

Section 22

MANUFACTURES

This section presents statistics on the manufacturing segment of the economy, including sugar processing and pineapple canning. Additional information on manufacturing workers appears in Sections 12 and 15.

The number of manufacturing establishments in Hawaii increased from 697 in 1967 to 1,020 in 1987. The value added by manufacture rose from \$326 million in 1967 to \$786 million in 1977, \$1.41 billion in 1987, and \$1.61 billion in 1989. More than three-fourths of all manufacturing activity in the State in 1987 was on Oahu. Food processing--mostly sugar and pineapple--accounted for 41 percent of the value added by manufacture in 1987. In 1990, the general excise and use tax base for diversified manufacturing (that is, manufacturing exclusive of sugar processing, pineapple canning, and petroleum refining) was \$728 million. There were two pineapple canneries and 12 sugar mills in Hawaii in 1990. Canned and fresh pineapple sales in 1990 totaled \$216 million, down somewhat from earlier years. Sugar production in 1990 amounted to 820,000 short tons, the lowest total in 32 years. The value of sugar production (including commercial molasses) in 1990 was \$329 million, compared with the record of \$677 million set in 1974. Important manufactures other than food processing include apparel, printing and publishing, and stone, clay, and glass products. Industrial and technology parks and areas in 1990 numbered 40, with 7,591 acres.

Sources for data on this subject include the quinquennial United States Census of Manufactures, most recently conducted for 1987, the Annual Survey of Manufactures, publications of the Hawaii State Department of Agriculture and Department of Taxation, and the Hawaiian Sugar Planters' Association's annual report, HSPA Sugar Manual. Historical Statistics of Hawaii, Section 16, contains the figures for earlier years. Statistics for the nation as a whole appear in Section 27 of the Statistical Abstract of the United States: 1991.

Table 634.-- STATISTICAL SUMMARY OF MANUFACTURES: 1963 TO 1989

Subject	1963	1967	1972	1977	1982
All establishments: ^{1/}					
Total	672	697	773	949	966
With 20 employees or more	203	215	238	231	237
All employees:					
Number (1,000)	25.1	25.4	24.8	25.0	23.6
Payroll (million dollars)	109.0	139.6	191.1	276.8	360.3
Production workers:					
Number (1,000)	18.7	19.0	17.7	17.4	16.0
Hours (millions)	33.2	35.9	33.1	31.3	29.9
Wages (million dollars) .	67.5	86.9	113.7	160.5	217.5
Value added by manu- facture ^{2/} (million dollars)	261.1	326.2	410.0	785.5	1,119.6
Cost of materials ^{3/} (million dollars)	(NA)	399.6	548.3	1,176.1	2,357.5
Value of shipments ^{3/} (million dollars)	(NA)	723.4	955.6	1,974.0	3,443.0
New capital expenditures (million dollars)	15.4	26.0	46.7	44.4	89.4

Continued on next page.

Table 634.-- STATISTICAL SUMMARY OF MANUFACTURES: 1963 TO 1989--Con.

Subject	1985	1986	1987	1988	1989
All establishments: <u>1/</u>					
Total	(NA)	(NA)	1,022	(NA)	(NA)
With 20 employees or more	(NA)	(NA)	225	(NA)	(NA)
All employees:					
Number (1,000)	23.0	23.1	22.2	21.7	20.5
Payroll (million dollars)	400.7	424.0	440.2	452.4	432.6
Production workers:					
Number (1,000)	15.8	15.7	15.2	14.3	13.0
Hours (millions)	28.0	29.0	28.8	27.4	25.2
Wages (million dollars) .	228.5	239.3	254.2	255.0	244.2
Value added by manufac- ture <u>2/</u> (million dollars)	1,195.3	1,173.9	1,405.3	1,376.8	1,609.8
Cost of materials <u>3/</u> (million dollars)	2,280.2	1,898.9	2,048.8	1,980.1	2,220.7
Value of shipments <u>3/</u> (million dollars)	3,477.3	3,086.4	3,447.9	3,337.3	3,813.4
New capital expenditures (million dollars)	76.1	47.3	102.0	76.1	98.4

NA Not available.

1/ Establishments with payroll at any time during year.

