

7 Manufacturing, Mining, and Energy



MANUFACTURING

Overview

Manufacturing remains the most significant industry in terms of its contribution to the State's Gross Domestic Product (GDP) at factor cost. However, its share of GDP has been steadily declining, dropping from 23.1 per cent in 1983-84 to 20.7 per cent in 1989-90.

A similar pattern occurred at the national level with manufacturing's share of GDP at factor cost dropping from 18.5 per cent to 16.3 per cent.

Victoria compared with Australia

During 1989-90, Victorian manufacturing industry's contribution to the Australian aggregates was 32.0 per cent of establishments, 34.1 per cent of employment, 34.2 per cent of wages and salaries paid, and 32.5 per cent of turnover. The dominant industry subdivision in Victoria, in terms of contribution to national aggregates, was Clothing and footwear. This industry represented 47.4 per cent of the total Australian establishments, 53.2 per cent of employment, 52.8 per cent of wages and salaries paid, and 51.0 per cent of turnover.

Victorian manufacturing industry invested \$2,780m in private new fixed capital expenditure during 1989-90. This compared with \$2,698m in 1988-89.

Number of establishments

Over the period 1983-84 to 1989-90, the number of Victorian manufacturing establishments with four or more persons employed increased from 8,404 to 9,679 (15.2 per cent).

The largest increase in the number of manufacturing establishments occurred between 1986-87 (9,109 establishments operating) and 1987-88 (9,858 operating).

Employment

During May 1990, manufacturing employment comprised 18.2 per cent of the Victorian employed labour force, compared with 21.4 per cent in May 1983. In May 1991, manufacturing employment comprised 18.3 per cent of the Victorian employed labour force.

Between 1983-84 and 1989-90 employment in the Victorian manufacturing sector decreased from 354,409 persons to 336,712, a decrease of 5.0 per cent. The year to year movements have fluctuated considerably, ranging from an increase of 2.9 per cent in 1987-88 to a decrease of 8.3 per cent in 1989-90.

Between 1983-84 and 1989-90, employment decreased in seven of the twelve ASIC subdivisions and increased in five.

Major decreases occurred in the Textiles (down 4,582 or 25.7 percent), Clothing and footwear (down 8,538 or 19.8 per cent), Chemical, petroleum and coal products (down 2,437 or 12.3 per cent), and Transport equipment (down 3,462 or 6.4 per cent) subdivisions. Lesser decreases occurred in the Basic metal products, Other machinery and equipment, and Food, beverages and tobacco subdivisions.

The increase in employment of 2,462 persons (13.3 per cent) in the Wood, wood products and furniture subdivision was the largest in the period under review. Smaller increases occurred in the Non-metallic mineral products, Miscellaneous manufacturing, Fabricated metal products, and Paper, paper products, printing and publishing subdivisions.

Turnover and value added

Turnover of Victorian manufacturing establishments at current prices increased by 73.6 per cent between 1983-84 and 1989-90. Value added increased by 32.4 per cent between 1983-84 and 1986-87 in current price terms. Data for value added by Victorian manufacturing establishments were not collected in respect of 1987-88 and 1988-89, and are not yet available in respect of 1989-90.

Within individual industry subdivisions, the greatest percentage increase in turnover at current prices was 111.2 per cent in the Non-metallic mineral products subdivision, followed by the Basic metal products subdivision with an increase of 82.6 per cent.

Wages and salaries

Wages and salaries paid increased by 2.4 per cent (from \$8,885m to \$9,100m) over the period 1988-89 to 1989-90. By comparison, turnover at current prices increased by 1.0 per cent over the same period. Between 1983-84 and 1989-90 wages and salaries increased by 50.2 per cent, while turnover at current prices increased by 73.6 per cent.

Major manufacturing industries

In 1989-90, the Transport equipment industry made the greatest contribution to Victorian manufacturing industry in terms of employment, providing 14.9 per cent of the total. In terms of turnover, the largest industry was Food, beverages and tobacco, which contributed 19.3 per cent of the total for Victorian manufacturing.

The Wood, wood products, and furniture, and Fabricated metal products industry subdivisions contained the greatest number of manufacturing establishments, with 1,415 and 1,343, respectively.

Industry profile - Textiles Victoria (ASIC subdivision 23)

At 30 June 1990, there were 287 establishments classified to the Textiles ASIC subdivision. These establishments contributed 3.9 per cent of Victoria's manufacturing employment. Victorian based establishments accounted for 48.4 per cent of employment within the Australian Textiles industry.

Between 1984 and 1990, employment within the subdivision in Victoria decreased by 25.7 per cent while the number of manufacturing establishments decreased by 2.7 per cent.

Wages per person employed rose by 62.5 per cent during this period.

During the six year period under review, the Textile fibres, yarns and woven fabrics group showed an overall decrease in the number of establishments and employment, by 3.2 and 36.4 per cent respectively. The Other textile products group experienced a decrease of 2.4 per cent in the number of establishments and a decrease in employment of 3.9 per cent. Turnover for both industry groups increased, by 44.6 per cent for Textile fibres, yarns and woven fabrics, and 74.5 per cent for Other textile products.

TABLE 7.1 MANUFACTURING ACTIVITY, VICTORIA, 1901 TO 1967-68

Year	Manufacturing establishments	Employment (a)	Wages and salaries paid (b)	Turnover (c)	Materials and fuel used	Value added (d)	Fixed capital expenditure less disposals (e)
	number	number	\$m	\$m	\$m	\$m	\$m
1901	3,249	66,529	n.a.	n.a.	n.a.	n.a.	25
1911	5,126	111,948	18	84	51	32	28
1920-21	6,532	140,743	43	212	135	77	71
1932-33	8,612	144,428	42	204	122	82	136
1946-47	10,949	265,757	156	631	368	263	244
1953-54	15,533	331,277	472	1,971	1,154	817	679
1960-61	17,173	388,050	776	3,332	1,914	1,418	1,642
1965-66	17,980	439,149	1,077	4,625	2,597	2,028	2,386
1967-68	18,030	449,945	1,244	5,351	2,957	2,395	2,685

(a) Average over whole year, including working proprietors.

