

7 **Manufacturing, Mining, and Energy**

MANUFACTURING

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 22.8 per cent in 1984-85 to 19.3 per cent in 1990-91.

Victoria compared with Australia

During 1990-91, Victorian manufacturing industry's contribution to the Australian aggregates was 30.9 per cent of establishments, 32.9 per cent of employment, 33.5 per cent of wages and salaries paid, and 32.7 per cent of turnover. The dominant industry subdivision in Victoria, in terms of contribution to national aggregates, was Clothing and footwear. This industry represented 45.4 per cent of the total Australian establishments, 48.3 per cent of employment, 50.6 per cent of wages and salaries paid, and 49.2 per cent of turnover.

Number of establishments

Over the period 1984-85 to 1990-91, the number of Victorian manufacturing establishments with four or more persons employed increased from 8,499 to 8,976 (5.6 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).

Between 1989-90 and 1990-91, the number of Victorian manufacturing establishments decreased from 9,727 to 8,976 (7.7 per cent).

Employment

During May 1991, manufacturing employment comprised 18.3 per cent of the Victorian employed labour force, compared with 22.9 per cent in May 1984. In May 1992, manufacturing employment comprised 18.5 per cent of the Victorian employed labour force.

Between 1984-85 and 1990-91 employment in the Victorian manufacturing sector decreased from 357,989 persons to 308,555, a decrease of 13.8 per cent. The year to year movements have fluctuated considerably, ranging from an increase of 3.0 per cent in 1987-88 to a decrease of 10.2 per cent in 1990-91.

Between 1984-85 and 1990-91, employment decreased in all of the twelve ASIC subdivisions. Major decreases occurred in the Clothing and footwear subdivision (down 16,720 or 39.0 per cent), the Transport equipment subdivision (down 13,189 or 23.8 per cent), the Textiles subdivision (down 3,946 or 21.9 per cent), and the Basic metal products subdivision (down 1,892 or 15.0 per cent).

Turnover

Turnover of Victorian manufacturing establishments at current prices increased by 66.5 per cent between 1984-85 and 1990-91. Within individual industry subdivisions, the greatest percentage increase in turnover at current prices was 183.6 per cent in the Chemical, petroleum and coal products subdivision, followed by the Paper, paper products, printing and publishing subdivision with an increase of 73.2 per cent.

Wages and salaries

Coinciding with the decline in employment within Victorian manufacturing establishments, wages and salaries paid decreased by 1.1 per cent (from \$9,248m to \$9,147m) over the period 1989-90 to 1990-91. By comparison, turnover at current prices increased by 2.1 per cent over the same period. Between 1984-85 and 1990-91, wages and salaries increased by 39.6 per cent, while turnover at current prices increased by 66.5 per cent.

Major manufacturing industries

In 1990-91, the Food, beverages, and tobacco industry made the greatest contribution to Victorian manufacturing industry in terms of employment, providing 15.6 per cent of the total. This industry also made the largest contribution in terms of turnover, contributing 19.1 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 1,278 and 1,236, respectively.

Industry profile - Food, beverages, and tobacco (ASIC subdivision 21)

At 30 June 1991 there were 977 establishments classified to the Food, beverages, and tobacco ASIC subdivision. These establishments contributed 15.6 per cent of Victoria's manufacturing employment. Victorian based establishments accounted for 28.6 per cent of employment within the Australian Food, beverages, and tobacco industry.

Between 1985 and 1991, employment within this subdivision in Victoria decreased by 2.2 per cent while the number of manufacturing establishments decreased by 2.6 per cent. Wages per person employed rose by 47.6 per cent during this period.

