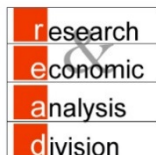


Hawaii's Working Population: An Analysis by Industry 2012-2016



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Department of Business, Economic Development & Tourism

Research and Economic Analysis Division

This report is prepared by Naomi Akamine, Economist, under the direction of Dr. Eugene Tian, Division Administrator.

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EXECUTIVE SUMMARY

Employment

The major industry structure difference between Hawaii and the U.S., in terms of employment, lies in tourism and Manufacturing during the 2012-2016 period. Top three industries with the largest employment for the U.S. were Healthcare and Social Assistance (13.8%), Retail Trade (11.5%), and Manufacturing (10.4%), while the top three industries in Hawaii were Accommodation and Food Services (13.6%), Retail Trade (11.6%), and Healthcare and Social Assistance (11.4%).

Male to female ratio in Hawaii's workforce was 51.9 males, 48.1 females per 100 workers during the 2012-2016 period. Construction sector was the top industry dominated by male workers at 89.8% versus 10.2% female workers. Utilities had the second largest share of male workers at 74.1%. The third largest industry with male workers was Transportation and Warehousing with 70.1% of male workers.

Health Care and Social Assistance sector had the largest share of female workers at 73.3%, followed by Educational Services sector (68.4%). These two industries had more than twice as many female workers as male workers. Finance and Insurance sector was the third largest industry with 65.3% of female workers. Real Estate and Rental and Leasing industry and Accommodation and Food Services had about the same male-female ratio (48.3% male vs. 51.7% female and 50.3% male vs. 49.7% female, respectively).

Overall in the state, among the working population, both payroll and self-employed workers, Millennials (those who were born between 1981 and 1998) accounted for one third of the total workforce (33.2%), Generation X (those who born between 1965 and 1980) accounted for 37.3%, Baby Boomers (those who were born between 1946-1964) accounted for 28.3%, and the Silent Generation (those who were born between 1928 and 1945) and the Greatest Generation (those who were born between 1915 and 1927) combined accounted for 1.1% of the total workforce during the 2012-2016 period.

Retail Trade, Accommodation and Food Services, and Wholesale Trade industry sectors had a larger proportion of Millennials. Utilities, Professional, Scientific and Technical Services, Construction, Educational Services, Finance and Insurance, Public Administration, Health Care and Social Assistance, Administrative and Support and Waste Management and Remediation Services, Manufacturing, Transportation and Warehousing, Information, and Other Services had a bigger share of Generation X workers.

Agriculture, Forestry, Fishing and Hunting, Real Estate, Rental and Leasing, Art, Entertainment and Recreation sectors had a larger share of Baby Boomers.

Due to the large number of Asians in Hawaii (38% of Hawaii population were pure Asians in 2016), Asians were the largest race group for all the industry sectors except Art, Entertainment and Recreation where White was the dominating race group. White was the second largest race group in Professional, Scientific and Technical Services, Real Estate and Rental and Leasing, Public Administration, Educational Services, Agriculture, and Manufacturing.

Educational Services, Professional, Scientific and Technical Services, Finance and Insurance, Health Care and Social Assistance, Public Administration, and Information sectors hired more workers with at least a bachelor degree. On the other hand, Agriculture, Forestry, Fishing and Hunting, Construction, Accommodations and Food Services, Administrative and Support and Waste Management and Remediation Services, and Retail Trade hired more workers with high school diploma (including GED) or below.

78.0 percent of workers had full-time jobs, 22.0 percent of workers had part-time jobs during the 2012-2016 period. Top five industries with more full-time workers included Public Administration (96.2%), Finance and Insurance (92.2%), Construction (86.7%), Manufacturing (84.3%), and Wholesale Trade (84%). Arts, Entertainment and Recreation industry had the largest percentage share of part-time workers at 40.9% followed by Retail Trade (32.2%), Other Services (31.8%), and Accommodation and Food Services (30.7%).

89.5 percent of total workers in the state were wage and salary (payroll) workers, with the rest 10.5 percent were self-employed proprietors during the 2012-2016 period. All workers in Public Administration sector were wage and salary employees. Majority of workers in Educational Services, Accommodation and Food Services sectors were wage and salary employees (97.2% and 96.6%, respectively). The largest percentage share of self-employed workers was found in Agriculture, Forestry, Fishing and Hunting industry at 31.7%, followed by Other Services (26.7%), Professional, Scientific and Technical Services (24.3%) and Real Estate and Rental and Leasing (23.3%).

Labor Earnings

The top paying industry in the country was Professional, Scientific and Technical Services sector with average annual labor earning of \$80,833. People in the same industry in Hawaii earned 82.0% of the U.S. average labor earning. The No.1 industry with the highest labor earning in Hawaii was Utilities (\$70,576). In most industries, the U.S. average labor earnings were higher than those of Hawaii. However, there were a few industries where Hawaii average labor earnings were higher than the U.S. averages. These industries included Accommodation and Food Services (\$9,630 higher than the U.S. average), Construction (\$7,915 higher) and Health Care and Social Assistance (\$7,312 higher).

The state average labor earning for male workers was \$51,566, \$12,921 higher than the average labor earning by female workers (\$38,645). Male workers earned more on average than females in all the industries except Agriculture, Forestry, Fishing and Hunting where female workers earned more than males (\$42,762 for female and \$33,872 for male).

In general, average labor earning increased with age until Baby Boomers age (52-70 years of age during the 2012-2016 period). In all the industry sectors, Generation X had higher average earnings than Millennials.

Average labor earnings for White alone were higher than other major race groups in all the industry sectors except Art, Entertainment and Recreation where Asians had higher average labor earning at \$32,771, higher than that of White alone at \$31,612.

Average labor earnings had a close positive relationship with education level. The higher the education level, the higher the earnings and it is true for all the industry sectors. The average labor earning of the workers with high school diploma (including GED) or below was \$32,653, workers with associate degree and some college education earned an average income of \$39,551, and workers with bachelor degree or above earned an average income of \$63,700.

Overall for all the industries, full-time workers had \$52,907 average labor earning and part-time workers had an average labor earning of \$18,591 during the 2012-2016 period. Full-time workers in Professional, Scientific and Technical Services had the highest average labor earning at \$75,889 per year, followed by Utilities at \$72,187, Health Care and Social Assistance at \$64,052, Finance and Insurance at \$62,950, Information at \$62,725, and Public Administration at \$60,861. Full-time workers in Accommodation and Food Services had the lowest average labor earning at \$37,591 per year during the 2012-2016 period.