2/ Data for 1982 and later years not directly comparable to data for earlier years; see source for discussion.

3/ Aggregate of cost of materials and value of shipments includes extensive duplication since products of some industries are used as materials by others.

Source: U.S. Bureau of the Census, 1982 Census of Manufactures, Geographic Area Series, Hawaii, MC82-A-12 (April 1985), table 2a; 1986 Annual Survey of Manufactures, Geographic Area Statistics, M86(AS)-3 (July 1988), table 1; 1987 Census of Manufactures, Geographic Area Series, Hawaii, MC87-A-12 (October 1990), table 2a; 1989 Annual Survey of Manufactures, Geographic Area Statistics, M89(AS)-3 (September 1991), table 1.

Table 635.-- STATISTICAL SUMMARY OF MANUFACTURES, BY COUNTIES: 1987

Subject	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County
All establishments <u>1/</u> (number) ...	1,022	800	100	34	88
With 20 employees or more	225	182	21	6	16
All employees:					
Number (1,000)	22.2	16.5	2.2	0.7	2.8
Payroll (million dollars)	440.2	330.7	40.7	13.8	54.9
Production workers:					
Number (1,000)	15.2	10.9	1.6	0.5	2.2
Hours (millions)	28.8	19.9	3.2	1.1	4.6
Wages (million dollars)	254.2	178.2	27.5	9.5	39.0
Value added by manufacture (million dollars)	1,405.3	1,077.1	117.4	51.8	159.0
Cost of materials <u>2/</u> (million dollars)	2,048.8	1,716.6	129.6	47.7	154.9
Value of shipments <u>2/</u> (million dollars)	3,447.9	2,783.8	250.5	99.5	314.2
New capital expenditures (million dollars)	102.0	66.1	11.6	5.9	18.5

1/ Includes establishments with payroll at any time during the year.

2/ Aggregate of cost of materials and value of shipments include extensive duplication since products of some industries are used as materials by others.

Source: U.S. Bureau of the Census, 1987 Census of Manufactures, Geographic Area Series, Hawaii, MC87-A-12 (October 1990), table 4.

Table 636.-- MANUFACTURES, BY SELECTED INDUSTRY GROUP: 1987

[Includes operating manufacturing establishments and auxiliaries. Includes industry groups with 500 employees or more]

Subject	Food and kindred products (SIC 20)	Apparel, other textile (SIC 23)	Printing and publishing (SIC 27)	Stone, clay, glass products (SIC 32)	Fabricated metal products (SIC 34)
All establishments:					
Total	229	181	188	54	37
With 20 employees or more	72	47	34	12	8
All employees:					
Number (1,000)	9.8	3.4	2.5+	0.9	0.5
Payroll (mil. dol.)	187.9	38.7	(D)	23.6	11.7
Production workers:					
Number (1,000)	7.1	2.7	(D)	0.7	0.4
Hours (millions) ..	13.8	4.6	(D)	1.4	0.7
Wages (mil. dol.) .	117.6	25.2	(D)	17.5	8.1
Value added by manufacture (mil. dol.)	575.8	88.0	(D)	74.2	36.2
Cost of materials (mil. dol.)	784.0	72.1	(D)	83.0	49.2
Value of shipments (mil. dol.)	1,360.9	159.1	(D)	155.6	84.7
New capital expenditures (mil. dol.)	49.3	2.0	(D)	4.3	1.1

D Withheld to avoid disclosing data for individual companies.

Source: U.S. Bureau of the Census, 1987 Census of Manufactures, Geographic Area Series, Hawaii, MC87-A-12 (October 1990), table 5.