During the six year period under review the following groups experienced the most significant changes to number of establishments and employment: the Meat products group experienced a decrease in

both the number of establishments and employment, by 19.9 and 8.4 per cent respectively; the Milk products group showed a decrease of 30.9 per cent in number of establishments and an increase of 6.9 per cent in employment; for the Flour mill and cereal food products group the number of establishments increased by 20.8 per cent and employment increased by 12.0 per cent; and for the Beverages and malt group the number of establishments decreased by 17.8 per cent and employment decreased by 8.9 per cent. Turnover for all groups increased, with the most significant increases occurring in the Beverages and malt group (107.7 per cent), the Fruit and vegetable products group (84.3 per cent) and the Flour mill and cereal food products group (72.7 per cent).

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 1990-91

	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
1986-87r	9,109	356,992	7,443	39,970	24,731	15,621	n.a.
1987-88	9,858	367,603	8,302	45,577	n.a.	n.a.	n.a.
1988-89	9,771	367,376	8,855	51,463	n.a.	n.a.	n.a.
1989-90	9,727	343,700	9,248	54,537	32,319	22,575	1,952
1990-91	8,976	308,555	9,147	55,675	n.a.	n.a.	n.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, 1990-91

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	977	48.2	1,297	10,646
23	Textiles	297	14.1	379	1,929
24	Clothing and footwear	876	26.2	591	2,399
25	Wood, wood products, and furniture	1,278	18.1	445	1,879
26	Paper, paper products, printing, and publishing	1,062	32.9	1,061	4,906
27	Chemical, petroleum, and coal products	290	18.2	673	8,157
28	Non-metallic mineral products	326	10.3	353	1,867
29	Basic metal products	199	10.7	376	3,648
31	Fabricated metal products	1,236	28.0	806	3,804
32	Transport equipment	430	42.2	1,301	7,529
33	Other machinery and equipment	1,215	37.3	1,173	5,546
34	Miscellaneous manufacturing	790	22.5	693	3,365
Total		8,976	308.6	9,147	55,675

(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, 1990-91 (per cent)

ASIC code	Industry subdivision	Establishments operating at 30 June	Employment (b)	Wages and salaries paid (c)	Turnover
21	Food, beverages, and tobacco	29.1	28.6	28.8	30.4
23	Textiles	41.0	50.5	51.6	48.2
24	Clothing and footwear	45.4	48.3	50.6	49.2
25	Wood, wood products, and furniture	28.4	25.5	26.3	25.1
26	Paper, paper products, printing, and publishing	31.0	32.4	33.2	33.6
27	Chemical, petroleum, and coal products	32.6	35.2	35.4	34.8
28	Non-metallic mineral products	26.3	26.5	27.7	25.1
29	Basic metal products	30.9	16.1	15.5	17.0
31	Fabricated metal products	26.9	30.0	31.5	31.7
32	Transport equipment	30.7	47.9	48.1	48.6
33	Other machinery and equipment	30.5	31.5	33.1	34.6
34	Miscellaneous manufacturing	33.1	38.9	43.1	40.4
Total manufacturing		30.9	32.9	33.5	32.7

