacturing, and Food, beverage and tobacco manufacturing. In 2007–08, these three subdivisions accounted for \$61.0 billion, or 58.3 per cent of the value added by the Manufacturing industry (Table 4).

More detailed data on value added by industry class are available from the ABS 2006–07 Manufacturing Industry release. This release uses the ANZSIC 2006 classification system. These data also indicate that the metal products, food product and machinery and equipment sectors are the largest sectors in the Manufacturing industry.

Of the low-paid sectors:

- Fabricated metal product manufacturing accounted for 9.2 per cent of the value added in the industry in 2006–07;
- Meat and meat product manufacturing, Fruit and vegetable processing, and Bakery product manufacturing collectively accounted for 7.5 per cent;
- Polymer and rubber product manufacturing accounted for 5.1 per cent;
- Wood product manufacturing accounted for 4.0 per cent;
- Printing accounted for 3.9 per cent;⁵
- Textile, leather, clothing and footwear accounted for 2.8 per cent;
- Furniture and other manufacturing accounted for 2.4 per cent; and
- Computer and electronic equipment manufacturing accounted for 1.8 per cent.

Collectively, then, these sectors accounted for around 35 per cent of the value added in the Manufacturing industry.

Changes in output by subdivision over time

The most significant change in the composition of the Manufacturing industry over the past 20 years has been the decline of the Textile, clothing, footwear and leather manufacturing subdivision. This subdivision contributed \$7.8 billion, or 10.0 per cent, of the value added by the Manufacturing industry in 1987–88, but just \$2.8 billion, or 2.7 per cent, in 2007–08 (Figures 1a and 1b).

A significant reason for the decline in this subdivision has been that its exposure to international competition has increased. This is in part because restrictions on imports have been relaxed. However, in its 2003 report on the sector, the Productivity Commission concluded that it was inevitable that many firms in the sector would not survive – regardless of future assistance arrangements – given that productivity levels in developing countries (such as China) often match those of Australia while their wage rates are far lower.⁶ The Australian Government subsequently decided upon a ‘step-down’ process of

5 Many of the groups that were in the Printing, publishing and other recorded media subdivision under the 1993 ANZSIC classification system have been moved to the Publishing subdivision of the Information media and telecommunications industry in the 2006 ANZSIC classification. Therefore, the Printing subdivision in the 2006 ANZSIC system is far smaller than the Printing, publishing and other recorded media subdivision was in the 1993 ANZSIC system.

6 Productivity Commission, *Review of TCF Assistance*, Inquiry Report No. 26, 31 July 2003, Melbourne.

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tariff reduction over the 10 years to 2015, while also providing support measures for businesses during the period of adjustment.⁷

Table 4: Value added by Manufacturing subdivision, ANZSIC 1993 and ANZSIC 2006 classifications

ANZSIC 1993 (figures for 2007–08)	Value added (\$m)	Percentage of industry value added	ANZSIC 2006 (figures for 2006–07)	Value added (\$m)	Percentage of industry value added
Metal product	21,695	20.7	Primary metal and metal product	15,158	15.3
Machinery and equipment	20,192	19.3	Food product	14,455	14.6
Food, beverage and tobacco	19,159	18.3	Machinery and equipment	10,538	10.6
Petroleum, coal, chemical	14,234	13.6	Fabricated metal product	9,076	9.2
Printing, publishing and other recorded media	10,771	10.3	Transport equipment	9,003	9.1
Wood and paper product	6,177	5.9	Basic chemical and chemical product	6,831	6.9
Non-metallic mineral product	5,385	5.1	Beverage and tobacco product	5,787	5.8
Other manufacturing	4,311	4.1	Non-metallic mineral product	5,019	5.1
Textile, clothing, footwear and leather	2,805	2.7	Polymer product and rubber product	5,017	5.1
			Wood product	3,940	4.0
			Printing	3,881	3.9
			Textile, clothing, footwear and leather	2,771	2.8
			Pulp, paper and converted paper	2,657	2.7
			Petroleum and coal product	2,506	2.5
			Furniture and other	2,358	2.4

Source: ABS, *Australian National Accounts, 2007–08*, Catalogue No. 5204.0, Canberra, ABS; and ABS, *Manufacturing Industry, 2006–07*, Catalogue No. 8221.0, Canberra, ABS.

Activity in most subdivisions has fallen during recessions, particularly in the Non-metallic mineral product manufacturing, Metal product manufacturing, and Machinery and equipment manufacturing (which includes Motor vehicle manufacturing) subdivisions (Figure 1b). Nevertheless, all of these industries have grown strongly, on average, relative to the other Manufacturing sectors over the past 30 years.

At the other end of the scale, activity in the Food, beverage and tobacco product manufacturing subdivision has proved the most resilient to recessions, and has exhibited the least amount of volatility over time. Recent data from business surveys (see the 'Business surveys' section) suggest that this sector has also been the least affected by the current downturn.

⁷ Australian Government, *Response to Productivity Commission Report on Post 2005 Textiles, Clothing and Footwear Assistance Arrangements* <<http://www.pc.gov.au/projects/inquiry/tcf>>. A review conducted by Professor Roy Green in 2008 recommended that the tariff reduction process be continued.

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The Productivity Commission found that there was little correlation in output growth between the industry classes *within* each of the Manufacturing subdivisions.⁸ In other words, while a given subdivision may be growing at a particular rate, the various components of that subdivision may be growing at very different rates.

Figure 1a: Industry value added by subdivision, 1977–78 to 2007–08

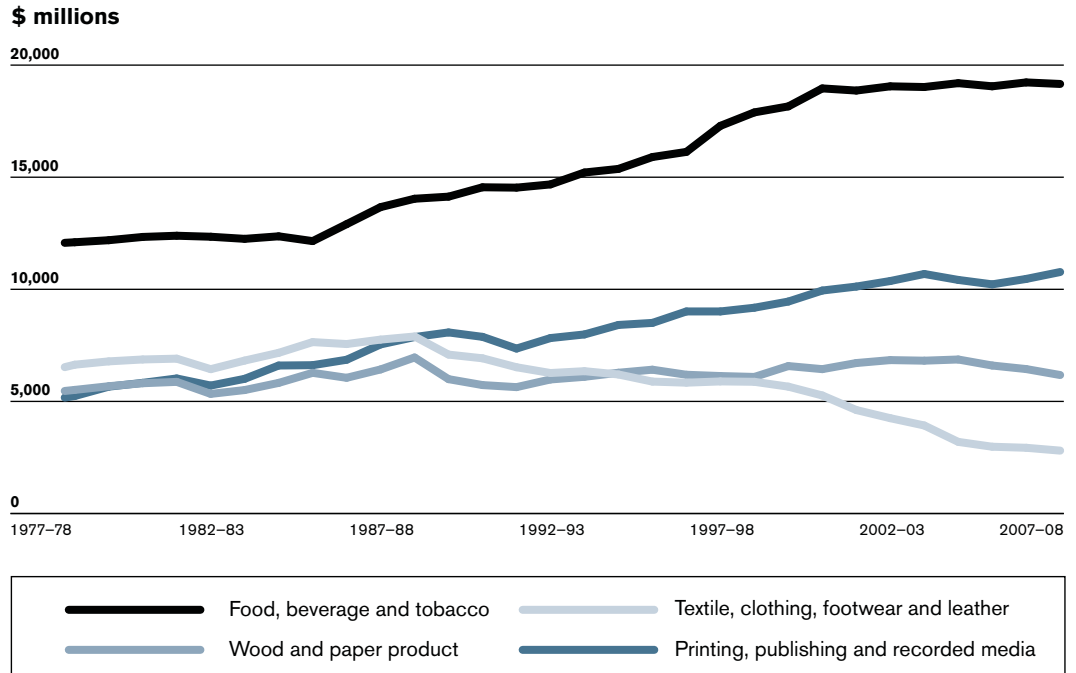
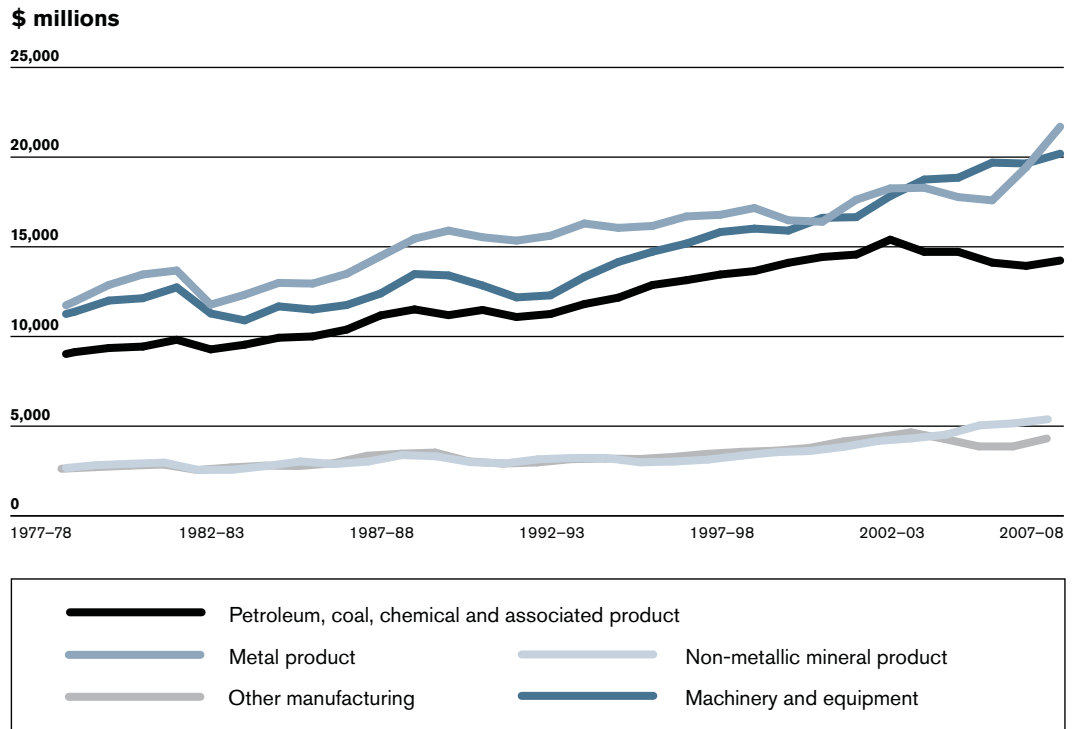


Figure 1b: Industry value added by subdivision, 1977–78 to 2007–08



Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Australian National Accounts, 2007–08*, Catalogue No. 5204.0, Canberra, ABS.

8 Productivity Commission, August 2003, p. 72.

Industry concentration

Activity in Manufacturing is reasonably concentrated, with large businesses (businesses with 200 or more people employed) contributing 54.9 per cent of the value added by the industry in 2006–07 (Table 5), compared to 41.4 per cent for all (selected) industries. In contrast, small businesses (businesses with less than 20 people employed) comprise a far smaller percentage of activity in Manufacturing than they do in other industries.

Table 5: Wages and salaries, sales and service income, and industry value added by business size, 2006–07

	Manufacturing			Total selected industries		
	Small (<20 persons) %	Medium (20 to 199 persons) %	Large (200 or more persons) %	Small (<20 persons) %	Medium (20 to 199 persons) %	Large (200 or more persons) %
Wages and salaries	17.5	31.4	51.1	28.8	27.7	43.5
Sales and service income	13.7	24.3	62.0	32.9	24.7	42.5
Industry value added	18.1	27.1	54.9	35.0	23.6	41.4

Note: Based on ANZSIC 2006 classification system. Total selected industries excludes Financial and insurance services and Public administration and safety.