State average labor earning for payroll (wage and salary) workers was \$44,584 per year, including full-time and part-time workers during the 2012-2016 period. Self-employed workers made more money on average than payroll workers. The average labor earning for self-employed workers was \$51,868 per year, 16.3% higher than that of payroll workers.

Wages of Full-Time Payroll Employees

Overall industry average wage of full-time payroll workers was \$51,347 for Hawaii, lower than the U.S. average of \$54,840 during the 2012-2016 period. In other words, Hawaii's average wage for full-time payroll workers was 93.6% of the U.S. average.

U.S. average wages were higher than those of Hawaii in most of the industry sectors, except Agriculture, Forestry, Fishing and Hunting, Construction, Transportation and Warehousing, Administration and Support and Waste Management and Remediation Services, Health Care and Social Assistance, and Accommodation and Food Services.

Among the full-time payroll workers in Hawaii and for all the industry sectors combined, male employees had an average annual wage of \$55,925, about \$10,000 higher than female workers at \$45,948. An average male worker earned more wage than an average female worker for all industry sectors except Agriculture, Forestry, Fishing and Hunting, and Arts, Entertainment and Recreation where an average female worker earned more than an average male worker.

Average wage increased with age, especially up to the Baby Boomer's age, for most of the industry sectors. This indicates that experience did play an important role in wage level.

Among the Millennials, those worked in Utilities had the highest average wage at \$59,226 per year, followed by Professional, Scientific and Technical Services at \$56,940, Public Administration at \$49,495, and Health Care and Social Assistance at \$47,586. Those Millennials who worked in Agriculture, Forestry, Fishing and Hunting had the lowest annual wage at \$29,839 per year.

For Generation X workers, Professional, Scientific and Technical Services had the highest annual wage at \$74,517, followed by Utilities at \$74,129, Health Care and Social Assistance at \$69,059, and Information at \$66,885.

Those Baby Boomers worked in Information had the highest annual wage at \$80,974, followed by Professional, Scientific and Technical Services at \$78,779, Finance and Insurance at \$73,688, and Utilities at \$71,832.

White had the highest average wage than other major race groups during the 2012-2016 period. The average wage for White was the highest in every industry sectors. Among the workers with White alone race, Professional, Scientific and Technical Services sector had the highest average annual wage at \$83,042, followed by Health Care and Social Assistance at \$82,914, Information at \$78,243.

Average wage went up with educational level for every industry sector. The average annual wage for those with associate degree and some college was 23.2% higher than those with high school diploma or below. Workers with at least bachelor degree had an average annual wage of \$67,680, 44.7% higher than those with associate degree, and 78.2% higher than those with high school diploma.

Introduction

This report provides information on the demographic, social, and economic characteristics of Hawaii's workforce by major industry sectors at the state level during the 2012-2016 period. The workforce in this report includes civilians 16 years of age and older either employed full-time or part-time with wage and salaries income or/and self-employed with proprietor's income. Unpaid workers are excluded.

The major industries presented in this report is based on 2012 North American Industry Classification System (NAICS). There are 20 major industry sectors classified by 2-digit code as presented in table 1.

Table 1. 2012 North American Industry Classification System

Sector	Description
11	Agriculture, Forestry, Fishing and Hunting
21	Mining, Quarrying, and Oil and Gas Extraction
22	Utilities
23	Construction
31-33	Manufacturing
42	Wholesale Trade
44-45	Retail Trade
48-49	Transportation and Warehousing
51	Information
52	Finance and Insurance
53	Real Estate and Rental and Leasing
54	Professional, Scientific and Technical Services
55	Management of Companies and Enterprises
56	Administrative and Support and Waste Management and Remediation Services
61	Educational Services
62	Health Care and Social Assistance
71	Arts, Entertainment and Recreation
72	Accommodation and Food Services
81	Other Services, except Public Administration
92	Public Administration

Source: the U.S. Census Bureau, North American Industry Classification System, <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012>

The data source for this report is the U.S. Census Bureau's American Community Survey (ACS) 2012-2016 5-Year estimates PUMS data. The ACS is the survey conducted nationwide throughout the year and collects information on demographic, social, economic and housing characteristics of households and people. About 9.2% of Hawaii's population were surveyed during the five-year period by the U.S. Census Bureau. Due to the small sample size, Mining, Quarrying, and Oil and Gas Extraction (NAICS code = 21) and Management of Companies and Enterprises (NAICS code = 55) are excluded from this report.

A. Employment Analysis

Employment by Industry

Figure 1. Employment distribution by major industry: Hawaii vs U.S.