(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, 1990-91**

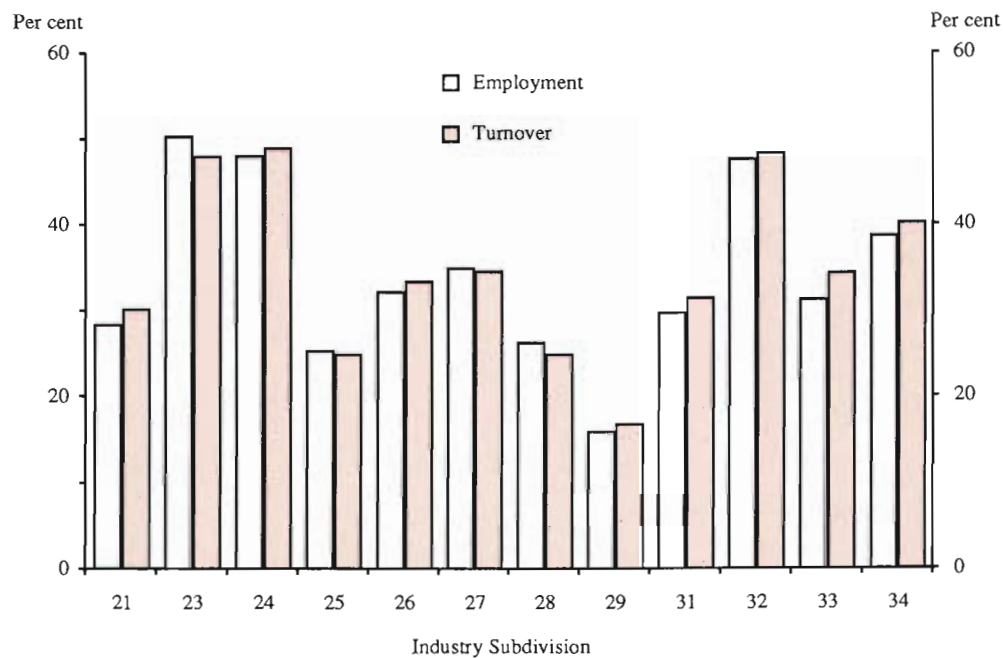


TABLE 7.5 MANUFACTURING ESTABLISHMENTS (a), 1990-91

State or Territory	Establishments operating at 30 June	Employment (b)	Wages and salaries paid (c)	Turnover
	number	number	\$m	\$m
New South Wales	9,827	322,159	9,904	57,113
Victoria	8,976	308,555	9,147	55,675
Queensland	4,497	121,739	3,108	23,284
South Australia	2,302	92,567	2,510	15,982
Western Australia	2,531	62,152	1,742	12,964
Tasmania	646	23,980	709	4,100
Northern Territory	134	2,766	87	576
Australian Capital Territory	154	3,014	88	429
Total	29,067	936,932	27,297	170,123

(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	1984-85	1986-87	1987-88	1988-89	1989-90	1990-91
21	Food, beverages, and tobacco	1,103	1,103	1,242	1,136	1,112	977
23	Textiles	304	300	313	302	289	297
24	Clothing and footwear	955	1,030	1,089	1,059	1,001	876
25	Wood, wood products, and furniture	1,124	1,261	1,363	1,385	1,419	1,278
26	Paper, paper products, printing, and publishing	899	947	1,023	1,071	1,089	1,062
27	Chemical, petroleum, and coal products	278	284	301	309	294	290
28	Non-metallic mineral products	388	421	439	378	406	326
29	Basic metal products	175	203	202	214	218	199
31	Fabricated metal products	1,074	1,139	1,283	1,305	1,350	1,236
32	Transport equipment	383	404	421	451	461	430
33	Other machinery and equipment	1,173	1,189	1,317	1,271	1,255	1,215
34	Miscellaneous manufacturing	743	828	865	890	833	790
Total		8,499	9,109	9,858	9,771	9,727	8,976

(a) See footnote to Table 7.2.

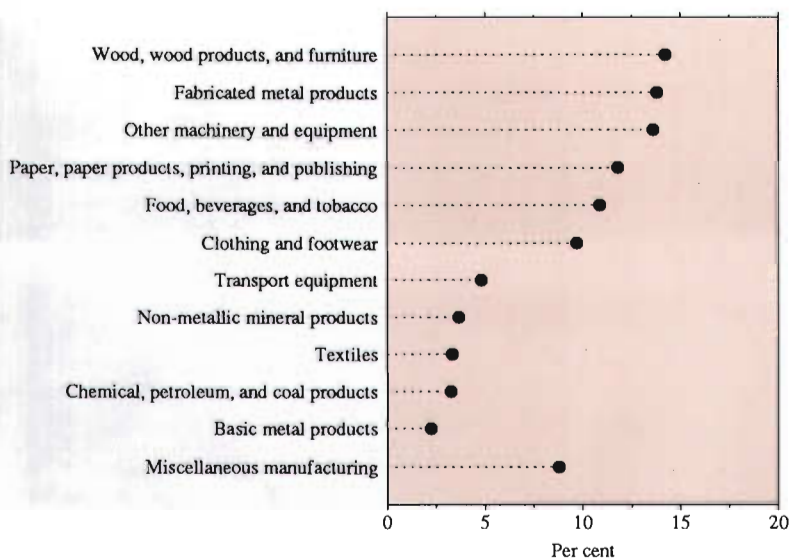
MANUFACTURING ESTABLISHMENTS: INDUSTRY SUBDIVISION, ESTABLISHMENTS AS A PERCENTAGE OF TOTAL ESTABLISHMENTS, VICTORIA, 1990-91

