























Section 22: Manufactures



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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 1997, 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: 1999*.

**Table 22.01-- STATISTICAL SUMMARY OF MANUFACTURES:
1963 TO 1997**

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 3/ (million dollars)	261.1	326.2	410.0	785.5	1,119.6	1,405.3
Cost of materials 4/ (million dollars)	(NA)	399.6	548.3	1,176.1	2,357.5	2,048.8
Value of shipments 4/ (million dollars)	(NA)	723.4	955.6	1,974.0	3,443.0	3,447.9
Total 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 1997 -- Con.**

Subject	1992	1993	1994	1995	1996	1997
All establishments: 1/ Total	1,020	(NA)	(NA)	(NA)	(NA)	921
With 20 employees or more	225	(NA)	(NA)	(NA)	(NA)	159
All employees:						
Number (1,000)	20.6	20.7	17.8	17.3	17.1	15.1
Payroll (million dollars)	547.4	711.7	505.4	2/ 508.1	509.4	405.0
Production workers:						
Number (1,000)	12.9	12.4	11.0	10.7	10.1	9.9
Hours (millions)	26.0	25.4	21.5	21.6	19.7	18.4
Wages (million dollars)	290.1	307.0	266.9	2/ 260.1	250.6	231.6
Value added by manufacture 3/ (million dollars)	1,556.5	2,192.8	1,527.4	2/ 1,485.6	1,608.5	1,262.4
Cost of materials 4/ (million dollars)	2,228.2	2,316.4	1,799.3	2/ 1,909.2	1,546.7	1,941.1
Value of shipments 4/ (million dollars)	3,791.7	4,510.1	3,336.8	2/ 3,435.5	3,145.5	3,192.5
Total capital expenditures (million dollars)	107.1	174.6	202.8	2/ 112.8	79.0	100.7

NA Not available.

1/ Establishments with payroll at any time during year.

2/ Revised.

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

4/ 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. Census Bureau, *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; *1996 Annual Survey of Manufactures, Geographic Area Statistics*, M96 (AS)-3 (April 1998), table 1 at <http://www.census.gov/prod/www/titles.html#mm>; *1997 Economic Census, Manufacturing, Geographic Area Series, Hawaii*, EC97M31A-HI (May 2000), table 1.

Table 22.02-- DETAILED MANUFACTURING STATISTICS: 1997

[NAICS Industries 31-33]

Item	Value
Companies 1/	895
All establishments	921
Establishments with 1 to 19 employees	762
Establishments with 20 to 99 employees	130
Establishments with 100 employees or more	29
All employees	15,109
Total compensation (\$1,000) 2/	503,407
Annual payroll (\$1,000)	405,045
Total fringe benefits (\$1,000)	98,362
Production workers, average for years	9,899
Production workers on March 12	9,835
Production workers on May 12	9,768
Production workers on August 12	10,194
Production workers on November 12	9,799
Production-worker hours (1,000)	18,362
Production-worker wages (\$1,000)	231,595
Total cost of materials	1,941,147
Cost of materials, parts, containers, etc., consumed (\$1,000)	1,673,002
Cost of resales (\$1,000)	152,624
Cost of fuels (\$1,000)	51,118
Cost of purchased electricity (\$1,000)	23,281
Cost of contract work (\$1,000)	41,122
Quantity of electricity purchased for heat and power (1,000 kWh)	245,275
Quantity of electricity generated less sold for heat and power (1,000 kWh)	(D)
Total value of shipments (\$1,000)	3,192,532
Value of resales (\$1,000)	181,478
Value added (\$1,000)	1,262,448
Total inventories, beginning of year (\$1,000)	336,547
Finished goods inventories, beginning of year (\$1,000)	175,028
Work-in-process inventories, beginning of year (\$1,000)	46,214
Materials and supplies inventories, beginning of year (\$1,000)	115,305

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Table 22.02-- DETAILED MANUFACTURING STATISTICS: 1997 -- Con.

[NAICS Industries 31-33]

Item	Value
Total inventories, end of year	351,344
Finished goods inventories, end of year (\$1,000)	188,052
Work-in-process inventories, end of year (\$1,000)	47,984
Materials and supplies inventories, end of year (\$1,000)	115,308
Gross book value of total assets at beginning of year (\$1,000)	1,221,564
Total capital expenditures (new and used) (\$1,000)	100,707
Capital expenditures for buildings and other structures (new and used) (\$1,000)	38,742
Capital expenditures for machinery and equipment (new and used) (\$1,000)	61,965
Total retirements (\$1,000) 2/	24,447
Gross book value of total assets at end of year (\$1,000)	1,297,824
Total depreciation during year (\$1,000) /2	68,301
Total rental payments (\$1,000) /2	38,447
Buildings and other structures rental payments (\$1,000) /2	23,072
Machinery and equipment rental payments (\$1,000) /2	15,375

D Withheld to avoid disclosing data for individual companies.

1/ For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

2/ These items are collected in the ASM (Annual Survey of Manufacturers) and estimated for the remaining establishments.

