

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.

Sources for data on this subject include the quinquennial *United States Census of Manufactures*, most recently published for 1992, the *United States Annual Survey of Manufactures*, publications of the Hawaii State Department of Agriculture and the Hawaii State Department of Taxation, and the *Hawaiian Sugar Manual* of the former Hawaiian Sugar Planters' Association, now the Hawaii Agriculture Research Center. *Historical Statistics of Hawaii*, Section 16, contains the figures for earlier years. Statistics for the nation as a whole appear in Section 26 of the *Statistical Abstract of the United States: 1996*.

**Table 22.01-- STATISTICAL SUMMARY OF MANUFACTURES:
1963 TO 1995**

Subject	1963	1967	1972	1977	1982	1987
All establishments: 1/						
Total	672	697	773	949	967	1,022
With 20 employees or more	203	215	238	231	237	225
All employees:						
Number (1,000)	25.1	25.4	24.8	25.0	23.6	22.2
Payroll (million dollars)	109.0	139.6	191.1	276.8	360.4	440.2
Production workers:						
Number (1,000)	18.7	19.0	17.7	17.4	16.0	15.2
Hours (millions)	33.2	35.9	33.1	31.3	29.9	28.8
Wages (million dollars)	67.5	86.9	113.7	160.5	217.5	254.2
Value added by manufacture 2/ (million dollars)	261.1	326.2	410.0	785.5	1,119.6	1,405.3
Cost of materials 3/ (million dollars)	(NA)	399.6	548.3	1,176.1	2,357.5	2,048.8
Value of shipments 3/ (million dollars)	(NA)	723.4	955.6	1,974.0	3,443.0	3,447.9
New capital expenditures (million dollars)	15.4	26.0	46.7	44.4	89.4	102.0

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**Table 22.01-- STATISTICAL SUMMARY OF MANUFACTURES:
1963 TO 1995 -- Con.**

Subject	1990	1991	1992	1993	1994	1995
All establishments: 1/ Total	(NA)	(NA)	1,020	(NA)	(NA)	(NA)
With 20 employees or more	(NA)	(NA)	225	(NA)	(NA)	(NA)
All employees:						
Number (1,000)	20.7	19.3	20.6	20.7	17.8	17.3
Payroll (million dollars)	476.7	466.1	547.4	711.7	505.4	509.2
Production workers:						
Number (1,000)	13.2	11.5	12.9	12.4	11.0	10.7
Hours (millions)	26.1	22.9	26.0	25.4	21.5	21.6
Wages (million dollars)	263.1	248.6	290.1	307.0	266.9	260.8
Value added by manufacture 2/ (million dollars)	1,557.5	1,383.3	1,556.5	2,192.8	1,527.4	1,488.5
Cost of materials 3/ (million dollars)	2,680.5	2,368.8	2,228.2	2,316.4	1,799.3	1,911.2
Value of shipments 3/ (million dollars)	4,202.9	3,805.3	3,791.7	4,510.1	3,336.8	3,440.4
New capital expenditures (million dollars)	126.9	64.1	107.1	174.6	202.8	117.7

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 include 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; *1987 Census of Manufactures, Geographic Area Series, Hawaii*, MC87-A-12 (October 1990), table 2a; *1990 Annual Survey of Manufactures, Geographic Area Statistics*, M90 (AS)-3 (April 1992), table 1; *1991 Annual Survey of Manufactures, Geographic Area Statistics*, M91 (AS)-3 (February 1993), table 1; *1995 Annual Survey of Manufactures, Geographic Area Statistics*, M94 (AS)-3 (April 1997), table 1.

**Table 22.02-- STATISTICAL SUMMARY OF MANUFACTURES, BY COUNTIES:
1992**

[Includes operating manufacturing establishments and auxiliaries]

Subject	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County
All establishments 1/ (number)	1,020	768	114	40	98
With 20 employees or more	225	183	24	7	11
All employees:					
Number (1,000)	20.6	15.0	2.6	0.9	2.2
Payroll (million dollars)	547.4	409.8	54.7	21.0	61.9
Production workers:					
Number (1,000)	12.9	9.2	1.8	0.6	1.3
Hours (millions)	26.0	18.0	3.6	1.3	3.1
Wages (million dollars)	290.1	211.4	36.7	13.0	29.0
Value added by manufacture (million dollars)	1,556.4	1,228.6	141.4	42.0	144.3
Cost of materials 2/ (million dollars)	2,228.3	1,911.4	140.6	45.9	130.5
Value of shipments 2/ (million dollars)	3,791.7	3,150.7	278.4	87.7	275.0
New capital expenditures (million dollars)	107.1	81.8	6.3	7.3	11.6

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, *1992 Census of Manufactures, Geographic Area Series, Hawaii*, MC92-A-12 (August 1995), table 4.

Table 22.03-- MANUFACTURES, BY SELECTED INDUSTRY GROUPS: 1994

[Includes operating manufacturing establishments and auxiliaries]

Subject	Food and kindred products (SIC 20)			Apparel, other textile products (SIC 23)	Printing and publishing (SIC 27)	Stone, clay, and glass products (SIC 32)
	Total	Preserved fruits and vegetables (SIC 203)	Sugar, confectionery products (SIC 206)			
All employees:						
Number (1,000)	6.6	1.2	2.8	2.2	3.3	1.2
Payroll (million dollars)	165.6	20.5	66.8	34.1	108.6	49.6
Production workers:						
Number (1,000)	4.3	0.9	1.9	1.7	1.7	0.8
Hours (million)	8.3	1.6	3.7	3.0	3.5	1.6
Wages (million dollars)	98.8	17.0	44.2	21.0	51.0	31.3
Value added by manufacture (million dollars)	478.3	50.8	148.1	81.0	282.4	101.8
Cost of materials (million dollars)	443.4	66.3	32.0	47.9	89.4	111.2
Value of shipments (million dollars)	952.6	117.1	210.6	128.2	371.6	209.4
New capital expenditures (million dollars)	93.1	2.7	53.6	4.6	27.2	(D)
End-of-year inventories (million dollars)	49.2	51.5	56.3	25.3	26.0	23.5

D Withheld to avoid disclosing data for individual companies.