Table 637.-- MANUFACTURES, BY SELECTED INDUSTRY GROUP: 1988

SIC code	Industry	Number of establishments		Number of employees for week including March 12	Annual payroll (\$1,000)
		Total	With 20 employees or more		
	Manufacturing	963	230	22,467	475,191
20	Food and kindred products	223	76	9,757	206,450
2061	Raw cane sugar	13	12	2,945	65,819
22	Textile mill products	5	-	(B)	(D)
23	Apparel and other textile products	159	45	3,351	39,561
24	Lumber and wood products	37	5	405	8,527
25	Furniture and fixtures	29	8	385	6,916
26	Paper and allied products	7	4	216	5,872
27	Printing and publishing	186	36	3,447	82,790
28	Chemicals and allied products ..	21	3	205	4,546
29	Petroleum and coal products	5	4	493	19,126
30	Rubber and miscellaneous plastics products	22	6	276	3,457
31	Leather and leather products ...	7	2	113	1,295
32	Stone, clay, and glass products	52	11	871	26,805
33	Primary metal industries	4	1	(C)	(D)
34	Fabricated metal products	34	6	415	9,605
35	Industrial machinery, equipment	32	4	274	6,879
36	Electronic, other electronic equipment	14	1	167	3,557
37	Transportation equipment	15	5	489	15,428
38	Instruments and related products	16	1	131	1,533
39	Miscellaneous manufacturing industries	77	6	793	12,218
--	Administrative and auxiliary ...	18	6	532	16,590

B 20 to 99.

C 100 to 249.

D Withheld to avoid disclosing data for individual companies.

Source: U.S. Bureau of the Census, County Business Patterns 1988, Hawaii, CBP-88-13 (September 1990), table 1B.

Table 638.-- PLANT CAPACITY UTILIZATION RATES:
FOURTH QUARTER ESTIMATES, 1983 TO 1988

[The sample of manufacturing plants located in Hawaii was not selected specifically to represent the state but is a by-product of the national survey. Consequently, the state data are subject to high sampling variability that may disguise real movement in the series. No survey was conducted in 1989]

Type of rate	1983	1984	1985	1986	1987	1988
Preferred rate <u>1/</u>	83	84	87	87	89	92
Practical rate <u>2/</u>	73	81	83	78	85	88

1/ The preferred level of operations is defined as a level, normally between actual operations and practical capacity, which the manufacturer would prefer not to exceed due to costs or other considerations. In this table, the preferred utilization rate represents the ratio of actual to preferred level of operations.

2/ Practical capacity is broadly defined as the greatest output the plant could achieve within the framework of a realistic work pattern. The practical capacity utilization rate is the ratio of actual operations to the practical capacity level.

Source: U.S. Bureau of the Census, Industry Division, records.

Table 639.-- MANUFACTURING SALES RECEIPTS: 1987 TO 1990

[Millions of dollars]

Category	1987	1988	1989	1990
Total manufacturing ...	2,089.6	2,166.6	2,347.1	2,620.8
Sugar processing	354.5	337.5	342.1	353.3
Pineapple canning	202.9	191.7	182.7	160.1
Petroleum	943.9	1,030.7	1,164.5	1,353.1
Diversified manufacturing ..	588.3	606.7	657.9	754.4

Source: Bank of Hawaii, Hawaii 1991, p. 35.

Table 640.-- GENERAL EXCISE TAX BASE FOR MANUFACTURING:
1980 TO 1990

[In thousands of dollars. Data exclude sugar processing, pineapple canning, and petroleum refining, and are on a cash basis accounting. Manufactured goods shipped out of State have been exempt from the general excise tax by Act 239, SLH 1987, effective January 1, 1988]

Year re- ported <u>1/</u>	Tax base	Year re- ported <u>1/</u>	Tax base	Year re- ported <u>1/</u>	Tax base
1980	626,004	1984	519,601	1988	629,303
1981	630,732	1985	527,673	1989	630,997
1982	530,598	1986	568,532	1990	728,387
1983	511,823	1987	595,140		

1/ Calendar year in which reported, including "prior years" reports. Income received in December is reported the following January and hence these annual totals generally refer to an "income year" ended November 30.

Source: Hawaii State Department of Taxation, "General Excise and Use Tax Base" (annual tabular release).

Table 641.-- MANUFACTURING CLIMATE: 1989

Factor	States ranked	Hawaii rank
Overall rank (among low manufacturing intensity States only)	21	19
State and local government fiscal policies	50	21
State regulated employment costs	50	14
Labor costs	50	48
Productivity of resources	50	45

Source: 11th Annual Grant Thornton Manufacturing Climates Study (August 1990), pp. 13 and 55.