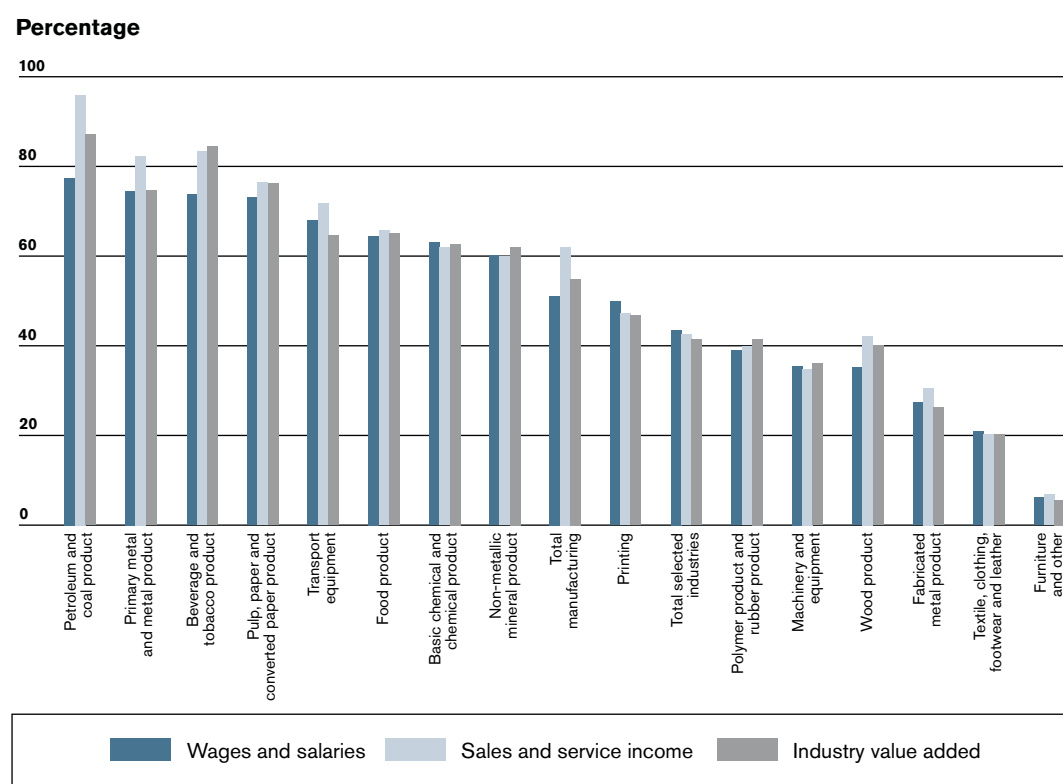
Source: ABS, *Australian Industry*, 2006–07, Catalogue No. 8155.0, Canberra, ABS; and ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

While for Manufacturing as a whole, activity is reasonably concentrated among large businesses, this is not the case for many of the low-paid sectors of the industry (Figure 2). In particular, large businesses contributed less than 6 per cent of the value added by Furniture and other manufacturing in 2006–07, and around 20 per cent of the value added by Textile, leather, clothing and footwear manufacturing. The contribution of large businesses was also lower than average in the Fabricated metal product, Wood product, and Polymer and rubber product subdivisions.

In their profile of the Accommodation, cafés and restaurants industry, ACIL Tasman noted that the lack of dominance by large businesses suggested that the industry was highly competitive, with little scope to extract greater revenues in the form of higher prices from consumers.⁹ The low contribution of large businesses within the low-paid sectors of Manufacturing indicates that businesses within those sectors may be operating in a similar environment. In addition, it indicates that employees in these sectors are more likely to have their pay set in reference to an award or Pay Scale.

⁹ ACIL Tasman and Colmar Brunton Social Research, *A Profile of the Accommodation, Cafés and Restaurants Industry*, Research report 1/09, FPC, 2009, p. 14.

Figure 2: Percentage of wages and salaries, sales and service income, and industry value added contributed by large businesses, 2006–07



Note: Based on ANZSIC 2006 classification system. Total selected industries excludes Financial and insurance services and Public administration and safety.

Source: ABS, *Australian Industry*, 2006–07, Catalogue No. 8155.0, Canberra, ABS; and ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

Regional distribution

Table 6 shows that most of the value added by the Manufacturing industry derives from New South Wales (32.2 per cent), Victoria (28.1 per cent) and Queensland (17.1 per cent). The contribution of Manufacturing to the value added across all industries is greatest in Tasmania (15.2 per cent), South Australia (15.1 per cent) and Victoria (13.9 per cent).

The ABS' 2006–07 *Manufacturing Industry* release contains data on sales and service income by subdivision for each state.¹⁰ For most of the low-paid sectors, each state's share of sales and service income in each of those sectors is similar to its share of sales and service income in Manufacturing as a whole. The main exceptions are:

- Textile, leather, clothing and footwear manufacturing, in which Victoria accounted for 41.8 per cent of sales and service income in 2006–07, and New South Wales accounted for 34.7 per cent;
- Polymer product and rubber product manufacturing, in which Victoria accounted for 37.8 per cent of sales and service income; and
- Printing, in which New South Wales accounted for 43.4 per cent of sales and service income.

¹⁰ ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

Table 6: Industry value added in Manufacturing by state and territory, 2006–07

	Industry value added in Manufacturing	
	As percentage of national industry value added in Manufacturing	As percentage of industry value added in state
New South Wales	32.2	11.7
Victoria	28.1	13.9
Queensland	17.1	10.3
South Australia	8.1	15.1
Western Australia	10.7	8.4
Tasmania	2.4	15.2
Northern Territory	1.1	8.8
Australian Capital Territory	0.3	1.6
Australia	100.0	11.5

Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Australian National Accounts: State Accounts, 2007–08*, Catalogue No. 5220.0, Canberra, ABS.

Trade exposure

Manufacturing is one of the industries that is most exposed to competition from overseas firms. When reporting trade data, the ABS uses the United Nations' Standard International Trade Classification rather than ANZSIC. This makes it difficult to compare trade data with domestic statistics, although the two systems can be reconciled using more detailed data.¹¹

Analysis by the Productivity Commission showed that, as of 1999–2000, over one-third of domestically sold goods in Manufacturing were produced overseas, while around one-quarter of domestically produced goods were sold overseas.¹² Both ratios are likely to have increased since that time, particularly that of 'import penetration'.

As of 1999–2000, all subdivisions had rates of 'import penetration' above 10 per cent, with Machinery and equipment manufacturing (61.6 per cent), Textile, clothing, footwear and leather manufacturing (49.3 per cent), Petroleum, coal and chemical product manufacturing (35.9 per cent), and Other manufacturing (32.5 per cent) having the highest rates. Metal product manufacturing (44.8 per cent), Textile, clothing, footwear and leather manufacturing (26.6 per cent), Food, beverage and tobacco manufacturing (25.8 per cent), and Machinery and equipment manufacturing (24.5 per cent) had the highest rates of 'export propensity'. However, the rates of import penetration and export propensity by subdivision may have changed somewhat since that time.¹³

¹¹ See C. Clark, T. Geer and B. Underhill, *The Changing of Australian Manufacturing*, Industry Commission Staff Information Paper, Appendix D pp. 1–2 and Productivity Commission, August 2003, pp. 118–120, for further discussion.

¹² Productivity Commission, August 2003, p. 123.

¹³ In particular, beverage exports have increased strongly, driven by a large increase in the overseas sales of Australian wine. See P. Downes and A. Stoeckel, *Drivers of Structural Change in the Australian Economy*, Centre for International Economics Report, December 2006, p. 157.

The Productivity Commission states that a rule of international competitiveness is that the lower the rate of import penetration relative to export propensity, the more competitive are the goods produced relative to their international counterparts.¹⁴ Based on this rule, Textile, clothing, footwear and leather manufacturing, Machinery equipment manufacturing, and Other manufacturing would be considered the least internationally competitive subdivisions, although it also finds that there is a large degree of variation in competitiveness *within* subdivisions.

Another way to assess the international competitiveness of industries is to compare the prices of inputs relative to their productivity. The Productivity Commission concludes that, in general, given international wage relativities, Manufacturing firms in Australia will have the most difficulty competing in non-differentiated traded goods that rely on low-skilled, labour-intensive processes, and have less difficulty competing in processes that draw on high-skilled workers.¹⁵ Consistent with this, the Reserve Bank of Australia found that the wages of those employed by exporters are, on average, higher than those employed by non-exporters, indicating that they are higher skilled.¹⁶

The high degree of trade exposure in Manufacturing means that it is less able than other industries to adjust its prices. All other things being equal, relatively fixed prices place more pressure on output to fall in response to an increase in labour costs. This is the reason why Access Economics classified Manufacturing as being one of the industries whose output is most sensitive to changes in minimum wages, even though it has a lower-than-average share of workers that are paid award rates of pay, and a relatively low share of labour costs to total costs.¹⁷

Income and cost structure

Income structure

The main source of income for businesses in Manufacturing is sales of goods, which in 2006–07 accounted for 93.3 per cent of total income.¹⁸ In most subdivisions, businesses derived over 90 per cent of their income from sales of goods. The exceptions were Machinery and equipment and Transport equipment, with businesses in the former category deriving around 10 per cent of their income from services, while businesses in the latter category derived around 15 per cent of their income from this source.

In contrast, the industries in which low-paid workers are relatively concentrated generally rely more on the sale of services as a source of income (Retail trade being an exception). For example, in the Accommodation, cafés and restaurants industry, businesses derive over 40 per cent of their income from services.¹⁹

Cost structure

The main source of expenses for businesses in Manufacturing is the cost of sales, which in 2006–07 accounted for 79.1 per cent of total expenses.²⁰

14 Productivity Commission, August 2003, pp. 124–126.

15 Productivity Commission, August 2003, pp. 127–128.

16 J. Dwyer and J. Fabo, 'The Manufacturing Sector: Adapting to Structural Change', *Reserve Bank of Australia Bulletin*, March 2001, p. 7.

17 Access Economics, *Monitoring Strategy for Wage-Setting Decisions*, Research Report No. 3/07, report commissioned by AFPC, July 2007, pp. 36–38.

18 ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

19 ACIL Tasman, 2009, p. 16.

20 ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS. The cost of sales is the sum of 'purchases and selected expenses' (which include, among other items, purchases of goods and materials, rent, leasing and hiring expenses, freight and cartage expenses, and repair and maintenance expenses) and the change in inventories.