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

ASIC code	Industry subdivision	1984-85	1986-87	1987-88	1988-89	1989-90	1990-91
21	Food, beverages, and tobacco	149,246	149,261	51,700	52,389	49,397	48,177
23	Textiles	18,009	19,129	19,420	17,417	14,252	14,063
24	Clothing and footwear	42,926	41,475	40,145	38,251	34,536	26,206
25	Wood, wood products, and furniture	19,466	21,215	21,952	22,037	21,103	18,061
26	Paper, paper products, printing, and publishing	34,201	35,221	36,078	37,453	34,773	32,948
27	Chemical, petroleum, and coal products	19,759	19,329	19,568	19,021	18,232	18,154
28	Non-metallic mineral products	10,280	10,625	11,001	11,491	11,189	10,279
29	Basic metal products	12,579	13,431	14,734	12,984	12,159	10,687
31	Fabricated metal products	29,789	30,445	32,930	32,787	32,487	28,019
32	Transport equipment	55,403	149,721	50,401	52,292	50,710	42,205
33	Other machinery and equipment	43,295	43,773	45,162	45,253	41,125	37,258
34	Miscellaneous manufacturing	23,036	23,367	24,512	26,001	23,710	22,498
Total		357,989	356,992	367,603	367,376	343,673	308,555

(a) Employment at 30 June including working proprietors.

TABLE 7.8 MANUFACTURING ESTABLISHMENTS (a), TURNOVER (b) BY INDUSTRY SUBDIVISION, VICTORIA (\$m)

ASIC code	Industry subdivision	1984-85	1986-87	1987-88	1988-89	1989-90	1990-91
21	Food, beverages, and tobacco	6,673	17,778	8,884	9,714	10,065	10,646
23	Textiles	1,370	1,750	1,963	2,110	1,991	1,929
24	Clothing and footwear	2,057	2,392	2,444	2,742	2,602	2,399
25	Wood, wood products, and furniture	1,292	1,587	1,798	1,995	2,048	1,879
26	Paper, paper products, printing, and publishing	2,833	3,612	4,097	4,743	4,576	4,906
27	Chemical, petroleum, and coal products	2,876	3,400	3,837	4,387	6,757	8,157
28	Non-metallic mineral products	1,188	1,393	1,597	1,956	2,067	1,867
29	Basic metal products	2,397	3,082	3,460	3,922	3,906	3,648
31	Fabricated metal products	2,186	2,548	3,113	3,700	4,060	3,804
32	Transport equipment	5,159	15,721	6,762	7,514	7,913	7,529
33	Other machinery and equipment	3,325	4,253	4,809	5,543	5,263	5,546
34	Miscellaneous manufacturing	2,079	2,457	2,814	3,297	3,291	3,365
Total		33,436	39,970	45,577	51,622	54,537	55,675