(b) Excludes drawings of working proprietors.

(c) Output, excluding other revenue.

(d) Value added in process of production (ie. value of output less value of materials and fuel, etc, used).

(e) Comprises land, buildings, plant, and machinery.

TABLE 7.2 MANUFACTURING ACTIVITY, VICTORIA, 1968-69 TO 1989-90

	Manufacturing establishments (a)	Employment (b)	Wages and salaries paid (c)	Turnover	Purchases, transfers in and selected expenses	Value added (d)	Fixed capital expenditure less disposals
	number	number	\$m	\$m	\$m	\$m	\$m
1968-69	11,563	440,236	1,342	6,336	3,861	2,542	278
1969-70	11,393	450,352	1,497	6,998	4,307	2,799	300
1980-81	8,726	391,801	5,032	23,856	14,814	9,440	712
1981-82	8,916	388,872	5,757	27,208	17,031	10,578	1,046
1982-83	8,392	349,679	5,950	27,747	17,060	10,649	998
1983-84	8,404	354,409	6,059	30,081	18,405	11,779	779
1984-85	8,499	357,989	6,551	33,436	20,782	13,154	1,035
1986-87	9,107	354,771	7,390	39,829	24,591	15,596	n.a.
1987-88	9,858	367,603	8,302	45,577	n.a.	n.a.	n.a.
1988-89	9,771	367,376	8,885	51,680	n.a.	n.a.	n.a.
1989-90 p	9,679	338,886	9,100	52,219	n.y.a.	n.y.a.	n.y.a.

(a) All manufacturing establishments in operation at 30 June, owned by multi-establishment management units and single establishment management units with four or more persons employed. Note that the 1968-69 and 1969-70 figures include establishments with fewer than four employees.

(b) At 30 June, including working proprietors.

(c) Excludes drawings of working proprietors.

(d) Value added is calculated by adding to turnover the increase (or deducting the decrease) in value of stock and deducting the value of purchase and selected items of expense.

Note: There was no manufacturing census conducted in respect of 1985-86.

TABLE 7.3 MANUFACTURING ESTABLISHMENTS (a) BY INDUSTRY SUBDIVISION, VICTORIA, 1989-90p

ASIC code	Industry subdivision	Establishments operating at 30 June	Employment (b)	Wages and salaries paid (c)	Turnover
		number	'000	\$m	\$m
21	Food, beverages, and tobacco	1,097	47.3	1,173	10,095
23	Textiles	287	13.2	361	1,914
24	Clothing and footwear	995	34.7	677	2,574
25	Wood, wood products, and furniture	1,415	21.0	497	2,043
26	Paper, paper products, printing, and publishing	1,085	34.4	1,002	4,514
27	Chemical, petroleum, and coal products	297	17.3	590	4,725
28	Non-metallic mineral products	404	11.5	362	2,114
29	Basic metal products	213	11.7	408	3,864
31	Fabricated metal products	1,343	32.0	842	3,996
32	Transport equipment	458	50.5	1,415	7,900
33	Other machinery and equipment	1,254	41.7	1,153	5,407
34	Miscellaneous manufacturing	831	23.7	620	3,074
Total		9,679	338.9	9,100	52,219

(a) All manufacturing establishments owned by multi-establishment management units and single establishment manufacturing management units with four or more persons employed.

(b) At 30 June, including working proprietors.

(c) Excludes drawings of working proprietors.

TABLE 7.4 MANUFACTURING ESTABLISHMENTS (a) BY INDUSTRY SUBDIVISION, PERCENTAGE OF AUSTRALIAN TOTALS, VICTORIA, 1989-90p
(per cent)

ASIC code	Industry subdivision	Establishments operating at 30 June	Employment (b)	Wages and salaries paid (c)	Turnover
21	Food, beverages, and tobacco	30.3	28.6	18.9	30.9
23	Textiles	40.9	48.4	51.4	48.4
24	Clothing and footwear	47.4	53.2	52.8	51.0
25	Wood, wood products, and furniture	29.7	26.9	28.0	29.8
26	Paper, paper products, printing, and publishing	31.6	33.4	33.9	34.0
27	Chemical, petroleum, and coal products	33.9	35.6	36.9	33.6
28	Non-metallic mineral products	29.2	27.5	29.2	27.2
29	Basic metal products	32.9	17.7	17.7	18.9
31	Fabricated metal products	28.7	31.7	32.7	32.0
32	Transport equipment	28.0	47.4	48.4	47.3
33	Other machinery and equipment	33.0	32.2	32.8	34.8
34	Miscellaneous manufacturing	32.0	38.4	39.1	38.8
Total manufacturing		31.9	34.0	34.3	33.1

(a) All manufacturing establishments in operation at 30 June, owned by multi-establishment management units and single establishment management units with four or more persons employed.

(b) At 30 June, including working proprietors.

(c) Excludes drawings of working proprietors.