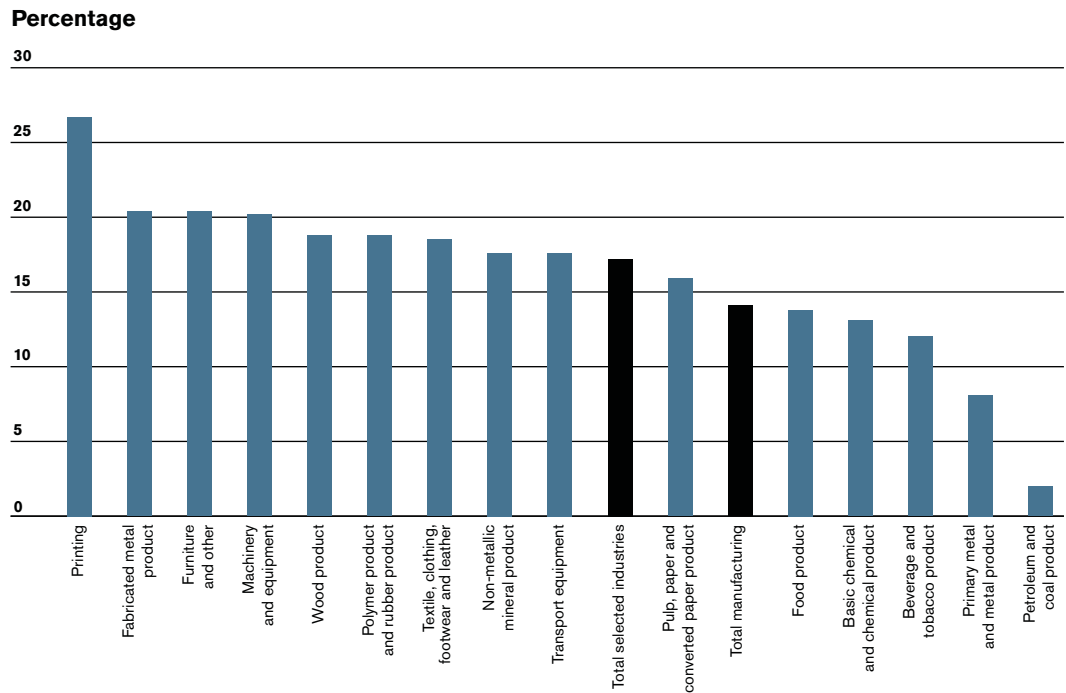
Manufacturing Industry Profile

Labour costs are more important in the low-paid sectors of Manufacturing than in the higher-paid sectors (Figure 3). In 2006–07, wages and salaries made up 26.7 per cent of total expenses in Printing, and between 18 and 21 per cent of expenses in Fabricated metal product manufacturing, Furniture and other manufacturing, Wood product manufacturing, Polymer product and rubber product manufacturing and Textile, leather, clothing and footwear manufacturing. In comparison, the average across all subdivisions was 14.1 per cent, and across all (selected) industries was 17.2 per cent.

Profit margins

Businesses in Manufacturing tend to operate on smaller profit margins than those in most other industries. In 2006–07, the profit margin in Manufacturing was 8.1 per cent, compared to 12.7 per cent for all (selected) industries (Figure 4). The only industries with lower profit margins were Retail trade and Wholesale trade, both of which are also based around the sale of goods. The low-paid sectors of Manufacturing tend to operate on smaller profit margins than other sectors within the industry.

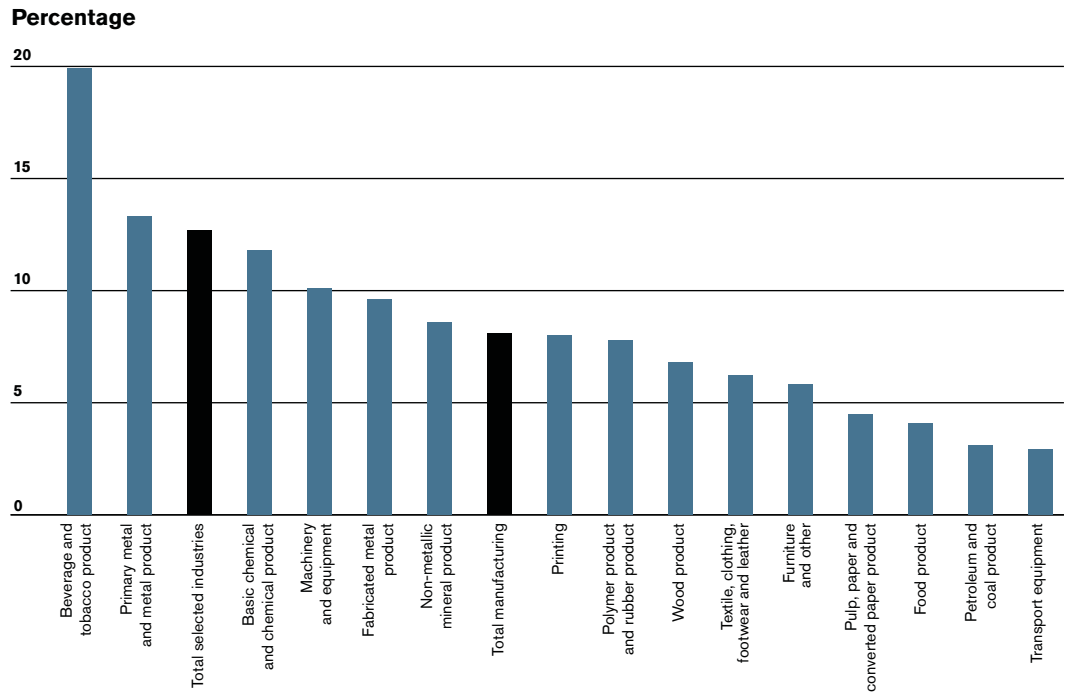
Figure 3: Wages and salaries as percentage of total expenses by subdivision, 2006–07



Note: Based on ANZSIC 2006 classification system. Total selected industries excludes Financial and insurance services and Public administration and safety.

Source: ABS, *Australian Industry*, 2006–07, Catalogue No. 8155.0, Canberra, ABS; and ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

Figure 4: Profit margins by subdivision, 2006–07



Note: Based on ANZSIC 2006 classification system. Profit margins calculated as the percentage of sales and service income available as operating profit before tax. Total selected industries excludes Financial and insurance services and Public administration and safety.

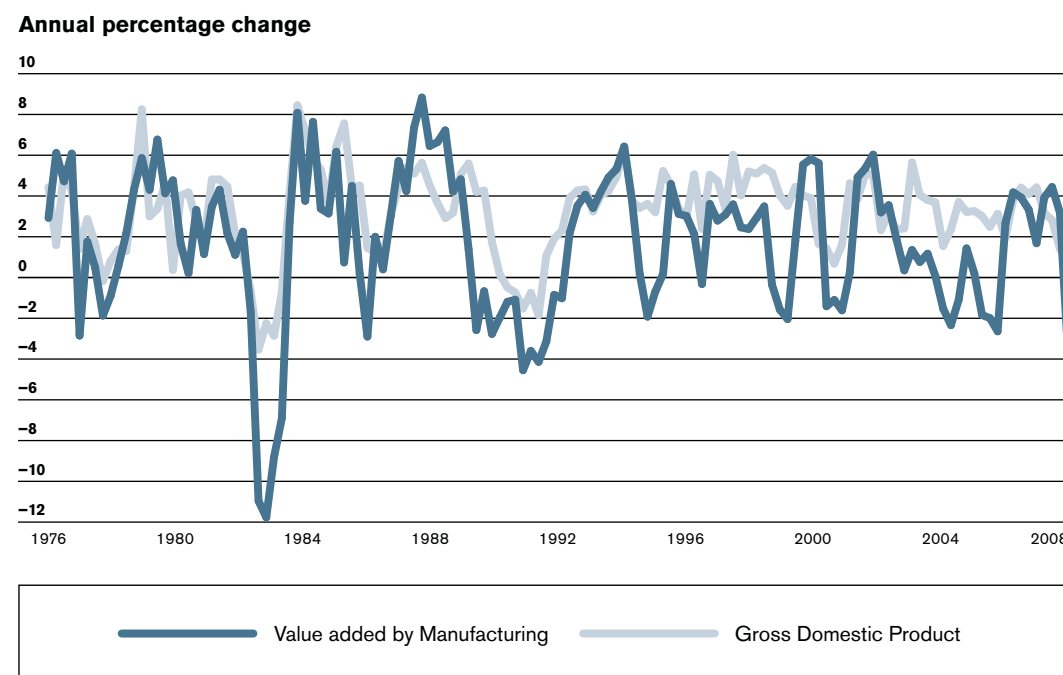
Source: ABS, *Australian Industry*, 2006–07, Catalogue No. 8155.0, Canberra, ABS; and ABS, *Manufacturing Industry*, 2006–07, Catalogue No. 8221.0, Canberra, ABS.

Industry performance

Output growth

Over the past three decades, output growth in Manufacturing has been slow relative to the rest of the economy. Over the period from the September quarter 1978 to the September quarter 2008, the value added by Manufacturing grew at a rate of 1.6 per cent per year, while the economy as a whole grew at a rate of 3.3 per cent per year (Figure 5). All of the other non-farm industries grew at a faster pace than Manufacturing over this period.

Figure 5: Growth in real output



Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Australian National Accounts: National Income, Expenditure and Product*, December 2008, Catalogue No. 5206.0, Canberra, ABS.

The Productivity Commission evaluated several hypotheses for the relative decline of Manufacturing in Australia and other developed countries.²¹ These include:

- *Income-related preferences* – As incomes rise, people may prefer to spend a greater share of their income on services. Consumer expenditure data suggest that this is likely to be the most important determinant for the relative decline of Manufacturing output, with goods demand having fallen significantly as a share of consumer expenditure since the early 1960s.
- *Statistical transfer of activities from manufacturing to services* – Anecdotal evidence suggests that many large firms in Manufacturing have increasingly outsourced their non-core activities (e.g. accountancy, cleaning, transport) to external contractors. There is some statistical evidence to indicate that this outsourcing effect could be significant; for example, the ratio of value-added to sales in Manufacturing has been declining over time.
- *Shifting trade patterns* – With the expansion of trade in manufactures, developed economies have increasingly been able to import manufactured goods from low-wage developing economies. However, the available evidence suggests that the impact from trade has been modest.²²

The declining role of Manufacturing in the Australian economy is not necessarily an unfavourable outcome to the extent that it represents a shift in consumer preferences for services over goods.

Growth in Manufacturing is relatively closely correlated with the economic cycle. This is because the industry produces a large proportion of intermediate goods; hence, it has relatively strong linkages with the rest of the economy.

²¹ Productivity Commission, August 2003, pp. 32–48.

²² Downes and Stoeckel confirm this view – see Downes and Stoeckel, December 2006, p. 75.

Activity in Manufacturing was stagnant from 2002 to 2006, as the industry came under pressure from low-cost imports from China and a stronger Australian dollar. In addition, tariffs were reduced on passenger motor vehicles and textiles, clothing and footwear in January 2005. Output recovered more recently, helped in part by solid economic growth and a weaker Australian dollar; however, there was a sharp fall in output in the December quarter 2008. The current downturn in the economy suggests a pessimistic outlook for the industry, an outlook that is supported by business surveys.

Business surveys

Business surveys indicate that the Manufacturing industry is experiencing a large fall in activity. According to the (seasonally adjusted) Australian Industry Group–Price Waterhouse Coopers (AI Group–PWC) Performance of Manufacturing Index, activity in Manufacturing contracted for nine consecutive months from June 2008 to February 2009.²³ The rate of contraction recorded in February 2009 was the highest since the survey began in 1992. For most sectors, activity contracted in nearly every month since mid-2008, with the main exception to this trend being the food and beverages sector.

The (seasonally adjusted) AI Group–PWC employment index for Manufacturing indicates that employment had fallen for 12 consecutive months. For most sectors, employment fell in nearly every month over this period, with the exceptions being the food and beverages sector and the machinery and equipment sector. In particular, employment fell significantly in most months in the textile sector.