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

ASIC code	Industry subdivision	1981-82	1982-83	1983-84	1984-85	1986-87	1989-90
21	Food, beverages, and tobacco	3,801	4,145	4,198	4,495	5,192	6,246
23	Textiles	682	658	741	863	1,040	1,175
24	Clothing and footwear	878	894	1,030	1,115	1,294	1,353
25	Wood, wood products, and furniture	584	571	628	744	942	1,176
26	Paper, paper products, printing, and publishing	1,106	1,213	1,325	1,531	1,841	2,149
27	Chemical, petroleum, and coal products	1,468	1,518	1,619	1,711	2,061	4,454
28	Non-metallic mineral products	482	470	515	629	797	1,109
29	Basic metal products	1,319	1,258	1,592	1,885	2,339	2,541
31	Fabricated metal products	1,161	1,076	1,137	1,234	1,444	2,310
32	Transport equipment	2,614	2,601	2,760	3,468	3,887	5,124
33	Other machinery and equipment	1,824	1,618	1,703	1,856	2,408	2,930
34	Miscellaneous manufacturing	1,112	1,037	1,156	1,252	1,487	1,752
Total		17,031	17,060	18,405	20,782	24,731	32,319

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

ASIC code	Industry subdivision	1981-82	1982-83	1983-84	1984-85	1986-87	1989-90
OPENING STOCKS							
21	Food, beverages, and tobacco	641	646	741	744	655	975
23	Textiles	186	204	192	211	270	349
24	Clothing and footwear	265	289	280	316	374	439
25	Wood, wood products, and furniture	127	140	136	151	201	286
26	Paper, paper products, printing, and publishing	263	291	285	291	358	466
27	Chemical, petroleum, and coal products	369	404	420	452	610	894
28	Non-metallic mineral products	104	121	132	120	144	188
29	Basic metal products	263	293	258	273	307	455
31	Fabricated metal products	330	364	306	316	343	563
32	Transport equipment	640	674	709	660	940	1,121
33	Other machinery and equipment	742	781	720	682	979	1,008
34	Miscellaneous manufacturing	270	274	266	269	290	465
Total		4,200	4,480	4,444	4,486	5,470	7,209

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

ASIC code	Industry subdivision	1984-85	1986-87	1987-88	1988-89	1989-90	1990-91
CLOSING STOCKS							
21	Food, beverages, and tobacco	655	722	764	768	687	1,019
23	Textiles	206	195	211	242	310	315
24	Clothing and footwear	295	287	320	345	422	420
25	Wood, wood products, and furniture	143	140	155	174	231	302
26	Paper, paper products, printing, and publishing	312	291	286	343	380	457
27	Chemical, petroleum, and coal products	411	425	463	471	652	900
28	Non-metallic mineral products	121	132	119	125	148	225
29	Basic metal products	290	275	268	311	334	491
31	Fabricated metal products	371	320	324	336	378	599
32	Transport equipment	705	665	677	780	1,038	1,292
33	Other machinery and equipment	799	737	686	788	944	1,067
34	Miscellaneous manufacturing	291	253	273	301	328	481
Total		4,601	4,442	4,546	4,986	5,852	7,567

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

ASIC code	Industry subdivision	1981-82	1982-83	1983-84	1984-85	1986-87	1989-90
21	Food, beverages, and tobacco	1,666	1,890	2,092	2,203	2,618	3,864
23	Textiles	445	420	497	538	749	782
24	Clothing and footwear	800	821	937	973	1,146	1,229
25	Wood, wood products, and furniture	447	443	505	572	675	887
26	Paper, paper products, printing, and publishing	1,009	1,049	1,174	1,354	1,792	2,418
27	Chemical, petroleum, and coal products	940	953	1,093	1,184	1,380	2,309
28	Non-metallic mineral products	438	425	473	563	600	995
29	Basic metal products	516	445	534	549	769	1,401
31	Fabricated metal products	924	833	918	973	1,139	1,786
32	Transport equipment	1,276	1,403	1,476	1,811	1,932	2,959
33	Other machinery and equipment	1,429	1,324	1,319	1,575	1,811	2,392
34	Miscellaneous manufacturing	690	643	761	859	1,008	1,554
Total		10,578	10,649	11,779	13,154	15,621	22,575

(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 1989-90 and 1991-92, the value of Victorian manufactured goods exported increased by 30.3 per cent at market prices. Victoria's contribution to the Australian total decreased during this period, from 28.4 per cent to 24.8 per cent.