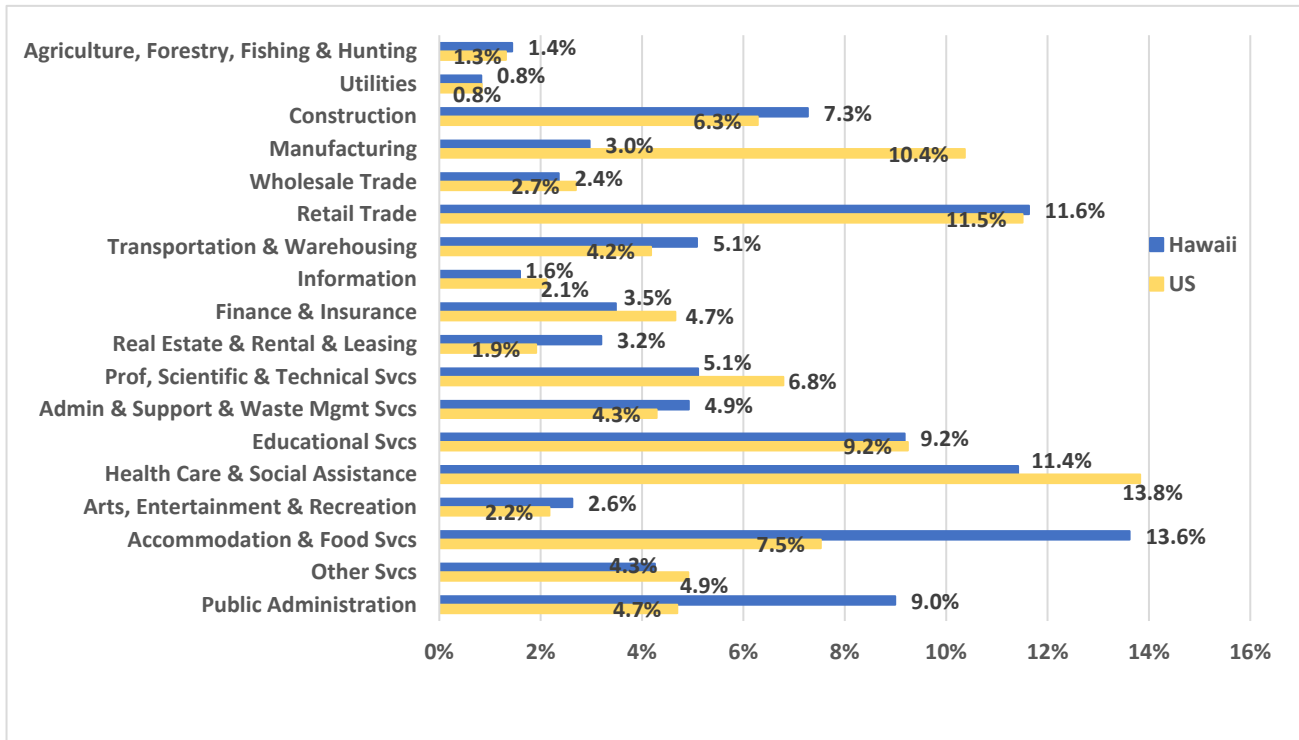


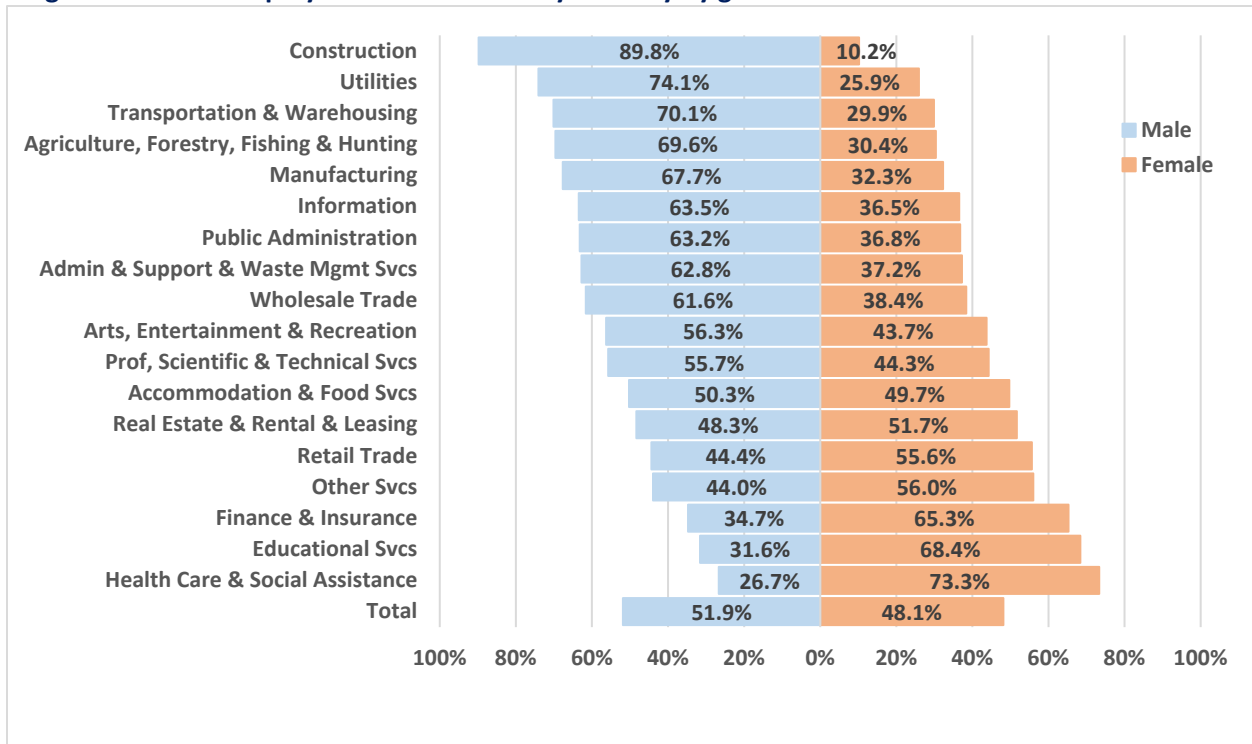
Figure 1 shows the employment distribution by major industry sector, comparing Hawaii and the U.S. during the 2012-2016 period. The figure reveals the following differences in industry structure between Hawaii and the U.S.: (a) the largest industry, in terms of employment, in the U.S. was Health Care and Social Assistance, hired 13.8% of the total workers in the country; while the industry with the largest number of workers was Accommodation and Food Services hired 13.6% of Hawaii workers. (b) The share of workers in Public Administration in Hawaii was almost twice as large as the U.S. (9.0% and 4.7%, respectively). (c) The share of workers in Manufacturing in the U.S., on the other hand, was 10.4%, more than three times as large as the share for Hawaii (3%). (d) More workers were hired by Professional, Scientific and Technical Services, and Finance and Insurance industries in the U.S. (6.8% and 4.7%, respectively) than Hawaii (5.1% and 3.5%, respectively). (e) There were relatively more Real Estate and Rental and Leasing workers in Hawaii (3.2%) than the U.S. average (1.9%).

Industries with similar job shares between Hawaii and the nation included Agriculture, Forestry, Fishing and Hunting (1.4% for Hawaii, 1.3% for U.S.), Utilities (both 0.8%), Educational Services (both 9.2%), Retail Trade (11.6% for Hawaii, 11.5% for U.S.), and Arts, Entertainment and Recreation (2.6% for Hawaii, 2.2% for U.S.).

Looking at the top three industries, in terms of employment, both Healthcare and Social Assistance and Retail Trade were among the top three for both Hawaii and the nation. The difference lies in Tourism and Manufacturing. As an indication of the stronger Tourism industry in Hawaii, Accommodation and Food Services was among the top three industries, ranked No.1 in Hawaii. Manufacturing was among the top three industries for the U.S. indicated that Manufacturing was one of the core industries in the country.