The AI Group–PWC wage and price indexes for Manufacturing indicate that growth in these variables has remained positive in recent months. Wage growth eased for five consecutive months, albeit at a slow pace. Both selling price growth and growth in the price of raw materials had been broadly steady; however, both series eased more noticeably over the first couple of months of 2009.

The Australian Chamber of Commerce and Industry–Westpac Survey of Industrial Trends also showed a significant deterioration in business conditions in Manufacturing over the second half of 2008 and the early part of 2009.²⁴ As of the March quarter 2009, both the survey's Actual Composite Index (which indicates the pace of activity in the sector) and its Labour Market Composite Index (which is a guide to future jobs growth in the sector) were at their lowest levels since the early 1990s.

The survey showed that business confidence had declined rapidly, with 67 per cent of businesses expecting conditions to deteriorate in the next six months, and 58 per cent expecting a fall in profits in the next 12 months. Wage expectations were at their lowest level since the series began (in 1997). Despite this, expected average costs per unit of output were well above selling price expectations, also indicating strong downward pressure on profit expectations.

²³ Australian Industry Group–Price Waterhouse Coopers, *Australian PMI*, February 2009.

²⁴ Australian Chamber of Commerce and Industry–Westpac, *Survey of Industrial Trends*, March quarter 2009. Recent editions of the National Australia Bank's *Monthly Business Survey* have also been showing sharp falls in business conditions and confidence in Manufacturing.

3 The Manufacturing labour market

The Manufacturing workforce

Composition of employment

As of February 2009, there were an estimated 1.0 million people employed in Manufacturing, which was 9.4 per cent of the total number employed (Table 7). Of these people, around two-thirds are males working full-time, compared to less than 50 per cent for the workforce as a whole.

Table 7: Employed persons by gender and full-time/part-time status, February 2009

	Manufacturing		All industries
	Number of people ('000s)	Percentage of employed persons in industry	Percentage of employed persons in all industries
Males			
Full-time	689.0	67.9	46.2
Part-time	53.9	5.3	8.2
Females			
Full-time	193.6	19.1	25.3
Part-time	78.0	7.7	20.3
Total	1,014.5	100.0	100.0

Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Compared with the workforce as a whole, Manufacturing has a slightly higher percentage of workers aged 25–54 years, and slightly lower percentages of young and mature age workers (Table 8). This is unsurprising given that the workforce is predominantly full-time. As of February 2009, workers aged 25–54 made up 72 per cent of employment in Manufacturing, compared with 67 per cent across all industries.

The Manufacturing industry is largely based in metropolitan areas. In 2007, the main employing regions were Melbourne (255,300 people employed), Sydney (225,300) and Brisbane (134,600).²⁵ Victoria and New South Wales each account for around 30 per cent of employment in Manufacturing, with Queensland accounting for about another 20 per cent.

²⁵ Australian Government, *Employment Outlook for Manufacturing*, July 2008, p. 13.

Table 8: Employed persons by age, February 2009

Age	Manufacturing		All industries
	Number of people ('000s)	Percentage of employed persons in industry	Percentage of employed persons in all industries
15–19	41.1	4.1	6.7
20–24	87.3	8.6	10.6
25–34	242.0	23.9	21.6
35–44	259.7	25.6	23.0
45–54	228.1	22.5	22.2
55–59	82.5	8.1	8.2
60–64	55.6	5.5	5.1
65 and over	18.1	1.8	2.5
Total	1,014.5	100.0	100.0

Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Employment by subdivision

Under the ANZSIC 1993 classification system, as of November 2008, over half of the workforce in Manufacturing was employed in Machinery and equipment manufacturing (231,300, or 21.7 per cent of the workforce), Food, beverage and tobacco manufacturing (221,300, or 20.7 per cent), and Metal product manufacturing (152,800, or 14.3 per cent) (see Table 9). These remain the largest-employing sectors under the ANZSIC 2006 classification system, although the Machinery and equipment and Metal products subdivisions have both been split.

As they are relatively labour-intensive, many of the low-paid sectors tend to have a greater share of employment than they do of output. Altogether, around 45 per cent of employed persons in the Manufacturing industry are employed within the low-paid sectors.²⁶

Textile, leather, clothing and footwear and leather manufacturing is clearly different from the other sectors in Manufacturing in terms of its composition (Table 10). As of February 2009, around two-thirds of the workforce in this sector was female. In addition, around one-quarter of the workforce in this sector was working part-time, although this is similar to the full-time share of the workforce as a whole.

²⁶ Calculated as the sum of percentage of industry employment in Fabricated metal product manufacturing, Furniture and other manufacturing, Printing, Wood product manufacturing, Textile, leather, clothing and footwear manufacturing, and Polymer and rubber product manufacturing (as shown in Table 9), along with the percentage of industry employment in Meat and meat product manufacturing, Fruit and vegetable processing, Bakery product manufacturing, and Computer and electronic equipment manufacturing, from the 2006–07 ABS Manufacturing Industry release.

Manufacturing Industry Profile

Table 9: Employment by Manufacturing subdivision, ANZSIC 1993 and ANZSIC 2006 classifications

ANZSIC 1993	Employment ('000s)	Percentage of industry employment	ANZSIC 2006	Employment ('000s)	Percentage of industry employment
Machinery and equipment	231.3	21.7	Food product	185.1	18.2
Food, beverage and tobacco	221.3	20.7	Machinery and equipment	114.0	11.2
Metal products	152.8	14.3	Transport equipment	90.1	8.9
Printing, publishing and other recorded media	105.7	9.9	Manufacturing – nfd	81.3	8.0
Petroleum, coal, chemical	86.1	8.1	Fabricated metal product	77.7	7.7
Manufacturing – nfd	65.6	6.2	Primary metal and metal product	74.7	7.4
Other manufacturing	63.1	5.9	Furniture and other	64.7	6.4
			Textile, leather, clothing and footwear	60.1	5.9
Wood and paper product	60.7	5.7	Printing	49.4	4.9
Textile, clothing, footwear and leather	41.9	3.9	Basic chemical and chemical product	45.9	4.5
Non-metallic mineral products	38.3	3.6	Wood product	44.1	4.3
			Non-metallic mineral product	36.9	3.6
			Polymer product and rubber product	33.4	3.3
			Beverage and tobacco product	27.3	2.7
			Pulp, paper and converted paper	20.5	2.0
			Petroleum and coal product	9.2	0.9

Note: nfd = not further defined.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, November 2008 and February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Manufacturing Industry Profile
Table 10: Composition of employed persons by Manufacturing subdivision, February 2009

	Number ('000s)	Percentage of employed persons in industry	Percentage of employed persons in industry subdivision					Total Full-time
			Male		Female		Total male	
			Full-time	Part-time	Full-time	Part-time		
Food product manufacturing	185.1	18.2	50.7	8.4	28.3	12.6	59.1	79.0
Beverage and tobacco product manufacturing	27.3	2.7	55.3	1.1	26.4	17.2	56.4	81.7
Textile, leather, clothing and footwear manufacturing	60.1	5.9	30.6	5.3	46.4	17.6	35.9	77.0
Wood product manufacturing	44.1	4.3	85.7	2.5	9.5	2.5	88.2	95.2
Pulp, paper and converted paper product manufacturing	20.5	2.0	76.6	3.9	19.5	0.0	80.5	96.1
Printing (including the reproduction of recorded media)	49.4	4.9	61.9	4.3	25.3	8.7	66.2	87.2
Petroleum and coal product manufacturing	9.2	0.9	69.6	0.0	17.4	12.0	69.6	87.0
Basic chemical and chemical product manufacturing	45.9	4.5	54.2	4.8	36.2	4.8	59.0	90.4
Polymer product and rubber product manufacturing	33.4	3.3	76.6	6.6	11.4	5.4	83.2	88.0
Non-metallic mineral product manufacturing	36.9	3.6	83.7	6.0	10.3	0.0	89.7	94.0
Primary metal and metal product manufacturing	74.7	7.4	85.1	3.6	8.0	3.3	88.8	93.2
Fabricated metal product manufacturing	77.7	7.7	77.2	6.8	9.9	6.0	84.0	87.1
Transport equipment manufacturing	90.1	8.9	78.6	5.5	10.5	5.2	84.1	89.1
Machinery and equipment manufacturing	114.0	11.2	79.1	3.6	13.2	3.9	82.7	92.4
Furniture and other manufacturing	64.7	6.4	71.9	7.0	11.4	9.9	78.8	83.3
Manufacturing – nfd	81.3	8.0	72.2	3.3	17.2	7.3	75.5	89.4
Total manufacturing	1,014.5	100.0	67.9	5.3	19.1	7.7	73.2	87.0
All industries	10,772.1		46.2	8.2	25.3	20.3	54.4	71.5

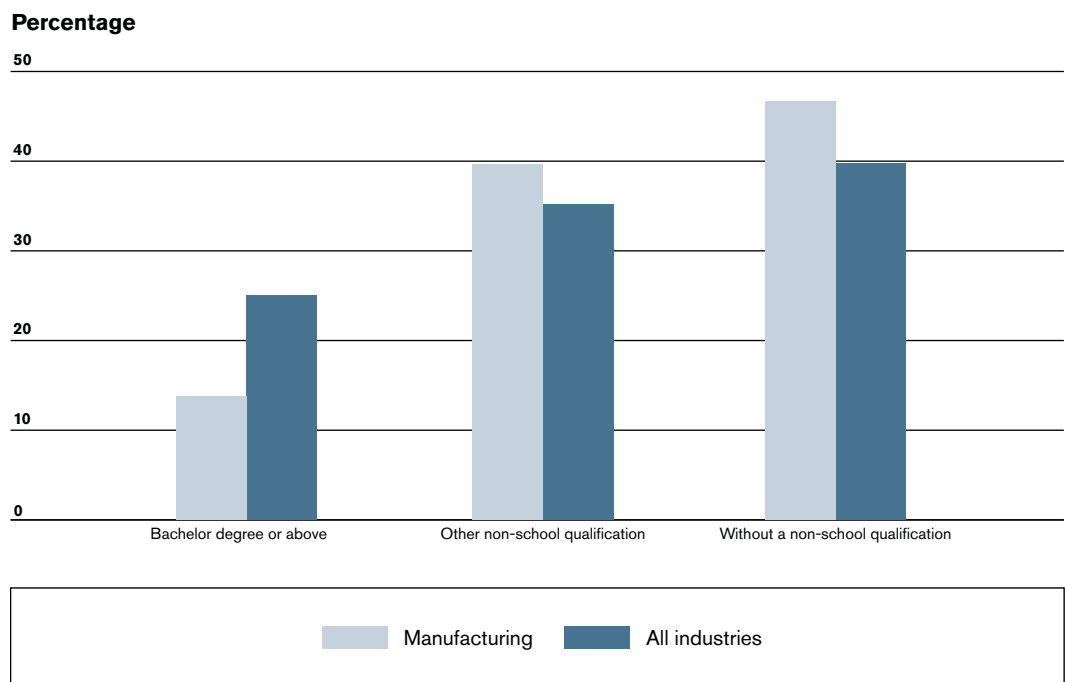
Note: Based on ANZSIC 2006 classification system. nfd = not further defined.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Qualifications

Manufacturing workers have, on average, lower levels of educational attainment than the workforce as a whole. As of May 2008, the percentage of manufacturing workers without a non-school qualification (46.7 per cent) was around 7 percentage points higher than for the workforce in general (39.8 per cent) (see Figure 6). In particular, the percentage of manufacturing workers with a Bachelor degree or above (13.8 per cent) was around half that of the entire workforce (25.0 per cent).