Basic metal products, at \$745.5m (15.1 per cent in proportional terms), showed the greatest absolute increase in exports. Its share of total manufacturing exports also increased, from 25.1 per cent to 28.9 per cent.

The subdivisions showing most significant proportional increases for Victoria during the period 1989-90 to 1990-91 were Non-metallic mineral products (33.4 per cent) and Transport equipment (25.2 per cent).

Basic metal products was the largest export earner for Victoria, increasing by 50.2 per cent over the two year period. All twelve ASIC subdivisions registered an increase in exports between 1989-90 and 1991-92.

TABLE 7.12 FOREIGN TRADE OF MANUFACTURED GOODS: EXPORTS OF MANUFACTURED GOODS BY INDUSTRY SUB-DIVISION, VICTORIA

ASIC Sub-division	1989-90 ^a		1990-91		1991-92 ^a	
	\$m	Per cent	\$m	Per cent	\$m	Per cent
Food, beverages and tobacco	1,795.5	30.4	1,878.0	26.8	1,928.0	25.0
Textiles	381.2	6.4	332.6	4.8	421.2	5.5
Clothing and footwear	48.2	0.8	61.0	0.9	73.5	1.0
Wood, wood products, and furniture	15.3	0.3	16.3	0.2	20.3	0.3
Paper, paper products, printing and publishing	110.2	1.9	124.0	1.8	119.4	1.5
Chemical, petroleum and coal products	606.1	10.3	702.6	10.0	809.4	10.5
Non-metallic mineral products	38.4	0.6	51.0	0.7	62.7	0.8
Basic metal products	1,483.4	25.1	1,836.0	26.2	2,228.9	28.9
Fabricated metal products	113.1	1.9	109.2	1.6	130.8	1.7
Transport equipment	491.9	8.3	920.9	13.2	803.3	10.4
Other machinery and equipment	671.8	11.4	805.8	11.5	895.4	11.6
Miscellaneous manufacturing	157.6	2.7	162.3	2.3	212.4	2.8
Total Victoria (a)	5,912.7	100.0	6,999.8	100.0	7,705.4	100.0
Total Australia (a)	20,781.0	100.0	24,477.7	100.0	31,076.2	100.0

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

TABLE 7.13 SELECTED ARTICLES MANUFACTURED, 1991-92

Article	Unit	Victoria	Australia	Victoria as a percentage of Australia
Meat (carcass weight) -				
Beef and veal	'000 tonnes	314	1,762	17.8
Mutton	'000 tonnes	75	380	19.8
Lamb	'000 tonnes	111	275	40.6
Pigmeat	'000 tonnes	74	328	22.6
Dairy products -				
Whole milk	ml. litres	4,119	6,732	61.2
Butter and butteroil	tonnes	97,198	110,680	87.8
Cheese	tonnes	123,038	197,444	62.3
Ice cream	'000 litres	57,352	194,850	29.4
Yoghurt	tonnes	27,746	72,055	38.5
Wheat flour (other than self-raising)	tonnes	261,505	1,213,674	21.5
Yarns -				
Cotton	tonnes	11,050	25,069	44.1
Wool	tonnes	14,149	18,551	76.3
Woven cloth -				
Cotton	'000 sq metres	16,443	38,417	42.8
Wool	'000 sq metres	5,076	8,132	62.4
Cars and station wagons	'000	161	269	59.9
Plastic and synthetic resins	'000 tonnes	673	1,002	67.2
Building materials -				
Clay bricks	million	308	1,655	18.6
Terracotta and concrete roofing tiles	'000 sq. metres	3,666	21,092	17.4
Ready mixed concrete	'000 cu. metres	2,476	13,136	18.8

MINING

In 1990-91 the Victorian mining industry contributed 18.2 per cent of the Australian mining component of Gross Domestic Product (GDP) at factor cost. The mining industry represented 3.5 per cent of Victoria's GDP at factor cost in 1990-91.