Employment by Gender

Figure 2. Hawaii employment distribution by industry by gender

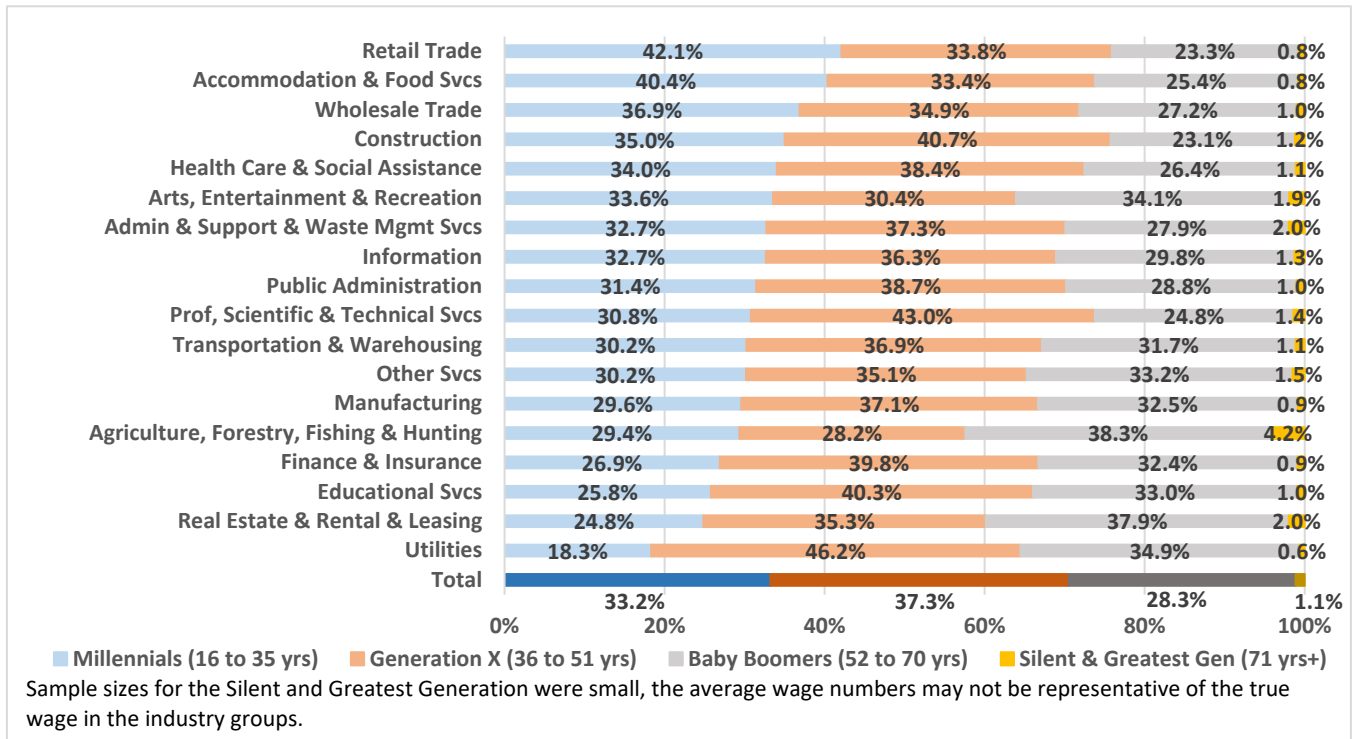


As shown in Figure 2, Hawaii workforce was 51.9% male and 48.1% female during the 2012-2016 period. 12 industries were male dominated (with 50% or more males in the workforce), with 11 of those industries having a higher share of male workers than the state average of 51.9%. There were seven industries with a higher share of female workers than the state average of 48.1%. Construction sector was the top industry dominated by male workers at 89.8% male workers versus 10.2% female workers. Utilities had the second largest share of male workers at 74.1%. The third largest industry with male workers was Transportation and Warehousing with 70.1% of male workers.

Health Care and Social Assistance sector had the largest share of female workers at 73.3%, followed by Educational Services sector (68.4%). These two industries had more than twice as many female workers as male workers. Finance and Insurance sector was the third largest industry with 65.3% share of female workers. Real Estate and Rental and Leasing industry and Accommodation and Food Services had about the same male-female ratio (51.7% male vs. 48.3% female and 49.7% vs. 50.3%, respectively).

Employment by Major Age Group

Figure 3. Hawaii employment distribution by industry by major age group



Overall in the state, among the working population, both payroll and self-employed workers, Millennials (those who were born between 1981 and 1998) accounted for one third of the total workforce (33.2%), Generation X (those who born between 1965 and 1980) accounted for 37.3%, Baby Boomers (those who were born between 1946-1964) accounted for 28.3%, and the Silent Generation (those who were born between 1928 and 1945) and the Greatest Generation (those who were born between 1915 and 1927) combined accounted for 1.1% of the total workforce during the 2012-2016 period.

Retail Trade, Accommodation and Food Services, and Wholesale Trade industry sectors had a larger proportion of Millennials. Utilities, Professional, Scientific and Technical Services, Construction, Educational Services, Finance and Insurance, Public Administration, Health Care and Social Assistance, Administrative and Support and Waste Management and Remediation Services, Manufacturing, Transportation and Warehousing, Information, and Other Services had a bigger share of Generation X workers.

Agriculture, Forestry, Fishing and Hunting, Real Estate, Rental and Leasing, Art, Entertainment and Recreation sectors had a larger share of Baby Boomers.

4.2% of the workers in Agriculture, Forestry, Fishing and Hunting were over 71 years old during the 2012-2016 period.