Figure 6: Employed persons by level of educational attainment, May 2008



Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Education and Work, May 2008*, Catalogue No. 6227.0, Canberra, ABS.

Occupations

Manufacturing employs a relatively high percentage of 'blue-collar' workers across a range of skill levels (Table 11). As of November 2008, the largest employing occupations were:

- Tradespersons and related workers – 285,700 people employed, or 26.8 per cent of the Manufacturing workforce;
- Labourers and related workers – 172,100, or 16.1 per cent; and
- Intermediate production and transport workers – 170,400, or 16.0 per cent.²⁷

Hence, low-skilled 'blue-collar' workers made up around one-third of the Manufacturing workforce – almost double their percentage of the workforce as a whole. In contrast, low-skilled 'white-collar' workers (i.e. low-skilled clerical, sales and service workers) made up only around 10 per cent of the Manufacturing workforce, compared to around one-quarter of all employed persons. (In total, then, over 40 per cent of employed persons in Manufacturing are in low-skilled occupational groups.)

²⁷ These major occupational groups are from the Australian Standard Classification of Occupations (ASCO), rather than the more recent Australian and New Zealand Standard Classification of Occupations (ANZSCO). Data have been presented based on ASCO as, unlike ANZSCO, each of the major occupational groups is assigned a particular skill level.

Table 11: Employed persons by major occupational group, November 2008

	Manufacturing Number ('000s)	Percentage of employed persons in industry	All industries Percentage of employed persons in all industries
High-skilled			
Skill Level 1			
Managers and administrators	122.3	11.5	8.3
Professionals	105.4	9.9	19.9
Skill Level 2			
Associate professionals	71.6	6.7	12.5
Skill Level 3			
Tradespersons and related workers	285.7	26.8	12.9
Advanced clerical and service workers	23.5	2.2	3.6
Low-skilled			
Skill Level 4			
Intermediate clerical, sales and service workers	96.0	9.0	16.5
Intermediate production and transport workers	170.4	16.0	8.8
Skill Level 5			
Elementary clerical, sales and service workers	19.8	1.9	9.1
Labourers and related workers	172.1	16.1	8.4
Total	1,066.9	100.0	100.0

Note: Based on ANZSIC 1993 and ASCO classification systems.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, November 2008, Catalogue No. 6291.0.55.003, Canberra, ABS.

Underutilisation

On average, over the four quarters to the November quarter 2008, there were approximately 31,000 people who were unemployed whose most recent job was in Manufacturing. Dividing this number by employment in Manufacturing gives an average 'unemployment rate' over those four quarters of 2.9 per cent. This was slightly higher than the comparable average across the workforce as a whole (2.5 per cent).²⁸

Historically, Manufacturing has been a major source of involuntary job losses. According to the most recent ABS survey on retrenchments, Manufacturing accounted for 20 per cent of retrenchments in the three years prior to July 2001.²⁹ However, as shown in the 'Labour market trends' section, employment in Manufacturing has remained stable despite the high level of retrenchments.

As of November 2008, there were 41,600 people working in Manufacturing who were underemployed.³⁰

28 ABS, *Labour Force, Australia, Detailed, Quarterly*, Catalogue No. 6291.0.55.003, Canberra, ABS. Based on ANZSIC 2006 classification system. This is lower than the aggregate unemployment rate as it excludes people who have never worked for two weeks or more, or who most recently held a job more than two years ago.

29 ABS, *Retrenchment and Redundancy*, July 2001, Catalogue No. 6266.0, Canberra, ABS.

30 ABS, *Australian Labour Market Statistics*, January 2009, Catalogue No. 6105.0, Canberra, ABS. Underemployed workers are employed persons who want, and are available for, more hours of work than they currently have.

Manufacturing Industry Profile

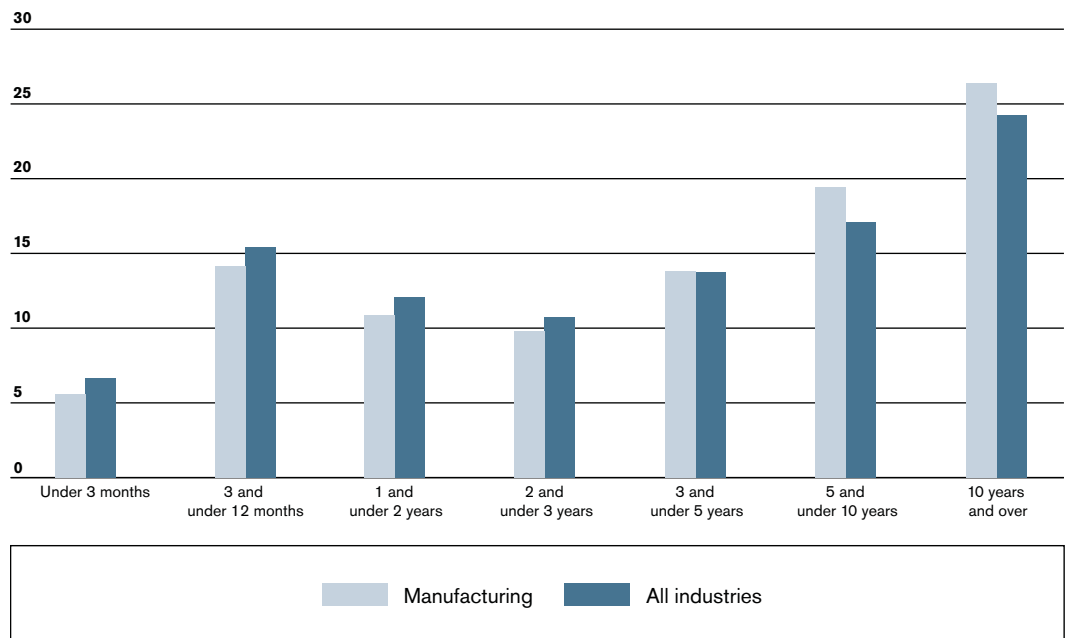
The underemployment rate was 3.9 per cent, far lower than the overall underemployment rate of 6.7 per cent. This may reflect the low degree of part-time employment in the industry.

Duration of employment

Employees in Manufacturing tend to have longer job tenure than employees in other industries. As of February 2008, 45.8 per cent of employees in Manufacturing had been with their current employer/business for five years or more, compared to 41.3 per cent for all industries (Figure 7). (In contrast, some low-paid industries such as Retail trade and Accommodation, cafés and restaurants have relatively high turnover.)

Figure 7: Duration of employment with current employer/business, February 2008

Percentage of employees



Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Labour Mobility, Australia*, February 2008, Catalogue No. 6209.0, Canberra, ABS.

The Productivity Commission examined some of the possible reasons for the relatively high average job tenure of employees in Manufacturing. One possible reason is the comparatively lower job growth in Manufacturing. In industries where job creation rates are high, there are large inflows of new workers into the industry; this in turn reduces the average job duration of that industry's workforce. However, the Productivity Commission finds no strong systematic links between average job tenure and past employment growth. Other possible reasons are the dominant role played in the Manufacturing workforce by male employees (who tend to have longer job tenure), and a lower transportability of skills in Manufacturing relative to other industries (particularly the service industries).

The Productivity Commission also points out that the job loss and tenure pattern for Manufacturing suggests that established jobs are more secure than in other industries and new jobs are less secure. As detailed in the 'Underutilisation' section, retrenchment rates in Manufacturing are relatively high. This would be expected to lead to relatively low average job tenure in Manufacturing in the case that all employees, regardless of tenure, faced an equal probability of retrenchment. As average job tenure in Manufacturing is relatively high,

this suggests that job losses are disproportionately incurred by employees with short job tenures.

Labour market trends

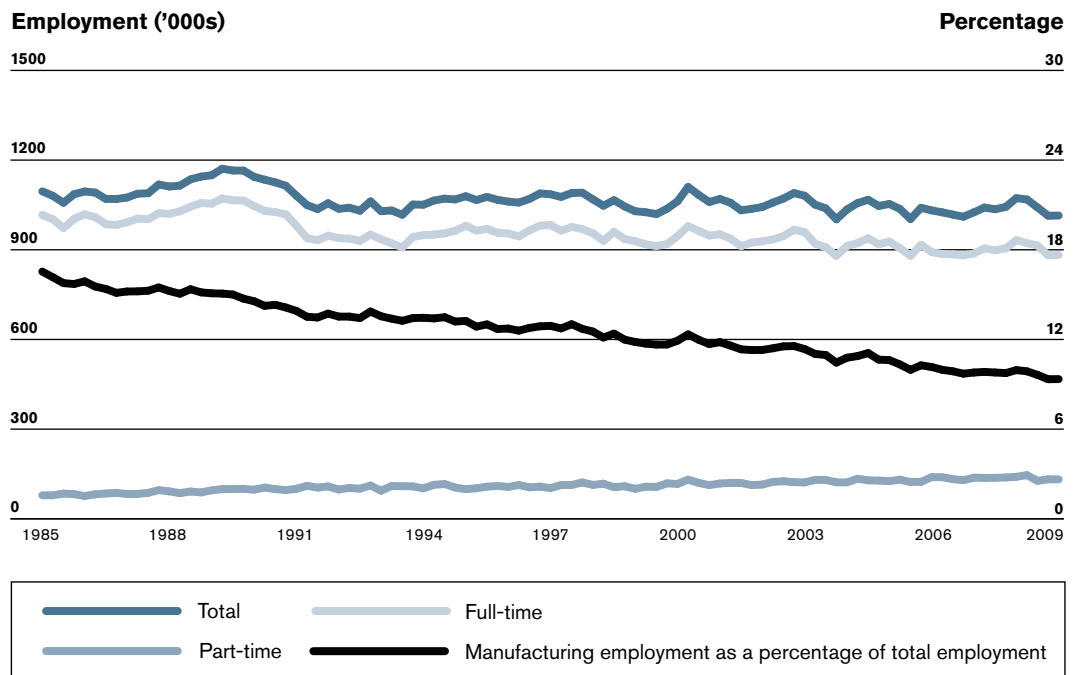
Trends in employment

Total employment in Manufacturing has been stagnant since the recession in the early 1990s (Figure 8). This is in contrast to employment growth in the rest of the economy, and, as a consequence, Manufacturing’s share of total employment has steadily decreased.

The slight decline in full-time employment over this period has been offset by a rise in part-time employment. Due to this shift to part-time employment, hours worked in Manufacturing in February 2009 were 8.0 per cent lower than they were in February 1994.

One concern with the relative decline in Manufacturing employment is that the workers who have been displaced from Manufacturing may not be able to find employment elsewhere. The Productivity Commission finds that the decline in Manufacturing is likely to have had short-term effects on unemployment, with Manufacturing having been a significant source of unemployment during the past two recessions. However, it argues that, over the longer run, there is no evidence of a relationship between structural change and the aggregate unemployment rate. Furthermore, it found that (over the period from 1981 to 1996) unemployment persistence did not appear to be any higher in the regions in which Manufacturing was initially important or in which Manufacturing experienced the greatest decline.

Figure 8: Employed persons in Manufacturing, February 1985 to February 2009



Note: Based on ANZSIC 2006 classification system.

Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Trends in employment by subdivision

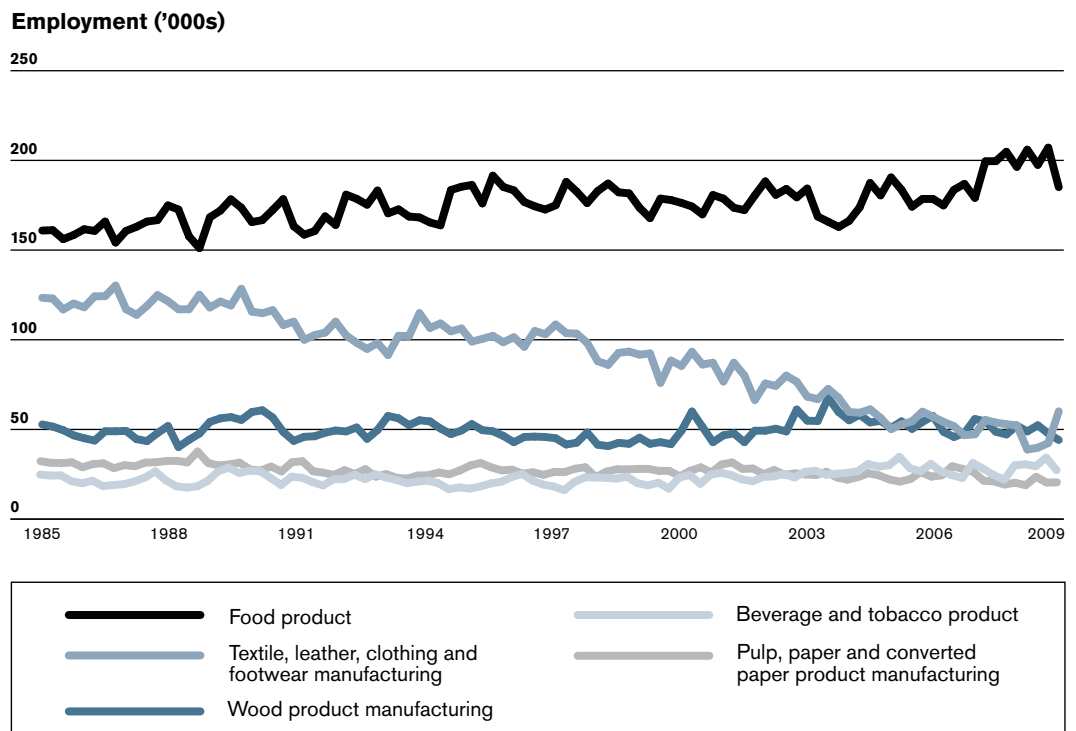
The most significant trend in employment in Manufacturing over the past couple of decades has been the large fall in employment in Textile, leather, clothing and footwear manufacturing (Figure 9a). From the beginning of 1990 to the beginning of 2009, employment in this subdivision fell from around 115,000 to around 60,000.

According to the Productivity Commission, employees in the Textile, leather, clothing and footwear manufacturing subdivision are the most vulnerable employees in Manufacturing to job losses in terms of their adjustment costs.³¹ Employees in this subdivision tend to be older, lower-skilled and more likely to be from a country where English is not the major language, all of which are characteristics that reduce their chances of gaining another job. They are also more likely to be married, which reduces their geographic mobility.

For other low-paid sectors in Manufacturing, employment has generally either been stagnant or declining in recent years. One exception is the Food product manufacturing subdivision, where employment increased by around 20,000 over the five years to February 2009.

The large fall in employment in Manufacturing during the 1990s recession was mainly concentrated in the Fabricated metal product, Transport equipment, and Machinery and equipment subdivisions (Figure 9c). This suggests that employees in these sectors may be the most vulnerable to the current economic downturn, although strong evidence of this has yet to emerge.

Figure 9a: Employed persons in Manufacturing by subdivision, February 1985 to February 2009



31 Productivity Commission, August 2003, pp. 66–67.

Figure 9b: Employed persons in Manufacturing by subdivision, February 1985 to February 2009

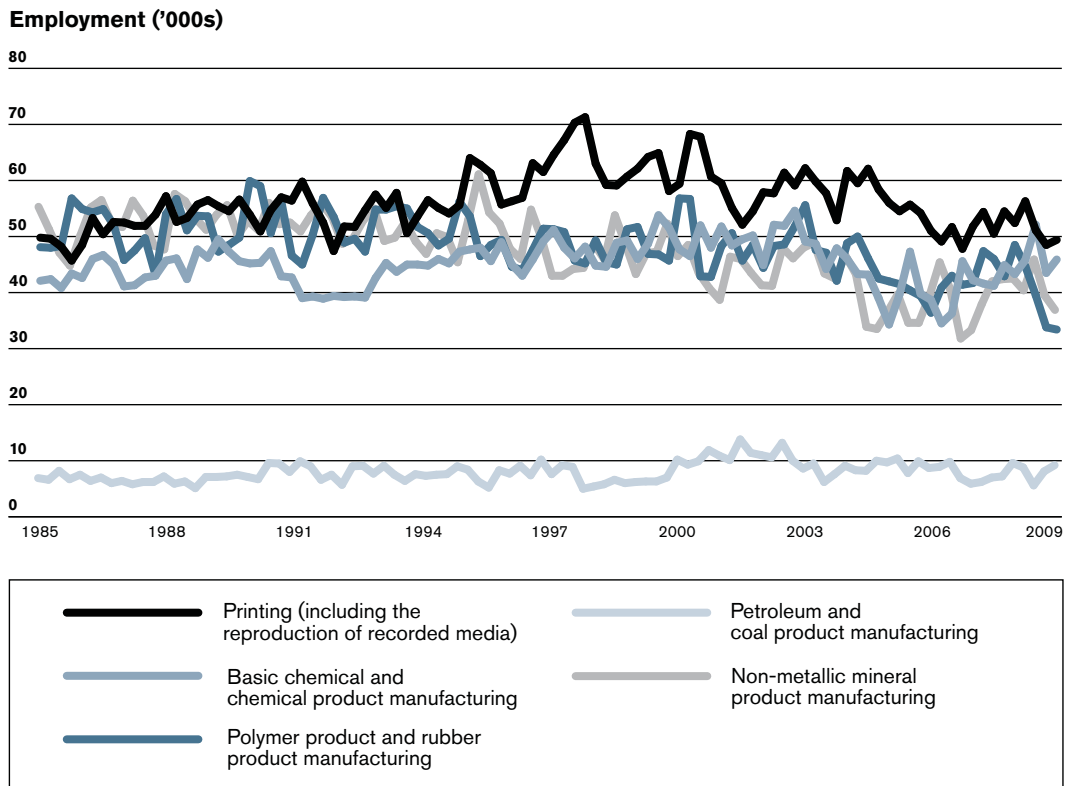
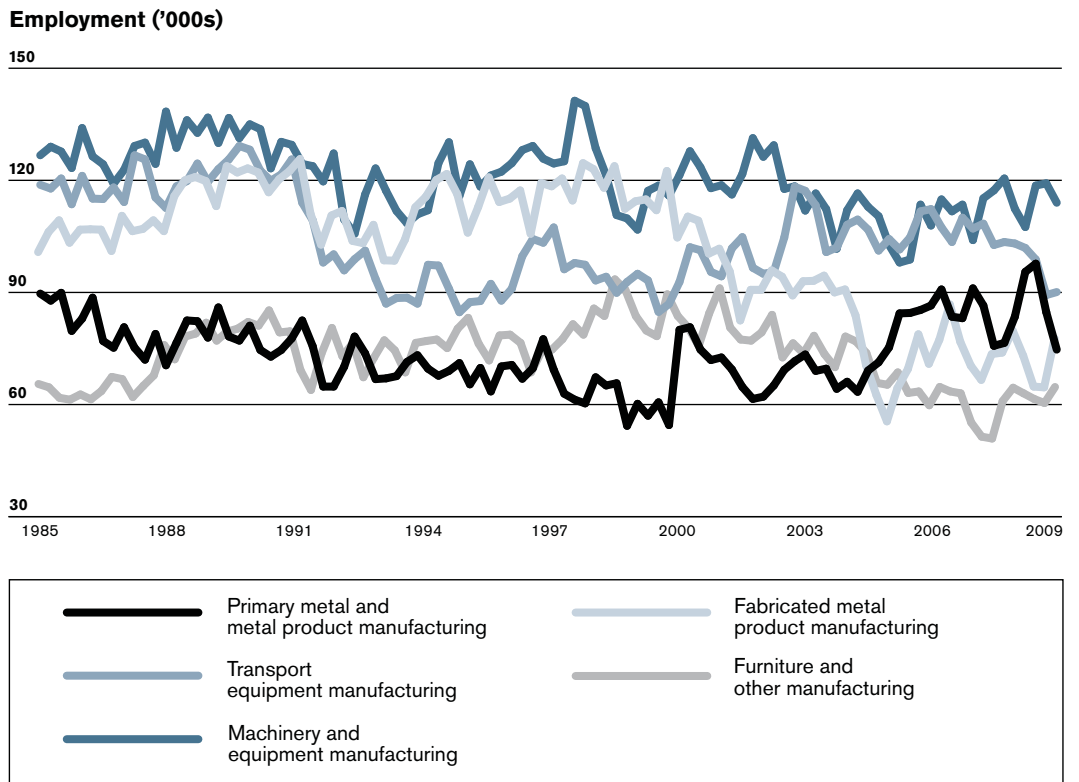


Figure 9c: Employed persons in Manufacturing by subdivision, February 1985 to February 2009



Note: Based on ANZSIC 2006 classification system.
 Source: ABS, *Labour Force, Australia, Detailed, Quarterly*, February 2009, Catalogue No. 6291.0.55.003, Canberra, ABS.

Labour productivity

Over the period from 1988–89 to 2007–08 as a whole, growth in labour productivity in Manufacturing (2.0 per cent per annum) was about the same as growth in labour productivity across the entire market sector (2.2 per cent per annum) (see Table 12).³² However, there were disparities in growth over particular periods, with growth in labour productivity in Manufacturing being sluggish in comparison during the early-to-mid-1990s and strong in comparison during the late-1990s and early-2000s.

Table 12: Labour and multifactor productivity

	Manufacturing		Market sector	
	Labour productivity	Multifactor productivity	Labour productivity	Multifactor productivity
1988–89 to 1993–94	1.7	0.3	2.2	1.0
1993–94 to 1998–99	2.3	0.9	3.3	2.3
1998–99 to 2003–04	3.2	1.8	2.2	1.1
2003–04 to 2007–08	0.6	–0.8	1.1	–0.3
1988–89 to 2007–08	2.0	0.6	2.2	1.1

Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Experimental Estimates of Industry Multifactor Productivity, 2007–08*, Catalogue No. 5260.0.55.002, Canberra, ABS.

A large amount of the increase in labour productivity in Manufacturing over this period can be explained by labour having a greater amount of capital to work with. Multifactor productivity for Manufacturing, which is the amount of output produced per combined unit of labour and capital, grew by only 0.6 per cent per annum from 1988–89 to 2007–08 (Table 12).

In the 1990s, productivity growth in Manufacturing was low relative to both its long-term growth rate and to the rest of the economy. The Productivity Commission considered several explanations for why this occurred, such as industrial-relations reform, compositional changes within the industry, and the impact of research and development.³³ It concluded that there did not appear to be a decisive factor underlying the slowdown. Similarly, the strong growth in labour productivity over the late 1990s and early 2000s may not represent the influence of any particular factor, but simply the return of productivity growth in Manufacturing to its long-run historical path. The Productivity Commission also found that, of the 12 industries in the market sector, Manufacturing has the lowest relative variance in multifactor and labour productivity growth.³⁴ This suggests that productivity in Manufacturing is less sensitive than other industries to short-term demand and supply shocks, and, therefore, that it may be less affected by the current downturn in the economy.