Table 642.-- PINEAPPLE COMPANIES AND CANNERIES AND
SUGAR COMPANIES AND MILLS: 1940 TO 1990

Year	Pineapple (end of canning season)		Sugar (December 31)	
	Companies	Canneries	Companies <u>1/</u>	Mills
1940	8	8	38	34
1945	7	7	36	32
1950	9	8	28	26
1955	10	8	28	26
1960	8	9	27	27
1965	6	6	25	27
1970	4	4	23	26
1975	3	3	16	17
1980	3	3	15	14
1985	3	2	14	12
1989	3	2	13	11
1990	4	2	12	12
ISLANDS: 1990				
Hawaii	-	-	3	3
Maui	2	1	2	3
Oahu	2	1	2	2
Kauai	-	-	5	4

1/ Excludes cooperatives.

Source: Pineapple Growers Association of Hawaii, records;
Hawaiian Sugar Planters' Association, Hawaiian Sugar Manual
(annual); Hawaii State Department of Agriculture, records.

Table 643.-- SUGAR AND MOLASSES PRODUCTION: 1970 TO 1990

Year	Cane land (acres)		Cane used for sugar (short tons)	Sugar produced (short tons)		Molasses produced (short tons)
	Total area	Harvested area ^{1/}		96° raw value	Equivalent refined	
1969 ...	242,216	113,232	10,839,272	1,182,414	1,105,060	340,330
1970 ...	238,997	113,816	10,457,377	1,162,071	1,086,000	322,480
1971 ...	232,278	115,810	10,685,019	1,229,976	1,149,510	330,227
1972 ...	229,611	108,456	9,929,068	1,118,883	1,045,708	307,543
1973 ...	226,580	108,189	9,645,452	1,128,529	1,054,723	301,500
1974 ...	224,227	95,826	9,082,684	1,040,742	972,677	293,380
1975 ...	221,426	105,125	9,485,299	1,107,199	1,034,788	301,335
1976 ...	221,551	99,926	9,172,649	1,050,457	981,757	275,352
1977 ...	220,729	96,770	8,994,388	1,033,739	966,132	284,349
1978 ...	220,697	99,355	9,263,190	1,028,933	961,641	310,238
1979 ...	218,773	100,610	9,632,135	1,059,737	990,430	325,843
1980 ...	217,718	97,358	9,214,136	1,023,232	956,313	315,088
1981 ...	216,099	97,573	8,831,477	1,047,541	979,032	311,719
1982 ...	204,749	89,261	8,807,998	982,913	918,630	287,190
1983 ...	194,258	92,808	8,926,358	1,044,204	975,913	303,254
1984 ...	188,396	89,541	8,453,721	1,061,814	992,371	314,202
1985 ...	187,858	83,029	7,916,459	1,012,249	946,048	271,645
1986 ...	184,181	83,583	8,379,463	1,042,452	974,276	290,422
1987 ...	180,966	79,498	8,012,899	979,209	915,169	283,250
1988 ...	177,693	78,715	7,602,414	928,195	867,491	274,375
1989 ...	170,813	74,660	7,078,479	863,614	817,752	229,377
1990 ...	161,991	71,999	6,540,925	819,631	776,027	320,859

^{1/} The average growth of a crop is 22 to 26 months. Only a portion of the total acreage in cane is harvested each year.

Source: Hawaiian Sugar Planters' Association, HSPA Sugar Manual (annual), and records.