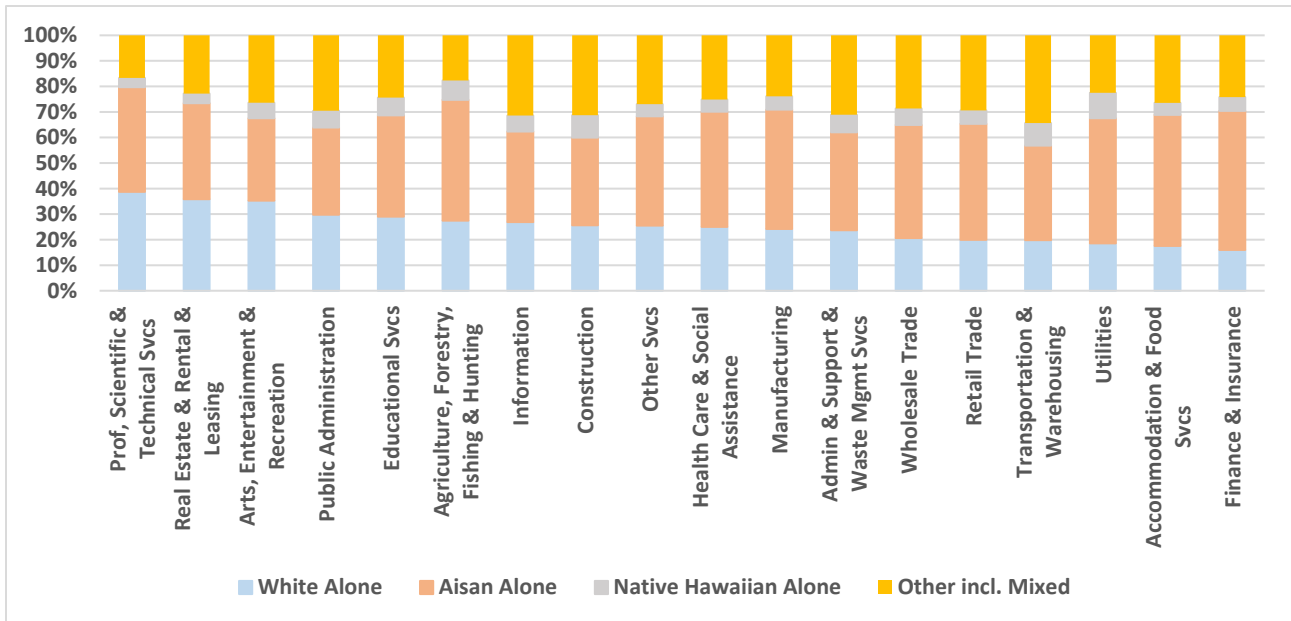
Employment by Major Race Group

Table 2. Hawaii employment distribution by industry by major race group (%)

Industry	White Alone	Asian Alone	Native Hawaiian Alone	Other incl. Mixed
Total	100.0	100.0	100.0	100.0
Health Care & Social Assistance	11.5	12.2	9.3	10.7
Public Administration	10.8	7.3	10.0	9.9
Educational Svcs	10.7	8.6	10.8	8.3
Accommodation & Food Svcs	9.6	16.5	10.9	13.4
Retail Trade	9.4	12.5	10.4	12.7
Prof, Scientific & Technical Svcs	8.0	4.9	3.1	3.2
Construction	7.5	5.9	10.7	8.5
Admin & Support & Waste Mgmt Svcs	4.7	4.5	5.7	5.7
Real Estate & Rental & Leasing	4.6	2.8	2.0	2.7
Other Svcs	4.4	4.3	3.4	4.3
Transportation & Warehousing	4.1	4.4	7.6	6.5
Arts, Entertainment & Recreation	3.7	2.0	2.7	2.6
Manufacturing	2.9	3.3	2.6	2.6
Finance & Insurance	2.2	4.5	3.2	3.1
Wholesale Trade	2.0	2.5	2.6	2.5
Information	1.7	1.3	1.7	1.9
Agriculture, Forestry, Fishing & Hunting	1.6	1.6	1.8	0.9
Utilities	0.6	1.0	1.4	0.7

Health Care and Social Assistance industry was the top industry among White alone workers at 11.5%, followed by Public Administration (10.8%), Educational Services (10.7%) and Accommodation and Food Services (9.6%) during the 2012-2016 period. Among Asian alone workers, Accommodation and Food Services was the top industry accounted for 16.5%. Retail Trade was the second highest industry among Asian alone workers at 12.5%, followed by Health Care and Social Assistance (12.2%) and Educational Services (8.6%). More than 50% of pure Native Hawaiians worked in five industries. The largest number of Hawaiian alone workers were found in Accommodation and Food Services (10.9%) followed by Educational Services (10.8%), Construction (10.7%), Retail Trade (10.4%) and Public Administration (10.0%).

Figure 4. Employment distribution by industry by major race group



Due to the large number of Asians in Hawaii (38% of Hawaii population were pure Asians in 2016), Asians were the largest race group for all the industry sectors except Art, Entertainment and Recreation where White was the dominating race group. White was the second largest race group in Professional, Scientific and Technical Services, Real Estate and Rental and Leasing, Public Administration, Educational Services, Agriculture, Forestry, Fishing and Hunting, and Manufacturing.