In terms of the subdivisions in Manufacturing, the Productivity Commission finds that productivity growth rates are rarely maintained at high or low levels, with strong productivity performers in one period often becoming weak productivity performers in the next (and vice versa).³⁵ Even within a given period, it finds few factors that separate the experiences of strong and weak productivity performers.

³² The market sector excludes Property and business services, Government administration and defence, Education, Health and community services, and Personal and other services. These are excluded because their outputs are not marketed and/or because their outputs are derived either wholly or primarily by using either deflated input cost data or hours worked as indicators of output. See the explanatory notes for ABS, Australian National Accounts, Catalogue No. 5204.0, Canberra, ABS.

³³ Productivity Commission, August 2003, pp. 174–180.

³⁴ Productivity Commission, August 2003, pp. 169–170.

³⁵ Productivity Commission, August 2003, pp. 162–167.

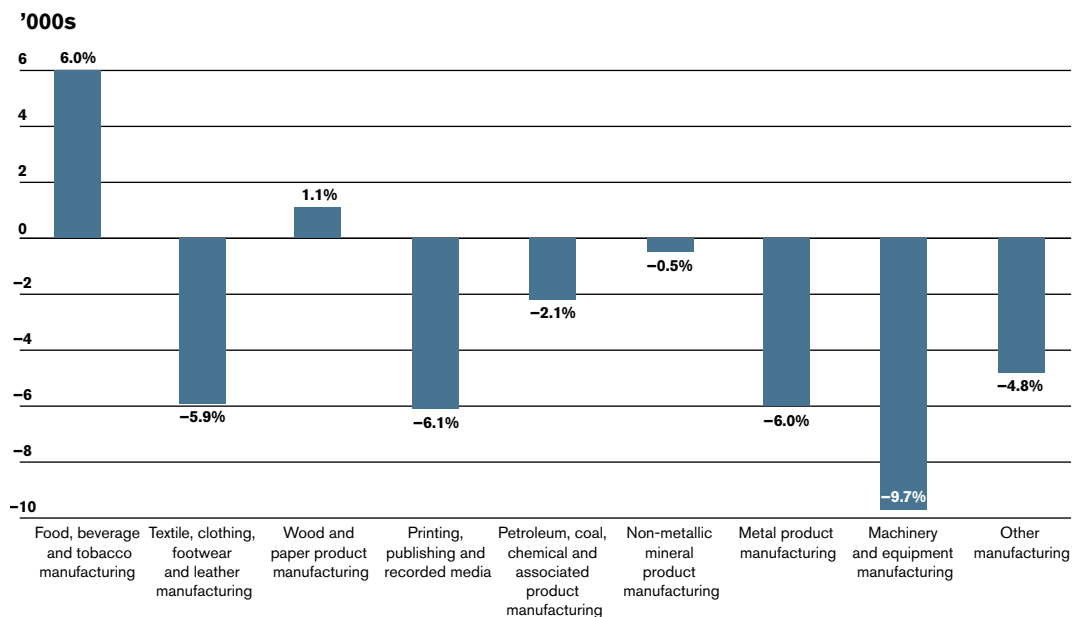
Projected employment growth

In July 2008, the Department of Education, Employment and Workplace Relations (DEEWR) predicted that, in the five years to 2012–13, employment would decline in Manufacturing by an average of 0.5 per cent per annum (compared to growth of 1.5 per cent per annum across all industries). This equates to a loss of over 28,000 jobs. DEEWR noted that 'considerable risk is attached to this outlook due to strong global competition and the future performance of the Construction and Mining industries, both of which flow through to Manufacturing'.³⁶

Employment was expected to decline in seven of the nine subdivisions within Manufacturing over this period. The outlook for the sectors that are relatively 'low-paid' was somewhat mixed. In percentage terms, the largest falls were expected in Textile, clothing, footwear and leather manufacturing (2.4 per cent per annum), and Other manufacturing (1.7 per cent per annum) (see Figure 10). However, since these subdivisions are relatively small, this amounted to a total expected loss of only 10,700 jobs. Furthermore, the two subdivisions in which employment was actually expected to increase were also relatively low-paid – Food, beverage and tobacco manufacturing (up by 6000) and Wood and paper product manufacturing (up by 1100). Overall, these figures suggest that there was expected to be a slight decline in employment within the 'low-paid' sectors of Manufacturing.

Given developments since these employment projections were released, they may now be considered to be on the optimistic side. It might now be expected that employment will fall in all subdivisions over the medium term, in some cases quite considerably, with the possible exception of Food, beverage and tobacco manufacturing (since it is the least affected by the economic cycle).

Figure 10: Expected employment growth over five years to 2012–13 – Department of Education, Employment and Workplace Relations



Note: Based on ANZSIC 1993 classification system.

Source: Australian Government, *Employment Outlook for Manufacturing*, Canberra, AGPS, July 2008.

4 Earnings and wage instruments

Earnings

Average earnings

As of November 2008, average weekly earnings in Manufacturing (\$1079.40 per week) were 19 per cent higher than the average across all industries (Table 13). However, the higher average earnings for manufacturing workers relative to all industries are the result of a higher average number of hours worked. For full-time adults, average weekly ordinary-time earnings (AWOTE) in Manufacturing were lower than the average across all industries.

Manufacturing also hires a relatively high percentage of males, who on average tend to earn more than females. Looking only at AWOTE for full-time adult males, the shortfall in average earnings in Manufacturing relative to all industries becomes slightly larger.

Table 13: Average weekly earnings, November 2008

	Manufacturing \$	All industries \$	Ratio of manufacturing to all industries \$
Average weekly earnings	1,064.50	901.70	1.18
Average weekly ordinary time earnings for full-time adults	1,089.40	1,151.40	0.95
Average weekly ordinary time earnings for full-time adults – males	1,121.30	1,228.00	0.91

Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Average Weekly Earnings*, November 2008, Catalogue No. 6302.0, Canberra, ABS.

Distribution of earnings

In terms of hourly wage rates, data from the Employee Earnings and Hours (EEH) survey show that adult employees in Manufacturing tend to be more concentrated towards the lower end of the wage distribution than adult employees as a whole, but the difference is only slight (Figure 11).³⁷ The data indicate that as of May 2006, 1.9 per cent of adult employees in Manufacturing earned up to \$13 per hour (the Federal Minimum Wage [FMW] as of May 2006 was \$12.75 per hour). This is slightly less than the percentage across all industries (2.1 per cent). However, the data indicate that Manufacturing had a higher-than-average percentage of employees earning between \$13 and \$19 per hour.

McGuinness, Freebairn and Mavromaras from the Melbourne Institute found that using data from the Household Income and Labour Dynamics in Australia (HILDA) Survey yields higher estimates of the incidence of low pay than using the EEH data.³⁸ This may be because the latter survey omits some 'cash in hand' payments.

Using 2004 data from the HILDA Survey, McGuinness, Freebairn and Mavromaras showed that the incidence of low pay in Manufacturing is slightly above the average across all industries. (A low-paid worker was defined as someone earning within 10 per cent of the

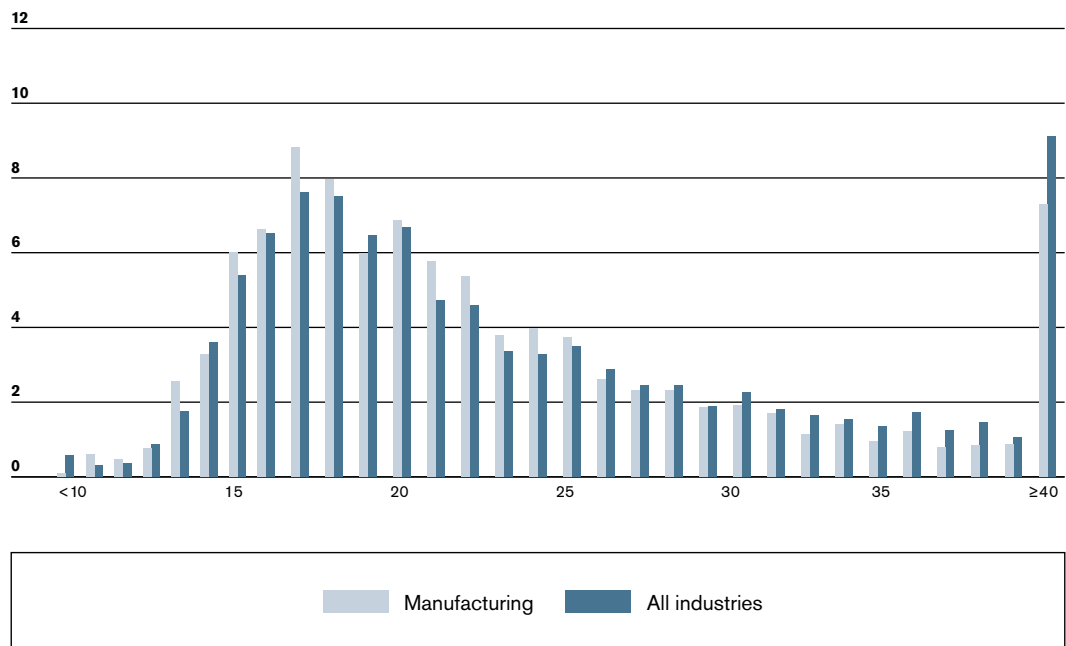
³⁷ Part of the difference is attributable to employees in Manufacturing being less likely to receive a casual loading. In the EEH survey, adult employees are defined as any employee that is *not a junior employee*, where a junior employee is an employee who is under 21 years of age and earns less than the adult rate for their occupation.

³⁸ S. McGuinness, J. Freebairn and K. Mavromaras, *Characteristics of Minimum Wage Employees*, Research Report No. 2/07, Melbourne Institute of Applied Economic and Social Research, report commissioned by AFPC, 2007.

FMW.) They found that, for full-time adult employees in Manufacturing, 7.4 per cent were paid a low wage, which was roughly the same as the average across all industries (7.2 per cent). However, due to the large number of full-time employees in Manufacturing, it accounted for by far the highest percentage of full-time adult low-wage earners of any industry, at 17.4 per cent. For part-time adult employees in Manufacturing, 20.4 per cent were paid a low wage, which was a little higher than the average across all industries (17.7 per cent).

Figure 11: Hourly ordinary-time cash earnings for adult employees (by \$1 intervals), May 2006

Percentage of employees



Note: Based on ANZSIC 1993 classification system. Employees are segmented using dollar intervals – e.g. \$15 includes employees receiving over \$14 per hour and equal to or less than \$15 per hour.

Source: ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS, unpublished data.

Junior rates

According to data from the EEH survey, only 2.0 per cent of employees in Manufacturing were paid 'junior' rates as of May 2006 (i.e. they were under 21 years of age and were not paid the full adult rate for their occupation).³⁹ Of the employees in Manufacturing earning junior rates, around three-quarters were estimated to be earning up to \$13 per hour. This is also the case for junior employees as a whole.