MANUFACTURING ESTABLISHMENTS: SELECTED VARIABLES
BY INDUSTRY SUBDIVISION,
PERCENTAGE OF AUSTRALIAN TOTALS, 1989-90

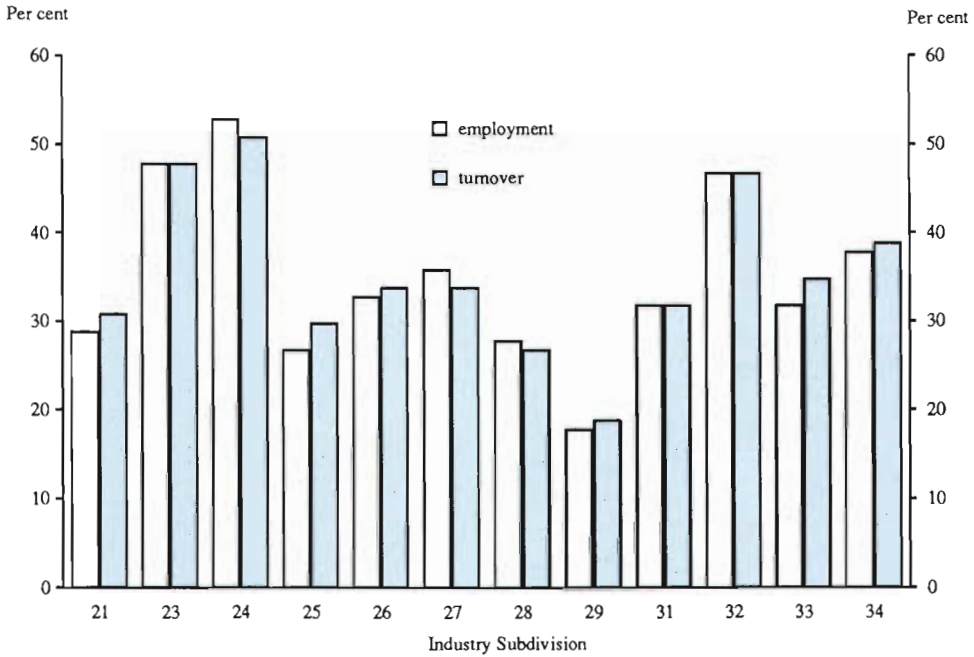


TABLE 7.5 MANUFACTURING ESTABLISHMENTS (a), 1989-90p

State or Territory	Establishments operating at 30 June	Employment (b)	Wages and salaries paid (c)	Turnover
	number	number	\$m	\$m
New South Wales	10,092	335,205	9,405	54,313
Victoria	9,679	338,886	9,100	52,219
Queensland	4,664	124,644	3,009	22,234
South Australia	2,374	98,356	2,468	14,630
Western Australia	2,547	66,455	1,765	12,383
Tasmania	658	25,365	682	4,044
Northern Territory	131	2,791	85	572
Australian Capital Territory	140	3,522	102	345
Total	30,285	995,224	26,615	160,741

(a) All manufacturing establishments in operation at 30 June, owned by multi-establishment management units and single establishment management units with four or more persons employed.

(b) At 30 June, including working proprietors.

(c) Excludes drawings of working proprietors.

TABLE 7.6 NUMBER OF MANUFACTURING ESTABLISHMENTS (a) BY INDUSTRY SUBDIVISION, VICTORIA

ASIC code	Industry subdivision	1983-84	1984-85	1986-87	1987-88	1988-89	1989-90 ^p
21	Food, beverages, and tobacco	991	1,003	1,102	1,242	1,136	1,097
23	Textiles	295	304	300	313	302	287
24	Clothing and footwear	932	955	1,030	1,089	1,059	995
25	Wood, wood products, and furniture	1,086	1,124	1,261	1,363	1,385	1,415
26	Paper, paper products, printing, and publishing	889	899	947	1,023	1,071	1,085
27	Chemical, petroleum, and coal products	288	278	284	301	309	297
28	Non-metallic mineral products	390	388	421	439	378	404
29	Basic metal products	177	175	203	202	214	213
31	Fabricated metal products	1,079	1,074	1,139	1,283	1,305	1,343
32	Transport equipment	381	383	403	421	451	458
33	Other machinery and equipment	1,162	1,173	1,189	1,317	1,271	1,254
34	Miscellaneous manufacturing	734	743	828	865	890	831
	Total	8,404	8,499	9,107	9,858	9,771	9,679

(a) See footnote to Table 7.2.

MANUFACTURING ESTABLISHMENTS: INDUSTRY SUBDIVISION, ESTABLISHMENTS AS A PERCENTAGE OF TOTAL ESTABLISHMENTS, VICTORIA, 1989-90