The term 'mining' as used in GDP at factor cost estimates 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 1990-91, the Gippsland Basin produced 51 per cent of Australia's crude oil and 41 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 1990-91 valued at \$367.1m.

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 1990-91, Victorian production was 4,292 kilograms (fine gold) or 4,862 kilograms (bullion) and was valued at \$70.9m.

TABLE 7.14 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)
	number	number	\$m		Opening	Closing		
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
1989-90	163	3,286	155.8	3,504.6	103.6	93.2	343.7	3,150.5
1990-91 (e) (p)	8	1,410	95.1	4,018.8	34.0	32.0	125.7	3,891.1

(a) ASIC Subdivisions not available for separate publication.

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

(e) The 1988-89 and 1990-91 (truncated) censuses differs from previous mining censuses in that the construction materials and other non-metallic minerals industries have been excluded.

TABLE 7.15 ROYALTIES FROM OIL AND GAS PRODUCTION, VICTORIA
(\$m)

Year	Amount received	Amount paid to Commonwealth	Amount retained by Victoria
1986-87	218.7	71.4	147.2
1987-88	213.9	69.8	144.1
1988-89	139.5	46.0	93.5
1989-90	198.7	66.3	132.4
1990-91	266.0	89.3	176.7
1991-92	n.a.	n.a.	131.0

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.**TABLE 7.16 CRUDE OIL PRODUCTION (a), VICTORIA**

Year	Barrels ('000)		Megalitres	
	During year	Average barrels per day	During year	Average megalitres per day
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
1990	114,563	314	18,214	49.9
1991	110,617	303	17,587	48.2

(a) After processing.

Source: Australian Institute of Petroleum: *Oil and Australia*.**TABLE 7.17 ESTIMATED HYDROCARBON RESERVES, VICTORIA**

Item	30 June		
	1990	1991	1992
Crude oil and Condensate (Giga L)	152	135	120
Natural gas (Giga cu.m)	163	158	151
LPG (Giga L)	45	43	40

Source: Department of Manufacturing and Industry Development, Victoria: *Annual Report*.**TABLE 7.18 MINERAL PRODUCTION, VICTORIA, 1984-85 TO 1989-90**

Year	Fuel minerals		Metallic minerals			Non-metallic minerals		
	Brown coal '000 tonnes	Antimony tonne	Bauxite tonne	Gold kg	Iron ore	Diatomite (refined and unrefined) tonnes	Gypsum '000 tonnes	Kaolin (refined and unrefined) '000 tonnes
1985-86	36,319	nil	4,584	1,272	nil	nil	139	36
1986-87	41,799	nil	7,882	1,179	nil	nil	188	41
1987-88	44,288	nil	7,345	1,719	nil	8,000	203	101
1988-89	48,663	nil	6,211	2,512	nil	2,137	241	117
1989-90	45,960	nil	2,466	3,515	nil	396	302	169
1990-91	49,389	nil	7,925	4,863	nil	3,000	49	146

Source: Department of Manufacturing and Industry Development, Victoria.

TABLE 7.19 STONE PRODUCTION, VICTORIA, 1990-91

Item	Establishments operating	Total Victorian production	
	Number	Production '000 tonnes	Value \$'000
Clays -			
Brick clay and shale	23	1,277	4,725
Fireclay	2	4	49
White and other clays	5	82	611
Total clays	30	1,363	5,385
Crushed and broken stone -			
Basalt	54	8,912	127,979
Dacite, rhyolite, and rhyodacite	4	1,548	27,819
Granite	12	2,128	29,764
Hornfels	10	1,420	17,002
Limestone	12	233	2,204
Sandstone, quartzite	22	605	6,270
Shale and schist, other	2	7	76
Total crushed and broken stone	116	14,854	211,114
Dimension stone -			
Basalt, granite, sandstone and other	6	6	397
Earth and soil	13	186	1,547
Gravel	50	1,131	6,523
Limestone -			
For agriculture	15	127	2,780
For cement	3	2,101	10,351
For other purposes	6	118	6,278
Total limestone	24	2,346	19,409
Salamander and filling	22	300	2,248
Sand	118	5,693	59,689
Scoria	18	923	11,229
Tuff	8	245	751
Grand total	406	27,047	318,294

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

ENERGY

In 1990-91, Victoria contributed 31.7 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 4.4 per cent of Victoria's GDP at factor cost in 1990-91.