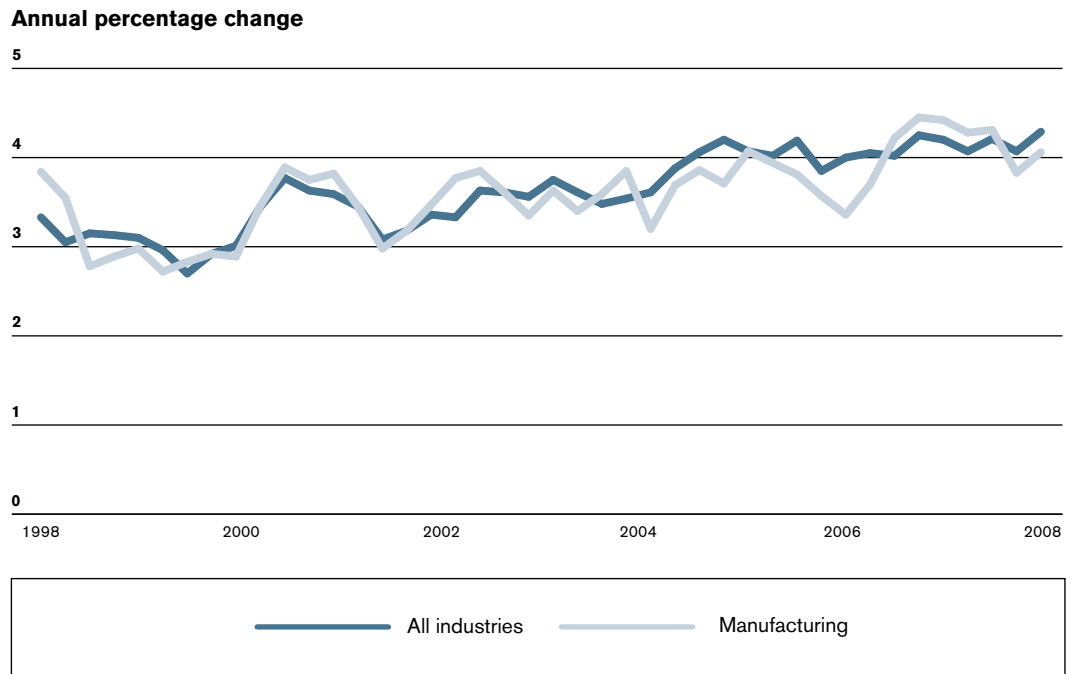
Recent wages growth

Growth in total hourly rates of pay excluding bonuses in Manufacturing has broadly tracked growth in total hourly rates of pay excluding bonuses across all industries since the introduction of the ABS' Wage Price Index in the September quarter 1997 (Figure 12). In fact, both series have grown at an annualised rate of 3.6 per cent over that period, and

³⁹ ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS, unpublished data. In the EEH survey, junior employees also include employees who are under 21 years of age and earning apprentice or trainee wages.

year-on-year growth in the Manufacturing index has tracked year-on-year growth in the All Industries index more closely than any other industry.

Figure 12: Total hourly rates of pay excluding bonuses



Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Labour Price Index*, December 2008, Catalogue No. 6345.0, Canberra, ABS.

Growth in measures of average weekly earnings are affected by both the number of hours worked and the quality of the workforce. Average weekly ordinary-time earnings for full-time adults grew at an annualised rate of 4.7 per cent from August 1997 to November 2008, compared to annualised growth in total hourly rates of pay of 3.6 per cent. Since the total hourly rates of pay measures are designed to measure changes in wages for a given quantity and quality of labour, this difference indicates that the skill level of the workforce has improved. Average weekly earnings grew at a slower annualised rate of 4.3 per cent over the same period, reflecting the shift to part-time employment. In both cases, the growth rates were slightly higher than those across all industries.

Wage instruments and bargaining

Methods of setting pay

As of May 2006, almost half of all employees in Manufacturing (47.4 per cent) had their pay set by an individual arrangement (Table 14). Only 10.6 per cent of employees in the industry were paid the award rate of pay, well below the corresponding percentage for all employees (19.0 per cent).

Table 14: Methods of setting pay, May 2006

	Percentage of employed persons in Manufacturing	Percentage of employed persons in all industries
Award only	10.6	19.0
Collective agreement	37.7	41.2
Individual arrangement	47.4	34.8
Working proprietor of incorporated business	4.3	5.1
Total	100.0	100.0

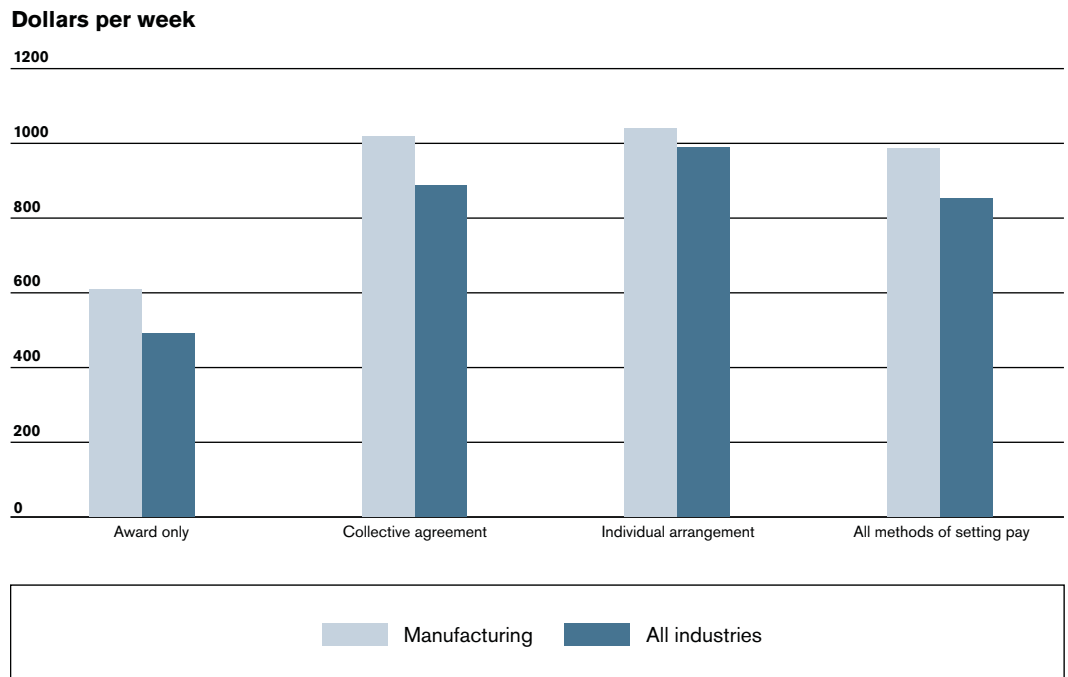
Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS.

As is the case with most industries, employees who have the main part of their pay set by a collective agreement or individual arrangement earn considerably more than employees who are paid the award rate of pay (Figure 13).

As of May 2006, employees in Manufacturing who were paid the award rate of pay earned, on average, about \$100 per week more than all award-reliant employees (\$609 per week compared to \$491.10 per week). However, this result is due to the longer hours worked by employees in Manufacturing. In terms of hourly wage rates, adult employees in Manufacturing that were receiving the award rate of pay tended to be lower-paid than award-reliant adult employees as a whole (Figure 14).⁴⁰

Figure 13: Average weekly total cash earnings by method of setting pay, May 2006

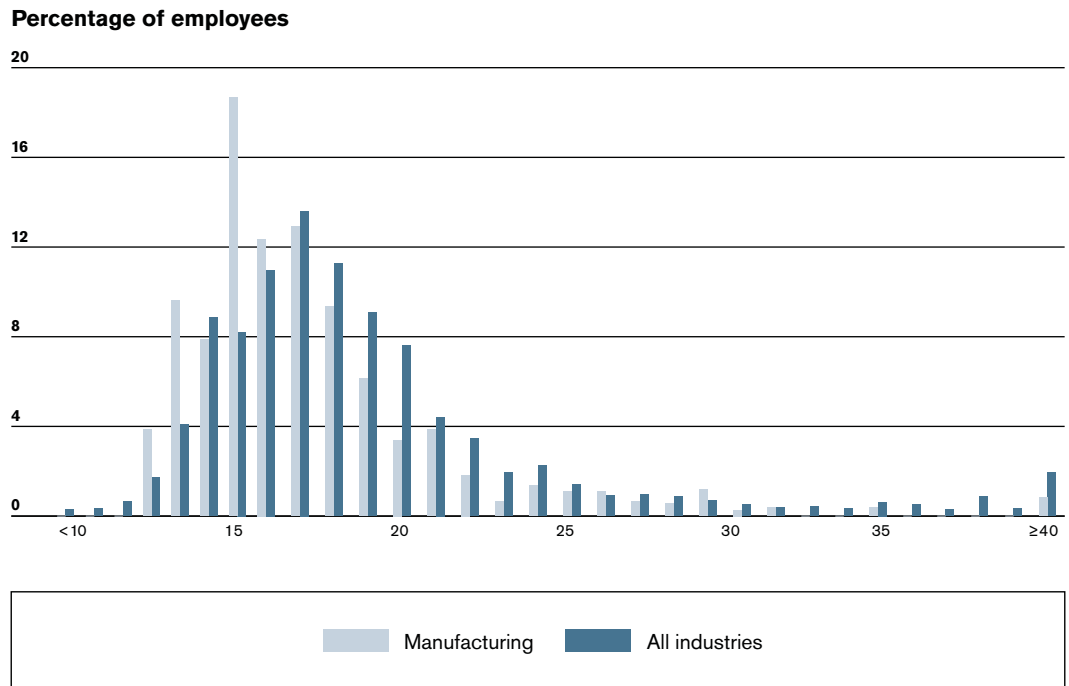


Note: Based on ANZSIC 1993 classification system.

Source: ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS.

40 This is in part because employees in Manufacturing are less likely to receive a casual loading.

Figure 14: Hourly ordinary-time cash earnings for adult employees receiving the award rate of pay (by \$1 intervals), May 2006



Note: Based on ANZSIC 1993 classification system. Employees are segmented using dollar intervals – e.g. \$15 includes employees receiving over \$14 per hour and equal to or less than \$15 per hour.

Source: ABS, *Employee Earnings and Hours, Australia, May 2006*, Catalogue No. 6306.0, Canberra, ABS, unpublished data.

Wage negotiations

Recent changes in minimum wages have been similar to the average pay increases negotiated under agreements. Average annualised wage increases per employee for federal enterprise agreements in Manufacturing, which cover around 200,000 employees, have remained close to 4 per cent since the start of the decade.⁴¹ With the exception of the 2007 adjustment, increases in the FMW/C14 award rate have ranged from 3½ per cent to 4½ per cent on an annualised basis over that period.

Many of the collective agreements in Manufacturing expire between March and June this year.⁴²

41 Department of Education, Employment and Workplace Relations, *Trends in Federal Enterprise Bargaining* <<http://www.workplace.gov.au/workplace/Publications/ResearchStats/Agreement/TrendsInFederalEnterpriseBargaining.htm>>. Up to late-2005, average annualised wage increases for employees in metals manufacturing were around half a percentage point higher than those for employees in non-metals manufacturing, but this gap has since closed.

42 M. Skulley, 'Business braces for wages battle', *Australian Financial Review*, 5 January 2009, p. 6. At the time of writing, the Australian Manufacturing Workers Union had flagged it will seek increases that at least match the expected rate of CPI inflation of between 3 and 3½ per cent.

Notes

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