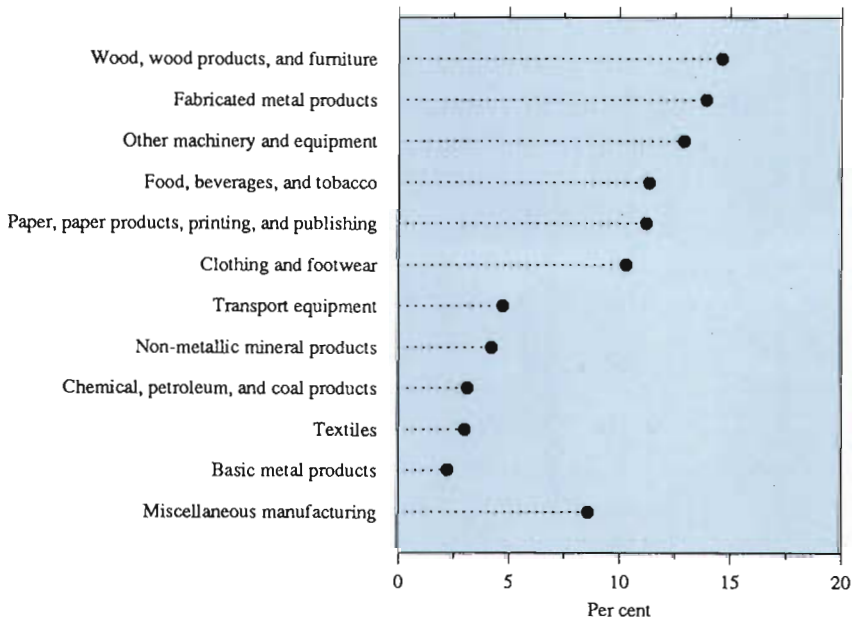


TABLE 7.7 PERSONS EMPLOYED (a) IN MANUFACTURING ESTABLISHMENTS, BY INDUSTRY SUBDIVISION, VICTORIA

ASIC code	Industry subdivision	1983-84	1984-85	1986-87	1987-88	1988-89	1989-90p
21	Food, beverages, and tobacco	48,604	49,246	48,802	51,700	52,389	47,344
23	Textiles	17,794	18,009	19,129	19,420	17,417	13,212
24	Clothing and footwear	43,189	42,926	41,475	40,145	38,251	34,651
25	Wood, wood products, and furniture	18,520	19,466	21,215	21,952	22,037	20,982
26	Paper, paper products, printing, and publishing	34,106	34,201	35,221	36,078	37,453	34,443
27	Chemical, petroleum, and coal products	19,699	19,759	19,329	19,568	19,021	19,268
28	Non-metallic mineral products	10,472	10,280	10,625	11,001	11,491	11,461
29	Basic metal products	12,747	12,579	13,431	14,734	12,984	11,703
31	Fabricated metal products	30,163	29,789	30,445	32,930	32,787	32,007
32	Transport equipment	53,927	55,403	47,959	50,401	52,292	50,465
33	Other machinery and equipment	42,271	43,295	43,773	45,162	45,253	41,700
34	Miscellaneous manufacturing	22,917	23,036	23,367	24,512	26,001	23,660
	Total	354,409	357,989	354,771	367,603	367,376	338,886

(a) Employment at 30 June including working proprietors.

TABLE 7.8 MANUFACTURING ESTABLISHMENTS (a), TYPE OF EMPLOYMENT, VICTORIA

At 30 June	Working proprietors	Administrative, office, sales, and distribution employees (b)	Production and all other employees (b)	Total
1982	3,475	98,178	287,219	388,872
1983	2,869	89,517	257,293	349,679
1984	2,906	88,879	262,624	354,409
1985	2,630	88,809	266,550	357,989
1987	1,954	98,059	254,758	354,771
1988	2,815		364,788	367,603
1989	2,484		364,892	367,376
1990p	2,174		336,712	338,886

(a) See footnote to Table 7.2.

(b) Separate data is not available for 1987-88, 1988-89 and 1989-90.

TABLE 7.9 MANUFACTURING ESTABLISHMENTS (a), TYPE OF EMPLOYMENT BY INDUSTRY SUBDIVISION, VICTORIA, AT 30 JUNE 1990p

ASIC code	Industry subdivision	Working proprietors	Employees (b)	Total
21	Food, beverages, and tobacco	508	46,836	47,344
23	Textiles	61	13,131	13,212
24	Clothing and footwear	264	34,387	34,651
25	Wood, wood products, and furniture	412	20,570	20,982
26	Paper, paper products, printing, and publishing	173	34,260	34,433
27	Chemical, petroleum, and coal products	14	17,254	17,268
28	Non-metallic mineral products	77	11,384	11,461
29	Basic metal products	28	11,675	11,703
31	Fabricated metal products	259	31,748	32,007
32	Transport equipment	98	50,367	50,465
33	Other machinery and equipment	165	41,535	41,700
34	Miscellaneous manufacturing	115	23,545	23,660
	Total	2,174	336,712	338,886

(a) See footnote to Table 7.2.

(b) See footnote to Table 7.8.

TABLE 7.10 MANUFACTURING ESTABLISHMENTS (a), TURNOVER (b) BY INDUSTRY SUBDIVISION, VICTORIA (\$m)

ASIC code	Industry subdivision	1983-84	1984-85	1986-87	1987-88	1988-89	1989-90 _p
21	Food, beverages, and tobacco	6,266	6,673	7,734	8,884	9,767	10,095
23	Textiles	1,219	1,370	1,750	1,963	2,110	1,914
24	Clothing and footwear	1,926	2,057	2,392	2,444	2,742	2,574
25	Wood, wood products, and furniture	1,115	1,292	1,587	1,798	1,995	2,043
26	Paper, paper products, printing, and publishing	2,499	2,833	3,612	4,097	4,743	4,514
27	Chemical, petroleum, and coal products	2,668	2,876	3,400	3,837	4,387	4,725
28	Non-metallic mineral products	1,001	1,188	1,393	1,597	1,956	2,114
29	Basic metal products	2,116	2,397	3,082	3,460	3,922	3,864
31	Fabricated metal products	2,037	2,186	2,548	3,113	3,700	3,996
32	Transport equipment	4,269	5,159	5,624	6,762	7,514	7,900
33	Other machinery and equipment	3,055	3,325	4,253	4,809	5,542	5,407
34	Miscellaneous manufacturing	1,911	2,080	2,457	2,814	3,297	3,074
Total		30,081	33,436	39,829	45,577	51,675	52,219

(a) See footnote to Table 7.2.

(b) Turnover includes sales of goods whether produced by an establishment or not, transfers out of goods to other establishments of the same management unit, bounties and subsidies on production plus all other operating revenue from outside the management unit.