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 1992, it distributed electricity directly to 1,631,000 customers and indirectly to a further 289,200 through 11 metropolitan councils which buy power in bulk for retail distribution under franchises granted by the Victorian Government before the SEC's establishment.

Victorian production of electricity in 1991-92 was 39,109 GWh. 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 megatonnes are presently economically recoverable.

All the major brown coal fired generating plants in the system are located in the LaTrobe Valley. These plants generate 85 per cent 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. 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 23,400 kilometre network of underground transmission pipelines and mains to more than 1.24 million industrial, commercial, and domestic consumers.

Petroleum marketed

Motor spirit (leaded and unleaded) marketed in Victoria during 1991 amounted to 4,554 megalitres. This represented 27.0 per cent of the Australian total.

TABLE 7.20 PETROLEUM PRODUCT SALES, VICTORIA (MEGALITRES)

Year	Petrol	Aviation Turbine fuel	Heating oil	Automotive
				Diesel oil
1985-86	4,442.7	462.5	50.2	1,376.1
1986-87	4,480.9	524.7	50.4	1,435.6
1987-88	4,662.5	556.7	39.1	1,518.8
1988-89	4,773.0	549.0	35.0	1,705.0
1989-90	4,817.0	541.0	32.0	1,762.0
1990-91	4,610.0	576.0	30.0	1,560.0

Source: Australian Bureau of Agriculture and Resource Economics.

TABLE 7.21 POWER STATIONS: LOCATIONS, RATING, AND PRODUCTION, VICTORIA

Station	Maximum output achieved (MW)		Electricity generated (GWh)	
	1989-90	1990-91	1989-90	1990-91
Brown coal thermal stations -				
Hazelwood	1,300	1,390	6,995	8,445
Yallourn	-	-	-	-
Yallourn W	1,476	1,478	8,463	9,479
Morwell	112	101	531	462
Loy Yang A	2,093	2,055	14,920	14,873
Total	..	..	30,909	33,259
Other thermal stations -				
Newport D	506	525	3,122	2,187
Jeeralang	473	416	928	277
Total	..	..	4,050	2,464
Hydro stations -				
Kiewa	250	222	332	363
Eildon-Rubicon (incl. Cairn-Curran)	149	153	354	402
Dartmouth	176	-	117	-
Total	..	..	803	765
Stations operated by other bodies	1,473	1,578	2,042	2,682
Total Input to system	..	..	37,804	39,170

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

TABLE 7.22 REFINING CAPACITY, VICTORIA, AT 1 JULY 1990

Refinery	Location in Victoria and year refinery came on stream	Primary processing capacity (a)
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 1990-91. However, State details are restricted because GDP 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: Details of Operations by Industry Class, Australia (8203.0)
Manufacturing, Victoria 1968-69 to 1987-88, Economic Statistics Report (8206.2)
Manufacturing Establishments: Details of Operations, Victoria (8291.2)
Production Bulletins (8301.0, 8357.0 - 8368.0)
Manufacturing, Victoria (8207.2)
Australian National Accounts 1990-91 (5220.0)

Non-ABS publications

Department of the Treasury, Victoria, estimates of State Accounts compiled by the Policy and Statistics Division
Victorian Department of Manufacturing and Industry Development, 1990-91 Annual Report
State Electricity Commission, Annual Report 1990-91
Australian Institute of Petroleum Ltd: Oil and Australia
Australian Dairy Corporation Dairy Statistics.