Source: U.S. Census Bureau, *1997 Economic Census, Manufacturing, Geographic Area Statistics*, EC97M31A-HI (May 2000), table 5.

**Table 22.03-- STATISTICAL SUMMARY OF MANUFACTURING, BY COUNTIES:
1997**

[NAICS 31-33]

Subject	State total	City and County of Honolulu	Hawaii County	Kauai County 1/	Maui County
All establishments 2/ (number)	921	685	106	30	100
With 20 employees or more	159	133	13	4	9
All employees:					
Number	15,109	11,161	1,588	441	1,919
Payroll (\$1,000)	405,045	300,856	37,458	15,429	51,302
Production workers:					
Number	9,899	7,034	1,076	280	1,509
Hours (1,000)	18,362	13,018	1,954	560	2,830
Wages (\$1,000)	231,595	164,815	21,133	9,351	36,296
Value added by manufacture (\$1,000)	1,262,448	1,042,807	81,221	15,077	123,343
Cost of materials 3/ (\$1,000)	1,941,147	1,659,321	113,642	32,795	135,389
Value of shipments 3/ (\$1,000)	3,192,532	2,692,239	192,461	48,224	259,608
Total capital expenditures (\$1,000)	100,707	77,715	14,236	4,736	4,020

1/ Kauai data calculated as residual by DBEDT.

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

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. Census Bureau, *1997 Economic Census Manufacturing, Geographic Area Series*, EC97M31A-HI (May 2000), tables 1 and 3.

Table 22.04-- MANUFACTURING, BY SELECTED INDUSTRY GROUPS: 1997

[NAICS Industries 31 - 33]

Subject	Total	Food mfg (NAICS 311)	Apparel mfg (NAICS 315)	Printing & rel sup (NAICS 323)	Cement & con. prod mfg (NAICS 3273)	Transp. Equip. mfg (NAICS 336)	Furniture & rel. prod. mfg (NAICS 337)	Miscell. mfg (NAICS 339)
All establishments								
Number	921	244	93	123	33	24	47	146
With 20 employees or more	159	55	21	19	10	6	5	13
All employees								
Number	15,109	6,118	1,555	1,736	613	400	372	1,372
Payroll (thousand dollars)	405,045	153,304	28,924	42,452	26,662	13,418	10,339	31,297
Production workers:								
Number	9,899	4,132	1,221	1,072	437	328	286	767
Hours (thousand)	18,362	7,497	2,250	2,010	901	585	554	1,305
Wages (thousand dollars)	231,595	90,110	17,243	27,109	18,238	10,306	6,931	15,528
Value added by manufacture (thousand dollars)	1,262,448	402,859	70,638	80,317	60,573	26,088	23,608	71,149
Cost of materials (thousand dollars)	1,941,147	475,773	62,975	59,396	69,264	21,138	18,302	36,239
Value of shipments (thousand dollars)	3,192,532	878,143	133,900	140,213	129,904	47,327	40,407	106,043
Total capital expenditures (thousand dollars)	100,707	32,687	1,833	9,658	3,528	816	(D)	2,670

D Withheld to avoid disclosing data for individual companies.

Source: U.S. Census Bureau, *1997 Economic Census, Manufacturing, Geographic Area Statistics*, EC97M31A-HI (May 2000), table 1.

Table 22.05-- PRIVATE INDUSTRY MANUFACTURING EMPLOYMENT AND WAGES, ANNUAL AVERAGES: 1998

SIC code	Manufacturing	Average establishments	Annual average employment	Total annual wages (\$1,000)	Annual wage per employee
	Total	994	16,290	512,166	31,440
2013	Sausages and other prepared meats	11	105	2,001	19,061
2024	Ice cream and frozen desserts	7	41	1,001	24,422
2026	Fluid milk	9	450	16,543	36,763
2033	Canned fruits and vegetables	12	805	21,907	27,214
2035	Pickles, sauces, and salad dressings	13	133	2,440	18,349
2051	Bread, cake, and related products	27	901	23,272	25,829
2064	Candy and other confectionery products	23	518	10,558	20,382
2082	Malt beverages	5	26	522	20,094
2095	Roasted coffee	6	299	8,031	26,860
2097	Manufactured ice	8	70	1,437	20,531
2098	Macaroni and spaghetti	12	138	2,083	15,097
2099	Food preparations, nec	56	753	12,273	16,299
2321	Men's and boys' shirts	7	306	5,704	18,641
2326	Men's and boys' work clothes	8	43	555	12,915
2329	Men's and boys' clothing, nec	11	172	2,779	16,155
2335	Women's, juniors', and misses' dresses	26	636	15,368	24,164
2339	Women's and misses' outerwear, nec	29	228	2,974	13,043
2391	Curtains and draperies	8	79	1,710	21,651
2394	Canvas and related products	7	25	589	23,580
2395	Pleating and stitching	7	67	1,377	20,546
2396	Automotive and apparel trimmings	42	401	10,763	26,841
2431	Millwork	9	69	2,634	38,175
2434	Wood kitchen cabinets	22	175	5,832	33,328
2439	Structural wood members, nec	5	62	1,826	29,459
2673	Bags, plastics, laminated, and coated	3	66	1,847	27,986
2711	Newspapers	36	1,623	69,284	42,689
2721	Periodicals	40	273	9,645	35,329
2741	Miscellaneous publishing	27	155	6,551	42,262
2752	Commercial printing, lithographic	59	679	22,206	32,704
2759	Commercial printing, nec	26	182	5,001	27,476
2911	Petroleum refining	5	585	42,913	73,356
3089	Plastics products, nec	10	70	2,001	28,581
3229	Pressed and blown glass, nec	3	5	84	16,703
3271	Concrete block and brick	3	57	2,261	39,665
3272	Concrete products, nec	22	301	11,593	38,515
3273	Ready-mixed concrete	9	312	15,708	50,347
3281	Cut stone and stone products	9	50	1,341	26,814