TABLE 7.11 MANUFACTURING ESTABLISHMENTS (a), PURCHASES, TRANSFERS IN, AND SELECTED ITEMS OF EXPENSE (b) BY INDUSTRY SUBDIVISION, VICTORIA (\$m)

ASIC code	Industry subdivision	1983-84	1984-85	1986-87	1987-88	1988-89	1989-90 _p
21	Food, beverages, and tobacco	4,198	4,495	5,112	n.a.	n.a.	n.y.a.
23	Textiles	741	863	1,040	n.a.	n.a.	n.y.a.
24	Clothing and footwear	1,030	1,115	1,294	n.a.	n.a.	n.y.a.
25	Wood, wood products, and furniture	628	744	942	n.a.	n.a.	n.y.a.
26	Paper, paper products, printing, and publishing	1,325	1,530	1,841	n.a.	n.a.	n.y.a.
27	Chemical, petroleum, and coal products	1,619	1,711	2,061	n.a.	n.a.	n.y.a.
28	Non-metallic mineral products	515	629	797	n.a.	n.a.	n.y.a.
29	Basic metal products	1,592	1,885	2,339	n.a.	n.a.	n.y.a.
31	Fabricated metal products	1,137	1,234	1,444	n.a.	n.a.	n.y.a.
32	Transport equipment	2,760	3,468	3,828	n.a.	n.a.	n.y.a.
33	Other machinery and equipment	1,703	1,856	2,408	n.a.	n.a.	n.y.a.
34	Miscellaneous manufacturing	1,156	1,252	1,487	n.a.	n.a.	n.y.a.
Total		18,405	20,782	24,591	n.a.	n.a.	n.y.a.

(a) See footnote to Table 7.2.

(b) Includes purchases of materials, fuel, power, containers, etc., and goods for resale, plus transfers in of goods from other establishments of the management unit, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses, sales commission payments, rent, leasing, and hiring expenses.

**TABLE 7.12 MANUFACTURING ESTABLISHMENTS (a), STOCKS (b) BY INDUSTRY
SUBDIVISION, VICTORIA
(\$m)**

<i>ASIC code</i>	<i>Industry subdivision</i>	<i>1983-84</i>	<i>1984-85</i>	<i>1986-87</i>	<i>1987-88</i>	<i>1988-89</i>	<i>1989-90</i>
OPENING STOCKS							
21	Food, beverages, and tobacco	741	744	657	n.a.	n.a.	n.y.a.
23	Textiles	192	212	270	n.a.	n.a.	n.y.a.
24	Clothing and footwear	280	316	374	n.a.	n.a.	n.y.a.
25	Wood, wood products, and furniture	136	151	201	n.a.	n.a.	n.y.a.
26	Paper, paper products, printing, and publishing	285	291	358	n.a.	n.a.	n.y.a.
27	Chemical, petroleum, and coal products	420	452	610	n.a.	n.a.	n.y.a.
28	Non-metallic mineral products	132	120	144	n.a.	n.a.	n.y.a.
29	Basic metal products	258	273	307	n.a.	n.a.	n.y.a.
31	Fabricated metal products	306	316	343	n.a.	n.a.	n.y.a.
32	Transport equipment	709	660	885	n.a.	n.a.	n.y.a.
33	Other machinery and equipment	720	682	979	n.a.	n.a.	n.y.a.
34	Miscellaneous manufacturing	266	269	290	n.a.	n.a.	n.y.a.
Total		4,444	4,486	5,418	n.a.	n.a.	n.y.a.
CLOSING STOCKS							
21	Food, beverages, and tobacco	764	769	690	n.a.	n.a.	n.y.a.
23	Textiles	211	242	310	n.a.	n.a.	n.y.a.
24	Clothing and footwear	320	345	422	n.a.	n.a.	n.y.a.
25	Wood, wood products, and furniture	155	174	231	n.a.	n.a.	n.y.a.
26	Paper, paper products, printing, and publishing	286	343	380	n.a.	n.a.	n.y.a.
27	Chemical, petroleum, and coal products	463	471	652	n.a.	n.a.	n.y.a.
28	Non-metallic mineral products	119	125	148	n.a.	n.a.	n.y.a.
29	Basic metal products	268	311	334	n.a.	n.a.	n.y.a.
31	Fabricated metal products	324	336	378	n.a.	n.a.	n.y.a.
32	Transport equipment	677	780	960	n.a.	n.a.	n.y.a.
33	Other machinery and equipment	686	789	944	n.a.	n.a.	n.y.a.
34	Miscellaneous manufacturing	273	301	328	n.a.	n.a.	n.y.a.
Total		4,546	4,986	5,777	n.a.	n.a.	n.y.a.

(a) See footnote to Table 7.2.

(b) Figures include finished goods, work-in-progress and stocks of materials, fuels, etc. Note that due to reporting differences on individual returns and variations in number of establishments from year to year the closing stocks in one year may differ from the opening stocks in the following year.

TABLE 7.13 MANUFACTURING ESTABLISHMENTS (a), VALUE ADDED (b) BY INDUSTRY SUBDIVISION, VICTORIA (\$m)

<i>ASIC code</i>	<i>Industry subdivision</i>	<i>1983-84</i>	<i>1984-85</i>	<i>1986-87</i>	<i>1987-88</i>	<i>1988-89</i>	<i>1989-90</i>
21	Food, beverages, and tobacco	2,092	2,203	2,654	n.a.	n.a.	n.y.a.
23	Textiles	497	538	749	n.a.	n.a.	n.y.a.
24	Clothing and footwear	937	973	1,146	n.a.	n.a.	n.y.a.
25	Wood, wood products, and furniture	505	572	675	n.a.	n.a.	n.y.a.
26	Paper, paper products, printing, and publishing	1,174	1,354	1,792	n.a.	n.a.	n.y.a.
27	Chemical, petroleum, and coal products	1,093	1,184	1,380	n.a.	n.a.	n.y.a.
28	Non-metallic mineral products	473	563	600	n.a.	n.a.	n.y.a.
29	Basic metal products	534	549	769	n.a.	n.a.	n.y.a.
31	Fabricated metal products	918	973	1,139	n.a.	n.a.	n.y.a.
32	Transport equipment	1,476	1,811	1,871	n.a.	n.a.	n.y.a.
33	Other machinery and equipment	1,319	1,575	1,811	n.a.	n.a.	n.y.a.
34	Miscellaneous manufacturing	761	859	1,008	n.a.	n.a.	n.y.a.
Total		11,779	13,154	15,596	n.a.	n.a.	n.y.a.