Employment by Educational Attainment

Figure 5. Employment distribution by industry and educational attainment

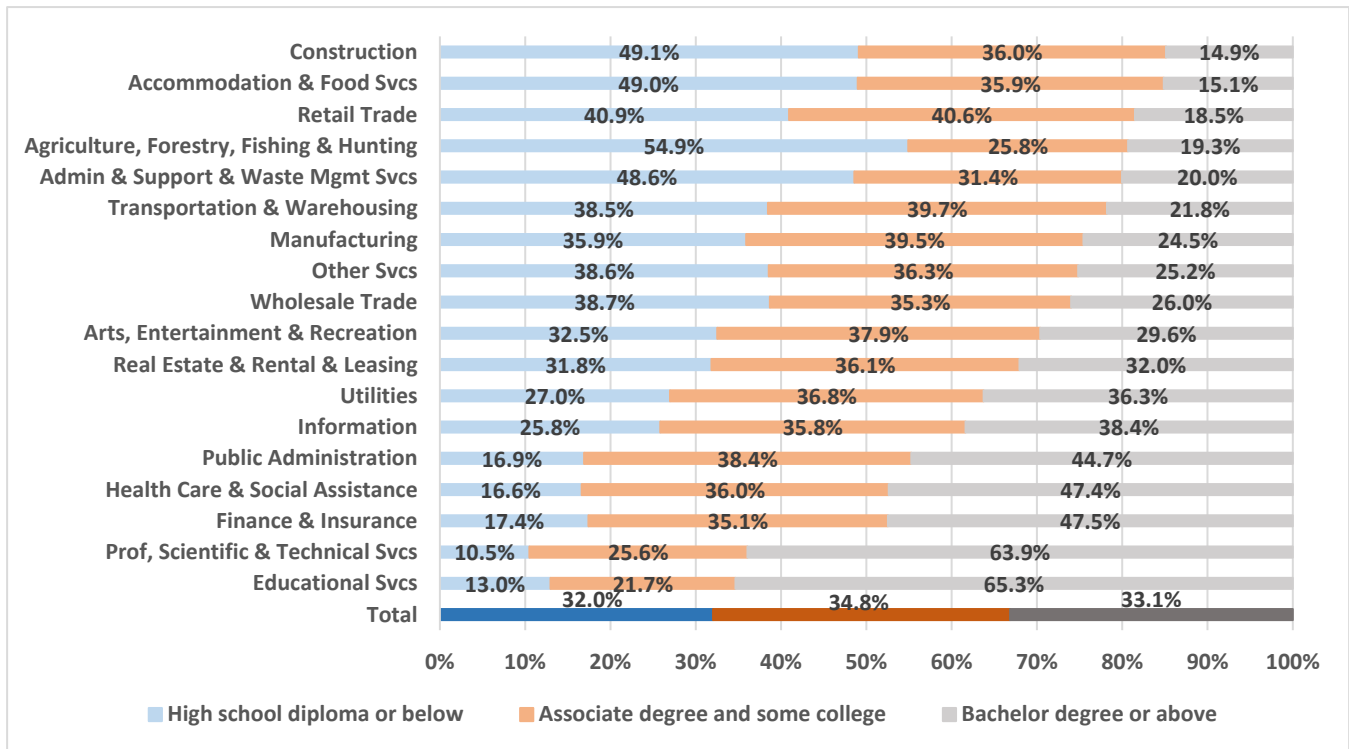


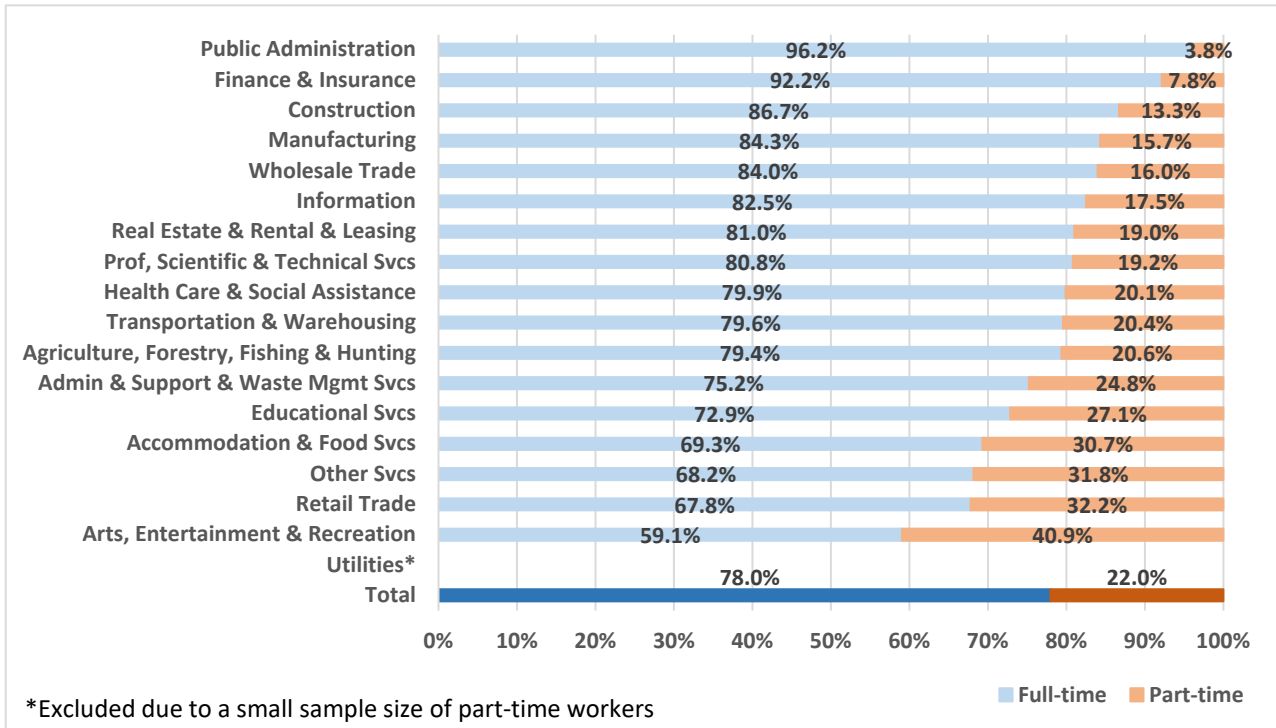
Figure 5 presents the education level of Hawaii workers. Of the total civilian workers in Hawaii, it was roughly one third at each education level: high school diploma or below (32%), associate degree and some college (34.8%), and bachelor degree and above (33.1%) during the 2012-2016 period. 10 industries had higher than state average percentage share of workers with education level at high school diploma or below. 14 industries had a larger share of workers with associate degree and some college than the state average of 34.8%. 7 industries had a larger share of workers with bachelor degree or above than the state average of 33.1%. Among the high school diploma or below level, Agriculture, Forestry, Fishing and Hunting sector had the largest percentage share of workers in this education category at 54.9%, followed by Construction (49.1%), Accommodation and Food Services (49.0%), Administrative and Support and Waste Management and Remediation Services (48.6%). Retail Trade sector had the largest share of the workers with associate degree and some college at 40.6%, followed by Transportation and Warehousing (39.7%) and Manufacturing (39.5%). Educational Services sector had the largest share of the workers with bachelor degree or above at 65.3%, followed by Professional, Scientific and Technical Services (63.9%) and Finance and Insurance (47.5%). About equal share of workers with high school diploma or below and the workers with associate degree and some college were found in Retail Trade (40.9% and 40.6%, respectively).

It is apparent from Figure 5 that Educational Services, Professional, Scientific and Technical Services, Finance and Insurance, Health Care and Social Assistance, Public Administration, and Information sectors hired more workers with at least a bachelor degree. On the other hand, Agriculture,

Construction, Administrative and Support and Waste Management and Remediation Services, Retail Trade, and Accommodations and Food Services hired more workers with lower education levels.

Employment by Full-Time and Part-Time Status

Figure 6. Employment distribution by industry and full-time/part-time status



Full-time workers in this report are defined as anyone who worked for 35 hours or more per week. Part-time workers are defined as anyone who worked for 1 to 34 hours per week. Under this definition, a worker who had two part-time jobs was included in the part-time category even the person worked more than 35 hours per week collectively. The ACS survey asked respondents to report only one job if a person had two jobs. During the 2012-2016 period, 78.0 percent of workers had full-time jobs in the state, and 22.0 percent of workers had part-time jobs. 11 industries had larger percentage share of full-time workers than the state average. Large percentage share of full-time workers was found in Public Administration sector at 96.2%, followed by Finance and Insurance at 92.2% and Construction at 86.7%. Arts, Entertainment and Recreation industry had the largest percentage share of part-time workers at 40.9%. The other industries with higher percentage share of the part-time workers were Retail Trade (32.2%), Other Services (31.8%), and Accommodation and Food Services (30.7%). Industries more likely with office workers such as Public Administration, Finance and Insurance, information, and Professional, Scientific and Technical Services had a higher share of full-time workers.