Source: U.S. Bureau of the Census, *1994 Annual Survey of Manufactures, Geographic Area Statistics*, M94 (AS)-3, July 1996, table 2.

**Table 22.04-- OPERATING MANUFACTURING ESTABLISHMENTS
AND AUXILIARIES: 1977 TO 1992**

[Auxiliaries are establishments whose employees are primarily engaged in supporting services for other establishments of the same company, rather than for the general public or for other business firms]

Subject	1977	1982	1987	1992 1/
Employees (1,000)	25.0	23.6	22.2	20.6
Operating manufacturing establishments	23.6	22.9	21.7	20.0
Auxiliaries	1.4	0.7	0.5	0.6
Payroll (million dollars)	276.8	360.4	440.2	547.4
Operating manufacturing establishments	254.1	341.7	421.8	523.4
Auxiliaries	22.9	18.7	18.3	24.0

1/ In 1992, 21 of the 1,020 manufacturing establishments were auxiliaries.

Source: U.S. Bureau of the Census, *1992 Census of Manufactures, Geographic Area Series, Hawaii*, MC92-A-12 (August 1995), tables 1 and 5.

Table 22.05-- MANUFACTURING SALES RECEIPTS: 1991 TO 1994

[Millions of dollars]

Category	1991	1992	1993	1994
Total manufacturing	2,402.6	2,263.0	2,106.6	2,026.1
Sugar processing	302.0	280.5	292.9	290.2
Pineapple canning	172.7	141.8	86.6	81.1
Petroleum	1,214.8	1,144.4	1,007.3	1,044.8
Diversified manufacturing	713.2	696.4	719.7	610.0

Source: Bank of Hawaii, *Hawaii's Economy, April 1996* (1996), p. 43.

**Table 22.06-- GENERAL EXCISE TAX BASE FOR MANUFACTURING:
1986 TO 1996**

[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 were exempted from the general excise tax by Act 239, SLH 1987, effective January 1, 1988]

Year reported 1/	Tax base	Year reported 1/	Tax base	Year reported 1/	Tax base
1986	568,532	1990	728,387	1994	618,238
1987	595,140	1991	714,407	1995	614,771
1988	629,303	1992	714,470	1996	622,889
1989	630,997	1993	717,423		

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, as revised 3/25/97).

**Table 22.07-- 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).

**Table 22.08-- PINEAPPLE COMPANIES AND CANNERIES AND
SUGAR COMPANIES AND MILLS: 1940 TO 1994**

Year	Pineapple (end of canning season)		Sugar (December 31)	
	Companies	Canneries	Companies 1/	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
1990	4	2	12	12
1993	3	1	11	12
1994	3	1	9	10
ISLANDS: 1994				
Hawaii	-	-	1	1
Maui	1	1	2	3
Oahu	2	-	2	2
Kauai	-	-	4	4

1/ In operation; excludes cooperatives.

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

Table 22.09-- SUGAR AND MOLASSES PRODUCTION: 1984 TO 1994

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	
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	78,861	7,602,414	928,195	867,491	274,375
1989	170,813	74,660	7,078,479	863,614	807,134	229,377
1990	161,991	71,998	6,540,925	819,631	766,027	220,859
1991	155,609	67,716	5,852,668	724,100	676,744	202,214
1992	145,790	62,123	5,432,286	652,304	609,643	203,739
1993	125,837	64,705	5,506,702	677,405	633,103	211,412
1994	121,140	64,328	5,268,859	658,538	615,470	203,400

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, *Hawaiian Sugar Manual 1995*, pp. 6-7.

**Table 22.10-- AVERAGE RAW SUGAR PRICE AND SUGAR INDUSTRY
EMPLOYMENT AND EARNINGS: 1973 TO 1993**

Year	Average raw sugar price 1/ (cents per lb.)	Hourly-rated employees		Average daily earnings 2/ (dollars)	
		Average number 3/	Total man-days	Cash wages	Employee benefits
1973	10.30	7,900	1,897,369	30.86	12.48
1974	29.43	7,700	1,744,346	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	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
1991	21.57	4,263	1,024,534	80.26	44.02
1992	21.30	4,101	1,003,876	84.11	46.00
1993 4/	21.62	(NA)	(NA)	(NA)	(NA)

NA Not available.

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.

4/ HSPA employee data no longer compiled after 1992.

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

**Table 22.11-- VALUE OF SALES FOR PINEAPPLE AND SUGAR PRODUCTION:
1980 TO 1995**

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

Year	Pineapple		Sugar	
	Canned fruit and juices 1/	Fresh market sales 2/	Raw sugar 96°	Commercial molasses
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	161.6	54.3	319.0	9.9
1991	172.7	51.9	261.0	9.7
1992	141.8	55.9	229.2	8.4
1993	86.6	54.0	242.9	9.0
1994	81.1	53.0	239.2	8.7
1995	72.5	62.5	190.5	9.7

1/ Processor value of canned fruit and juice production and by-products shipped out-of-State and sold within State.

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

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