(a) See footnote to Table 7.2.

(b) Value added is calculated by adding to turnover the increase (or deducting the decrease) in value of stock and deducting the value of purchases and selected items of expenditure.

Exports

Between 1987-88 and 1989-90, the value of Victorian manufactured goods exported increased by 5.1 per cent at market prices. Victoria's contribution to the Australian total also increased during this period, from 24.6 per cent to 28.6 per cent.

Basic metal products, at \$259.2m (20.3 per cent in proportional terms), showed the greatest absolute increase in exports. Its share of total manufacturing exports also increased, from 22.8 per cent to 26.1 per cent.

The subdivisions showing most significant proportional increases for Victoria during the period 1987-88 to 1989-90 were Clothing and footwear (60.5 per cent) and Paper, paper products, printing and publishing (42.1 per cent).

Food, beverages and tobacco retained its place as the largest export earner for Victoria, increasing by 6.8 per cent over the two year period. Three of the twelve ASIC subdivisions registered a decrease in exports between 1987-88 and 1989-90. Textiles fell by 36.9 per cent, whilst Transport equipment, and Wood, wood products and furniture decreased by 20.8 per cent and 18.0 per cent respectively.

TABLE 7.14 SELECTED ARTICLES MANUFACTURED, 1990-91

Article	Unit	Victoria	Australia	Victoria as a percentage of Australia
Meat (carcass weight) -				
Beef and veal	'000 tonnes	p322	p1,730	18.6
Mutton	'000 tonnes	p94	p383	24.5
Lamb	'000 tonnes	p116	p291	40.0
Pigmeat	'000 tonnes	p68	p310	21.8
Dairy products -				
Whole milk	ml. litres	3,912	p6,402	61.1
Butter	tonnes	92,851	105,887	87.7
Cheese	tonnes	103,522	176,260	58.7
Ice cream	'000 litres	64,734	192,354	33.7
Flour, white	tonnes	270,684	1,227,165	22.1
Yarns -				
Cotton	tonnes	10,053	23,781	42.3
Wool	tonnes	13,845	18,809	73.6
Woven cloth -				
Cotton	'000 sq metres	n.p.	35,687	n.a.
Wool	'000 sq metres	2,175	7,641	28.5
Cars and station wagons	'000	185	311	59.4
Plastic and synthetic resins	'000 tonnes	649	945	68.7
Building materials -				
Clay bricks	million	375	1,766	21.2
Terracotta and concrete roofing tiles	'000 sq. metres	4,296	19,820	21.7
Ready mixed concrete	'000 cu. metres	2,984	14,188	21.0

TABLE 7.15 FOREIGN TRADE OF MANUFACTURED GOODS: EXPORTS OF MANUFACTURED GOODS BY INDUSTRY SUB-DIVISION, VICTORIA

ASIC Sub-division	1987-88		1988-89		1989-90	
	\$m	%	\$m	%	\$m	%
Food, beverages and tobacco	1,646.0	29.5	1,560.3	28.5	1,758.0	29.9
Textiles	581.7	10.4	512.6	9.4	366.9	6.2
Clothing and footwear	27.5	0.5	32.8	0.6	46.6	0.8
Wood, wood products, and furniture	18.1	0.3	14.4	0.3	15.0	0.3
Paper, paper products, printing and publishing	76.5	1.4	81.6	1.5	108.7	1.8
Chemical, petroleum and coal products	539.8	9.6	534.9	9.8	611.1	10.4
Non-metallic mineral products	37.6	0.7	34.3	0.6	37.9	0.6
Basic metal products	1,276.7	22.8	1,445.5	26.4	1,535.9	26.1
Fabricated metal products	104.6	1.9	123.8	2.3	111.3	1.8
Transport equipment	603.8	10.8	415.6	7.6	478.2	8.1
Other machinery and equipment	559.0	9.9	568.9	10.4	658.7	11.2
Miscellaneous manufacturing	125.6	2.2	141.7	2.6	154.7	2.6
Total Victoria (a)	5,596.9	100.0	5,466.4	100.0	5,880.3	100.0
Total Australia (a)	22,713.8	100.0	19,458.0	100.0	20,546.9	100.0

(a) In some cases, division aggregates slightly exceed sums of sub-divisions due to unclassified confidential items.

MINING

In 1988-89 the Victorian mining industry contributed 18.8 per cent of the Australian mining component of Gross Domestic Product (GDP) at factor cost. The mining industry represented 2.8 per cent of Victoria's GDP at factor cost in 1988-89.

The term 'mining', as used in National Accounts concepts, includes the extraction of minerals occurring naturally as solids, such as coals and ores, liquids such as crude petroleum, and gases such as natural gas.

Oil and gas production

In 1988-89, the Gippsland Basin produced 63 per cent of Australia's crude oil and 34 per cent of its natural gas.

Brown coal

The majority of Australia's measured resources of brown coal is located in Victoria's Latrobe Valley, with 52,000 Megatonnes which is considered economically viable. Brown coal is by far Victoria's most valuable solid mineral commodity, with production in 1987-88 valued at \$320.2m.

Gold

Victoria's production of gold bullion increased rapidly in recent years. Only 41 kilograms were produced during 1979-80, rising to 150 kilograms in 1983-84. Victorian gold production increased dramatically from this low base, largely as a result of the Wonga open cut mine at Stawell coming on stream. By 1987-88, Victorian production was 1,634 kilograms and was valued at \$32.9m.