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Table 22.05-- PRIVATE INDUSTRY MANUFACTURING EMPLOYMENT AND WAGES, ANNUAL AVERAGES: 1998 - Con.

SIC code	Manufacturing	Average establishments	Annual average employment	Total annual wages (\$1,000)	Annual wage per employee
3411	Metal cans	3	129	4,454	34,529
3442	Metal doors, sash, and trim	8	57	1,559	27,343
3446	Architectural metal work	5	18	399	22,162
3449	Miscellaneous metal work	3	38	1,565	41,175
3599	Industrial machinery, nec	7	26	640	24,620
3731	Ship building and repairing	12	397	12,663	31,897
3732	Boat building and repairing	11	48	1,089	22,681
3911	Jewelry, precious metal	36	400	9,256	23,141
3931	Musical instruments	5	55	1,430	25,997
3949	Sporting and athletic goods, nec	17	73	1,491	20,421
3993	Signs and advertising specialities	8	75	1,957	26,090
3999	Manufacturing industries, nec	11	45	696	15,462

Source: U.S. Department of Labor, *Employment and Wages Annual Averages, 1998* (December 1999), Bulletin 2525.

**Table 22.06-- GENERAL EXCISE TAX BASE FOR MANUFACTURING:
1987 TO 1999**

[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
1987	595,140	1992	714,470	1997	2/ 581,259
1988	629,303	1993	717,423	1998	535,371
1989	630,997	1994	618,238	1999	585,305
1990	728,387	1995	614,771		
1991	714,407	1996	622,889		

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.

2/ Revised in September 1998.

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

**Table 22.07-- LARGEST INDUSTRIAL AND HIGH TECHNOLOGY PARKS,
BY ISLANDS: 1999**

[Data taken from the largest industrial and high technology parks]

Subject	State total	Hawaii	Maui	Oahu	Kauai
Number of parks and areas	19	4	2	12	1
Acres	4,554	1,518	491	2,476	69

Source: Pacific Business News, 2000 *Hawaii Book of Lists*, p. 124.

**Table 22.08-- PINEAPPLE COMPANIES AND CANNERIES, AND
SUGAR COMPANIES AND MILLS: 1940 TO 1999**

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
1995	3	1	8	10
1996	3	1	4	6
1997	3	1	4	6
1998	3	1	4	6
1999	3	1	4	6
ISLANDS: 1998				
Hawaii	-	-	-	-
Maui	1	1	2	3
Oahu	2	-	-	-
Kauai	-	-	2	3
ISLANDS: 1999				
Hawaii	-	-	-	-
Maui	1	1	2	3
Oahu	2	-	-	-
Kauai	-	-	2	3

1/ In operation; excludes cooperatives.

Source: Pineapple Growers Association of Hawaii, records; *Hawaiian Sugar Manual (annual)*; Dole Food Company, records; Hawaii Agriculture Research Center, records.

Table 22.09-- SUGAR AND MOLASSES PRODUCTION: 1989 TO 1999

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	
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	121,322	64,705	5,506,072	677,405	633,103	211,658
1994	98,413	64,951	5,268,859	658,538	615,470	200,835
1995	81,957	48,507	3,952,347	492,346	460,147	163,305
1996	68,816	36,769	3,542,460	437,262	408,665	145,369
1997	67,820	32,033	2,923,594	356,917	333,575	131,173
1998	67,585	30,347	2,725,744	353,893	330,748	125,909
1999	60,758	35,329	2,891,499	367,532	343,495	141,481

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* (annual), and records; Hawaii Agriculture Research Center, records.

**Table 22.10-- VALUE OF SALES FOR PINEAPPLE AND SUGAR PRODUCTION:
1980 TO 1999**

[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
1996	78.2	68.8	160.8	8.0
1997	73.0	63.7	127.5	5.0
1998	81.3	63.8	130.3	2.8
1999	(NA)	69.5	(NA)	(NA)

NA Not available.

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;
<http://www.nass.usda.gov/hi/rlsetoc.htm>