Employment by Payroll Status

Figure 7. Employment distribution by industry by payroll status

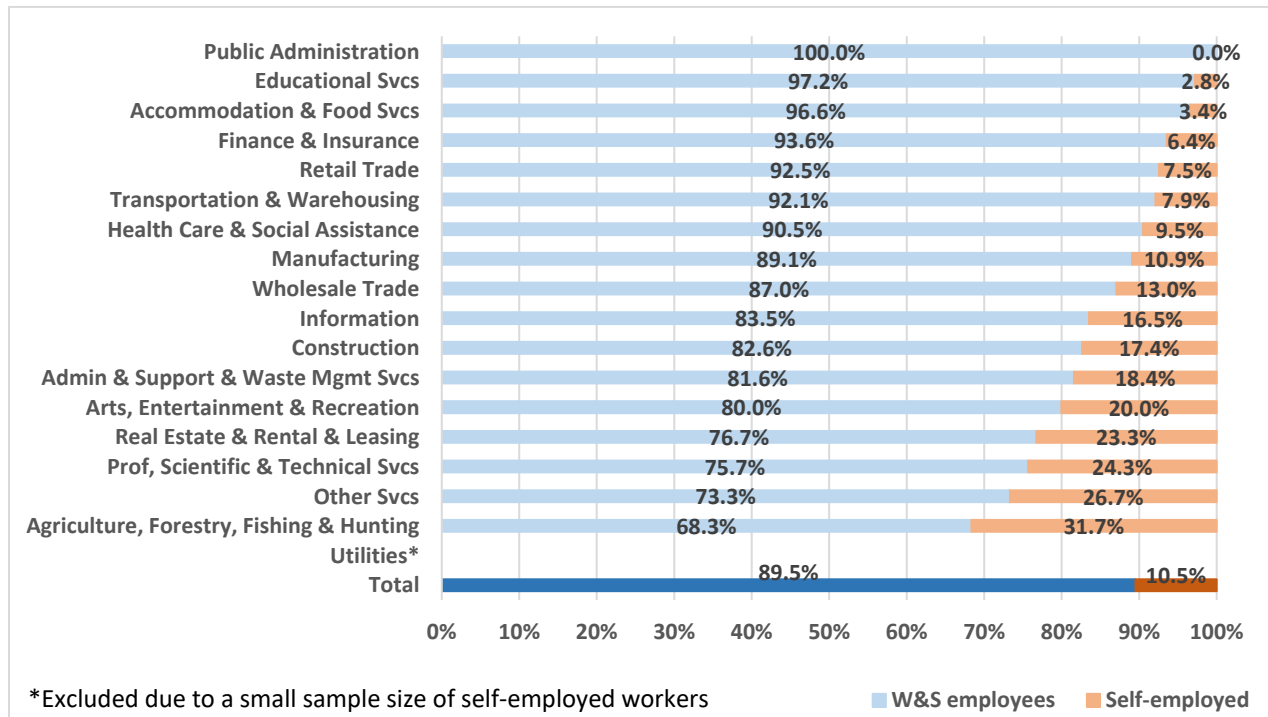


Figure 7 presents the payroll status of Hawaii workers by industry sector. Overall, 89.5 percent of total workers in the state were wage and salary (payroll) workers, 10.5 percent of total workers were self-employed during the 2012-2016 period. The percentage share of wage and salary employees in seven industries were larger than the state average. All workers in Public Administration sector were wage and salary employees. Majority of the workers in Educational Services, Accommodation and Food Services sectors were wage and salary employees (97.2% and 96.6%, respectively).

10 industries had larger percentage share of self-employed workers than the state average. The largest percentage share of self-employed workers was found in Agriculture, Forestry, Fishing and Hunting industry at 31.7%, followed by other services (26.7%), Professional, Scientific and Technical Services (24.3%) and Real Estate and Rental and Leasing (23.3%).

Employment by Nativity

Table 3. Employment by industry by nativity (%)

Industry	Native	Foreign born
Total	100.0	100.0
Retail Trade	11.3	12.8
Health Care & Social Assistance	11.3	11.8
Accommodation & Food Services	11.1	22.5
Public Administration	10.4	4.1
Educational Services	10.3	5.3
Construction	7.9	5.1
Prof, Scientific & Technical Svcs	5.5	3.5
Transportation & Warehousing	5.2	4.5
Admin & Support & Waste Mgmt Svcs	4.4	6.8
Other Svcs	4.1	4.8
Finance & Insurance	3.7	2.8
Real Estate & Rental & Leasing	3.2	3.3
Manufacturing	2.8	3.4
Arts, Entertainment & Recreation	2.6	2.6
Wholesale Trade	2.3	2.4
Information	1.7	1.1
Agriculture, Forestry, Fishing & Hunting	1.1	2.5
Utilities	0.9	0.4

In this report, Native refers to those people who were U.S. or U.S territorial citizens at birth regardless where they were born. Foreign born refers to those people who were not U.S. or U.S. territorial citizens at birth.

Hawaii ranked the No.1 state in terms of foreign born population. In 2016, 10.1% of Hawaii's population were born in foreign countries. Among the Hawaii working population during the 2012-2016 period, 22% were born in foreign countries.