TABLE 7.19 MINING ACTIVITY (a), VICTORIA

Year	Establish- ments at 30 June	Employ- ment (b)	Wages and salaries (c)	Turnover	Stocks		Purchases, transfers in and selected expenses	Value added (d)
					Opening	Closing		
	number	number	\$m	\$m	\$m	\$m	\$m	\$m
1983-84	230	5,663	152.5	2,533.9	61.6	59.7	281.3	2,250.7
1984-85	221	5,737	160.3	3,104.9	65.9	62.6	281.9	2,819.7
1985-86	207	5,567	171.7	3,384.0	61.1	70.3	323.5	3,069.7
1986-87	208	5,783	182.1	2,525.6	65.9	72.3	293.0	2,239.0
1987-88	208	5,901	204.9	2,923.5	75.2	85.2	327.9	2,605.5
1988-89 (e)	12	1,507	73.3	1,616.1	46.1	49.5	140.1	1,479.3

(a) ASIC Subdivisions not available for separate publication.

(b) (c) (d) See footnotes to Table 7.2.

(e) The 1988-89 (truncated) census differs from previous mining censuses in that the construction materials and other non-metallic minerals industries have been excluded.

TABLE 7.20 ROYALTIES FROM OIL AND GAS PRODUCTION, VICTORIA
(\$m)

Year	Amount received	Amount paid to Commonwealth	Amount retained by Victoria
1983-84	257.9	84.2	173.7
1984-85	293.9	96.5	197.5
1985-86	302.2	99.4	202.8
1986-87	218.7	71.4	147.2
1987-88	213.9	69.8	144.1
1988-89	139.5	46.0	93.5

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.

TABLE 7.21 CRUDE OIL PRODUCTION (a), VICTORIA

Year	Barrels ('000)		Megalitres	
	During year	Average barrels per day	During year	Average megalitres per day
1984	159,395	436	25,342	69.4
1985	177,776	487	28,264	77.4
1986	145,350	398	23,109	63.3
1987	151,571	415	24,098	66.0
1988	133,194	364	21,176	57.9
1989	113,383	311	18,027	49.4

(a) After processing.

Source: Australian Institute of Petroleum: *Oil and Australia*

TABLE 7.22 ESTIMATED HYDROCARBON RESERVES, VICTORIA
(million cu. metres)

Item	1987	1988	1989
Crude oil	161	163	148
Natural gas	159	161	167
Condensate	22	21	23
LPG	46	46	47

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.

TABLE 7.23 MINERAL PRODUCTION, VICTORIA

Mineral	Unit	1984-85	1985-86	1986-87	1987-88	1988-89
Brown coal	kilotonnes	38,501	36,319	41,799	r44,288	48,663
Metallic minerals -						
Bauxite	tonnes	4,409	4,584	7,882	7,345	6,211
Gold bullion (a)	kilograms	902	1,272	1,179	r1,716	2,511
Non-metallic minerals -						
Diatomite (b)	tonnes	776	-	-	r8,000	2,137
Gypsum	kilotonnes	247	139	187	r203	241
Kaolin (b)	kilotonnes	89	36	41	r101	53

(a) Gold bullion is not yet refined and may contain small amounts of other metals such as silver.

(b) Refined and unrefined

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.

TABLE 7.24 MINERAL PRODUCTION AND VALUE, VICTORIA, 1988-89

<i>Mineral</i>	<i>Unit</i>	<i>Production</i>	<i>Value ('000)</i>
Bauxite	tonnes	6,211	102
Brown coal	kilotonnes	48,663	357,774
Gold	kilograms	2,511	33,435
Gypsum	kilotonnes	241	2,276
Kaolin	kilotonnes	117	13,402
Total			406,989

Source: Department of Industry, Victoria: *Annual Report*.

TABLE 7.25 STONE PRODUCTION, VICTORIA, 1988-89

<i>Item</i>	<i>Establishments operating</i>	<i>Total Victorian production</i>	
	<i>Number</i>	<i>Production</i>	<i>Value</i>
		000 tonnes	\$'000
Clays -			
Brick clay and shale	10	1,751	5,927
Fireclay	2	5	47
White and other clays	12	144	1,282
<i>Total clays</i>	24	1,991	7,256
Crushed and broken stone -			
Basalt	51	13,794	144,131
Dacite, rhyolite, and rhyodacite	3	1,967	29,073
Granite	16	2,602	27,169
Hornfels	5	1,182	16,916
Limestone	10	1,007	4,756
Sandstone, quartzite	24	1,884	10,728
Shale and schist, other	4	327	999
<i>Total crushed and broken stone</i>	113	22,763	233,772
Dimension stone -			
Basalt, granite, sandstone and other	8	17	608
Earth and soil	20	455	2,564
Gravel	58	3,753	13,941
Limestone -			
For agriculture	15	139	3,690
For cement	3	2,438	14,079
For other purposes	4	70	5,414
<i>Total limestone</i>	22	2,684	23,183
Salamander and filling	23	720	4,605
Sand	126	7,339	60,855
Scoria	20	1,024	8,445
Tuff	6	206	769
Grand total	420	40,952	355,998

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.

ENERGY

Overview

In 1988-89, Victoria contributed 30.8 per cent of the Electricity, gas, and water component of Australia's Gross Domestic Product (GDP) at factor cost. The Electricity, gas, and water industries represented 4.0 per cent of Victoria's GDP at factor cost in 1988-89.

The Electricity, gas, and water component of GDP includes the transmission and distribution of gas through reticulation systems. It does not include the extraction of crude petroleum or natural gas.

Electricity generated

The State Electricity Commission of Victoria (SEC) is Australia's largest electricity supply authority and individual coal producer. It is a semi-government authority with the principal responsibility of generating or purchasing electricity for supply throughout Victoria.

At 30 June 1989, it distributed electricity directly to 1,555,000 customers and indirectly to a further 286,500 through 11 metropolitan councils which buy power in bulk for retail distribution under franchises granted by Victorian Government before the SEC's establishment.