Table 644.-- AVERAGE RAW SUGAR PRICE AND SUGAR INDUSTRY EMPLOYMENT
AND EARNINGS: 1970 TO 1990

Year	Average raw sugar price ^{1/} (cents per lb.)	Hourly-rated employees		Industry-wide strikes (weeks)	Average daily earnings ^{2/} (dollars)	
		Average number ^{3/}	Total man-days		Cash wages	Employee benefits
1970 ...	8.08	8,908	2,139,183	-	24.24	10.00
1971 ...	8.52	8,610	2,077,011	-	26.08	10.27
1972 ...	9.10	8,127	1,934,563	-	29.09	11.23
1973 ...	10.30	7,900	1,897,369	-	30.86	12.48
1974 ...	29.43	7,700	1,744,346	6	34.41	15.81
1975 ...	22.49	7,800	1,937,973	-	37.34	15.66
1976 ...	13.31	7,500	1,854,272	-	43.12	17.28
1977 ...	11.11	7,200	1,660,298	3	43.92	19.97
1978 ...	13.74	7,200	1,771,530	-	47.06	21.28
1979 ...	15.20	7,065	1,762,838	-	50.49	22.21
1980 ...	30.18	7,076	1,793,237	-	56.72	24.68
1981 ...	19.74	7,282	1,806,020	-	61.51	27.71
1982 ...	19.94	6,816	1,519,732	-	65.11	30.83
1983 ...	22.04	6,543	1,565,928	-	66.80	32.00
1984 ...	21.74	6,319	1,467,127	-	68.88	34.71
1985 ...	20.39	5,751	1,323,525	-	68.72	35.99
1986 ...	20.90	5,413	1,290,067	-	69.28	34.24
1987 ...	21.83	5,222	1,261,209	-	71.36	41.83
1988 ...	22.12	5,110	1,204,708	-	72.46	34.56
1989 ...	22.76	4,721	1,129,526	-	74.64	41.92
1990 ...	23.26	4,453	1,065,794	-	76.42	43.07

^{1/} Average New York raw sugar price computed over all the days of the year (Hawaiian basis). The New York spot price was suspended from November 2, 1977 to August 20, 1979; figures for that period are based on Clearing Association settlement prices. New York spot price "nearby futures" used beginning June 1985.

^{2/} For non-supervisory employees.

^{3/} Adults only.

Source: Hawaiian Sugar Planters' Association, HSPA Sugar Manual (annual), as revised and updated.

Table 645.-- VALUE OF SALES AND GOVERNMENT PAYMENTS FOR PINEAPPLE AND SUGAR PRODUCTION: 1970 TO 1990

[In millions of dollars. Calendar year data unless otherwise specified]

Year	Pineapple		Sugar		
	Canned fruit and juices <u>1/</u>	Fresh market sales <u>2/</u>	Value of production		Government sugar support payments
			Raw sugar 96 ^o	Commercial molasses	
1970 ..	135.0	3.6	180.7	7.1	10.3
1971 ..	137.7	3.7	196.3	6.7	10.7
1972 ..	140.5	4.9	176.6	8.1	9.7
1973 ..	135.0	7.4	203.8	18.4	9.5
1974 ..	118.2	8.9	659.2	17.4	8.6
1975 ..	126.6	10.1	354.6	11.5	-
1976 ..	130.0	14.5	245.5	11.5	-
1977 ..	140.0	21.6	219.1	7.7	48.7
1978 ..	133.4	29.5	269.5	15.7	8.1
1979 ..	176.3	30.1	322.2	23.5	-
1980 ..	192.2	34.3	566.4	27.7	-
1981 ..	172.0	45.6	314.2	13.7	-
1982 ..	156.1	49.9	343.9	7.6	-
1983 ..	171.6	47.4	396.5	13.7	-
1984 ..	202.0	47.6	382.9	10.1	-
1985 ..	171.7	50.8	331.9	8.9	-
1986 ..	184.9	53.5	348.4	13.5	-
1987 ..	202.9	48.5	325.0	10.9	-
1988 ..	191.7	55.3	312.9	11.1	-
1989 ..	182.7	59.2	313.6	8.4	-
1990 ..	160.1	55.8	319.0	9.9	-

1/ Processor value of canned fruit and juice production and by-products shipped out-of-State and sold within State. Prior to 1979, data are for pack years beginning June 1.

2/ Value FAS shipping point for outshipments, delivered wholesalers local sales.

Source: Hawaii Agricultural Statistics Service, Statistics of Hawaiian Agriculture (annual) and records.

Table 646.-- INDUSTRIAL AND TECHNOLOGY PARKS AND AREAS, BY ISLANDS:
1990

[Includes existing industrial areas, industrial parks and subdivisions, and technology parks and centers]

Subject	State total	Hawaii	Maui	Oahu	Kauai
Number of parks and areas ...	40	10	5	22	3
Acres	7,591	2,066	626	4,847	52

Source: Hawaii State Department of Business, Economic Development & Tourism, State of Hawaii Directory of Industrial and Technology Parks 1991 (1990).