Victorian production of electricity in 1989-90 was 37,804 GWh, a rise of 4.6 per cent over the 1988-89 figure. Victoria's electricity system is based upon the State's extensive brown coal resource in the LaTrobe Valley in Central Gippsland, which is one of the largest single brown coal deposits in the world, amounting to 200,000 megatonnes, of which 52,000 are presently economically recoverable.

All the major brown coal fired generating plants in the system are located in the LaTrobe Valley. These plants generate three-quarters of the State's electricity requirement.

Other thermal stations include a gas turbine station in the LaTrobe Valley and a gas fired station in Melbourne. There are hydro-electric power stations in north-eastern Victoria, and the State is also entitled to about 30 per cent of the output of the Snowy Mountains hydro-electric scheme and half of the output of the Hume hydro-electric station near Albury.

Main transmission is by 500, 330, 220 and 66 kv lines which supply the principal sub-transmission centres and interconnection between generating sources.

Gas reticulation

The Gas and Fuel Corporation of Victoria is the largest gas undertaking in Australia, the sole reticulator of gas in Victoria, and a major marketer of liquefied petroleum gas (LPG).

Commercial reserves of natural gas were discovered in the off-shore Gippsland Basin in 1965 by Esso-BHP from which the Corporation purchases, under agreement, the State's natural gas requirements.

Supply is drawn from the Marlin, Barracouta, and Snapper fields in Bass Strait, and transported by pipeline to an onshore treatment plant at Longford, near Sale.

The Corporation reticulates gas, 99 per cent of which is natural gas, through a 20,000 kilometre network of underground transmission pipelines and mains to more than one million industrial, commercial, and domestic consumers.

Petroleum marketed

Motor spirit (super, standard and unleaded) marketed in Victoria during 1989-90 amounted to 4,817 megalitres. This represented a 0.9 per cent rise over the 1988-89 figure.

TABLE 7.26 POWER STATIONS: LOCATIONS, RATING, AND PRODUCTION, VICTORIA

Station	Maximum output achieved (MW)		Electricity generated (GWh)	
	1988-89	1989-90	1988-89	1989-90
Brown coal thermal stations -				
Hazelwood	1,320	1,300	8,397	6,995
Yallourn	103	-	27	-
Yallourn W	1,485	1,476	8,570	8,463
Morwell	140	112	835	531
Loy Yang A	2,066	2,093	13,616	14,920
Total	31,445	30,909
Other thermal stations -				
Newport D	507	506	1,606	3,122
Jeeralang	492	473	559	928
Total	2,165	4,050
Hydro stations -				
Kiewa	192	250	413	332
Eildon-Rubicon (incl. Cairn-Curran)	136	149	203	354
Dartmouth	150	176	72	117
Total	688	803
Stations operated by other bodies	1,261	1,473	1,841	2,042
Total input to system	36,139	37,804

Source: State Electricity Commission of Victoria: *Annual Report*.

TABLE 7.27 PRINCIPAL PETROLEUM PRODUCTS MARKETED, VICTORIA
(megalitres)

Item	1987-88	1988-89	1989-90
Aviation gasoline	19	19	21
Motor spirit -			
Super	3,994	3,779	3,517
Unleaded	668	974	1,301
Total	4,663	4,773	4,817
Aviation turbine fuel	557	549	541
Heating oil	39	35	32
Automotive distillate	1,534	1,705	1,762
Industrial diesel fuel	104	106	81
Fuel oil	359	367	373
Grand total (a)	7,274	7,568	7,606

(a) Other petroleum fuels including refinery oil are no longer included as principal petroleum products marketed.

Source: Australian Bureau of Agricultural and Resource Economics: *Quarterly Mineral Statistics*

TABLE 7.28 REFINING CAPACITY, VICTORIA, AT 1 JULY 1990

<i>Refinery</i>	<i>Location in Victoria and year refinery came on stream</i>	<i>Primary processing capacity (a)</i>
Shell Refining (Australia) Pty Ltd	Corio near Geelong 1954	110,000 to 132,000 BSD (5,000,000 tonnes/year)
Shell Lubricating oil plant	Corio near Geelong 1954	3,000 BSD (145,000 tonnes/year)
Petroleum Refineries (Australia) Pty Ltd	Altona near Melbourne 1949	108,000 BSD (5,000,000 tonnes/year)

(a) BSD: barrels per stream day.

Source: Australian Institute of Petroleum Ltd: *Oil and Australia*.

REFERENCES

Data sources

The latest year for which ABS estimates are available for gross product at factor cost is 1988-89. However, State details are restricted because G.D.P. by industry excludes the general government gross operating surplus component.

Major sources of manufacturing data are the Censuses of Manufacturing Establishments which have been conducted in Victoria since 1901, and the monthly surveys of selected manufacturing production. No Manufacturing Census was conducted for the year 1985-86.

Manufacturing statistics collected since 1968-69 are classified by industry according to Division C of the Australian Standard Industrial Classification (ASIC). Division C broadly relates to the physical or chemical transformation of materials or components into new products, whether the work is performed by power driven machines or by hand.

ABS publications

Census of Manufacturing Establishments: Summary of Operations by Industry Subdivision, Australia, Preliminary (8201.0)

Manufacturing Establishments: Summary of Operations by Industry Class, Australia (8202.0)

Manufacturing Establishments: Selected Items of Data by Industry and Employment Size, Victoria (8202.2)

Manufacturing Establishments: Details of Operations by Industry Class, Australia (8203.0)

Manufacturing Establishments: Small Area Statistics, Victoria (8203.2)

Manufacturing, Victoria 1968-69 to 1987-88, Economic Statistics Report (8206.2)

Manufacturing Establishments: Details of Operations, Victoria (8291.2)

Production Bulletins (8357.0 - 8368.0)

Manufacturing, Victoria (8207.2)

Non-ABS publications

Department of the Treasury, Victoria, estimates of State Accounts compiled by the Policy and Statistics Division.