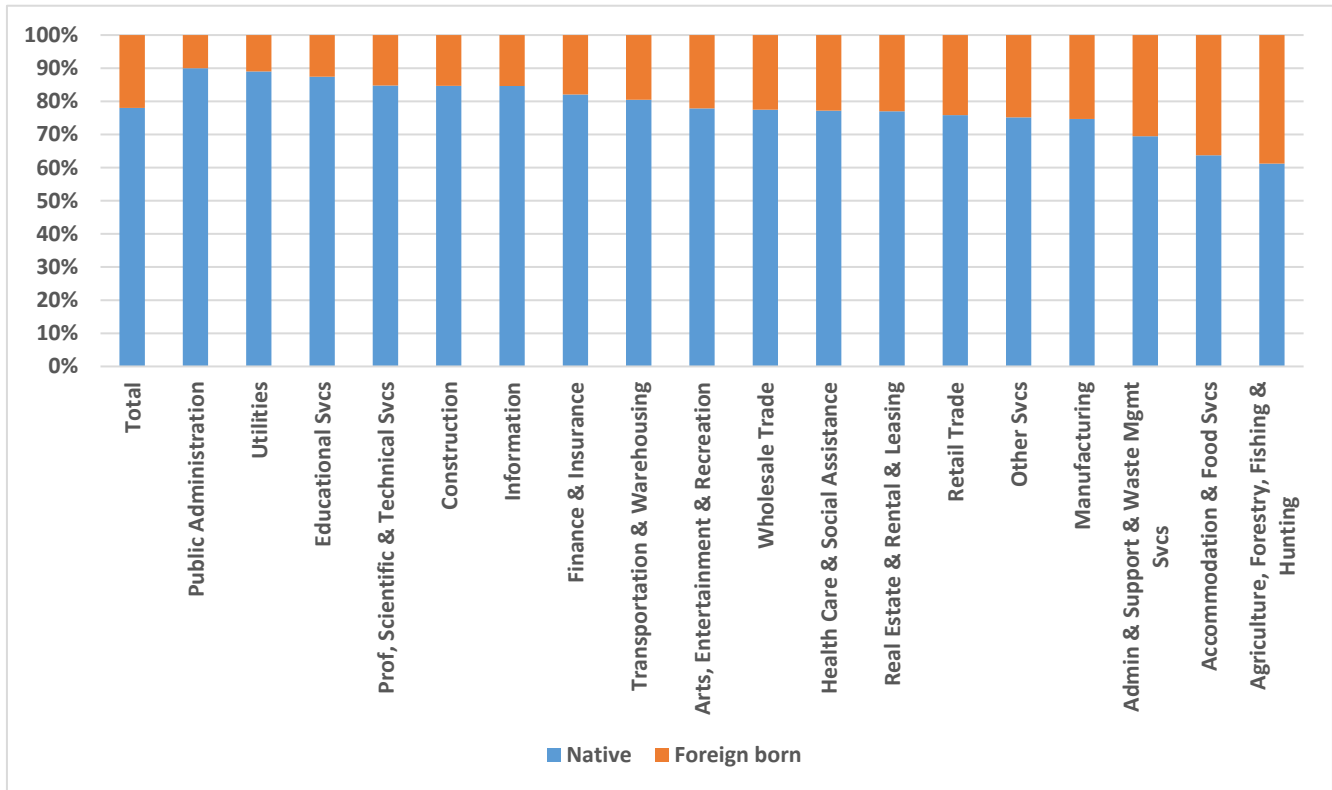
54.4% of native workers worked in five industries. Retail Trade and Health Care and Social Assistance industries were the

top two industries among native workers both at 11.3%, followed by Accommodation and Food Services (11.1%), Public Administration (10.4%). 10.3% of the native workers were found working in Educational Services.

Almost one fourth of foreign born workers were found in Accommodation and Food Services (22.5%). Foreign born workers also liked to work in Retail Trade (12.8%) and Health Care and Social Assistance (11.8%).

By industry, as shown in Figure 8, Agriculture, Forestry, Fishing and Hunting had the largest share of foreign born workers at about 38.8%, followed by Accommodation and Food Services at 36.3%, Administration and Support and Waste Management and Remediation Services at 30.5%. Public Administration sector which consists of Federal, State, and local governments, had the least foreign born employees at 10%.

Figure 8. Employment distribution by industry by nativity



B. Average Labor Earning Analysis

This section provides comparisons of average labor earnings by industry and by employee’s demographic and social characteristics. Labor earning in this section includes wage and salaries of both full-time and part-time payroll employees, as well as proprietor’s income of self-employed individuals. Fringe benefits are not included in this labor earning definition.

The statistics in this section would provide a general information about return on labor by industry and by employee characteristics.

Average Labor Earning by Industry

Figure 9. Labor earning by industry: Hawaii vs U.S.

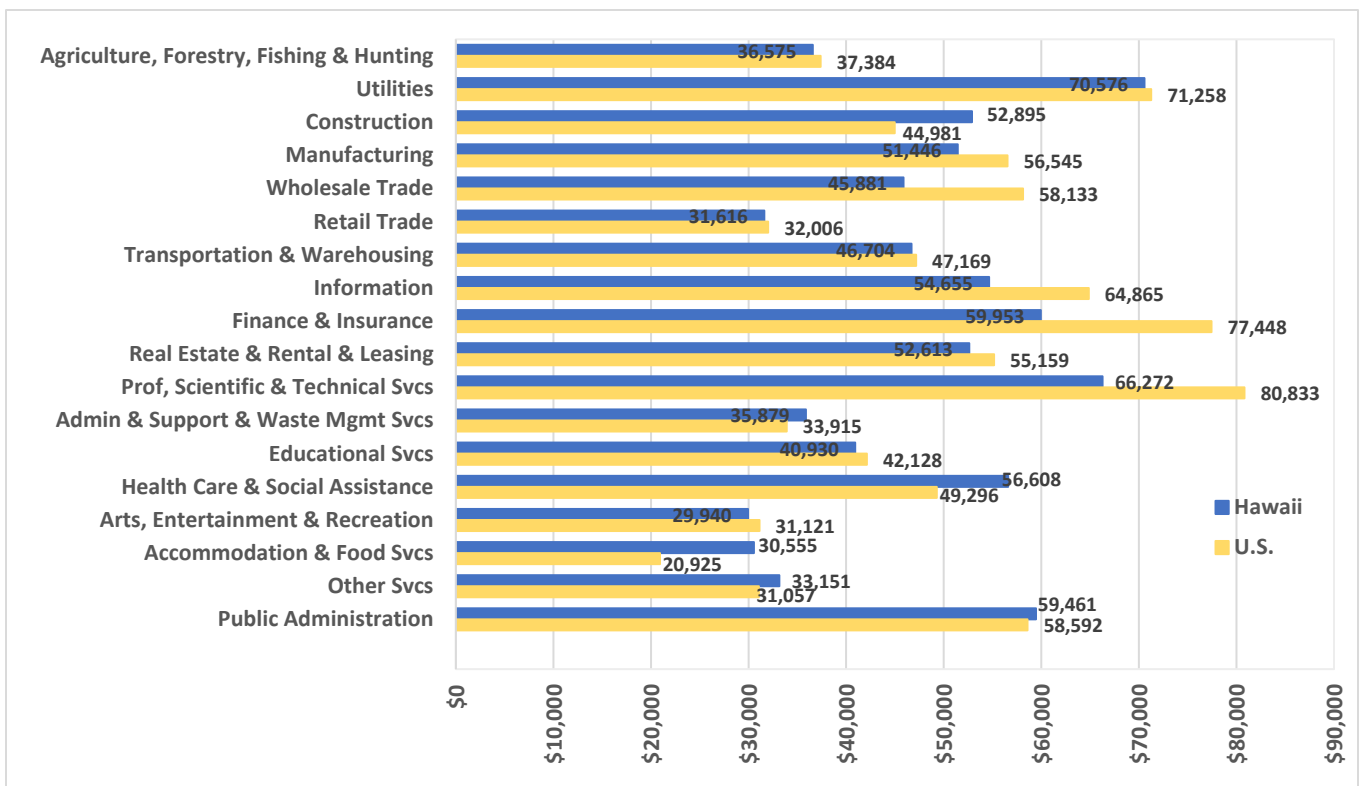
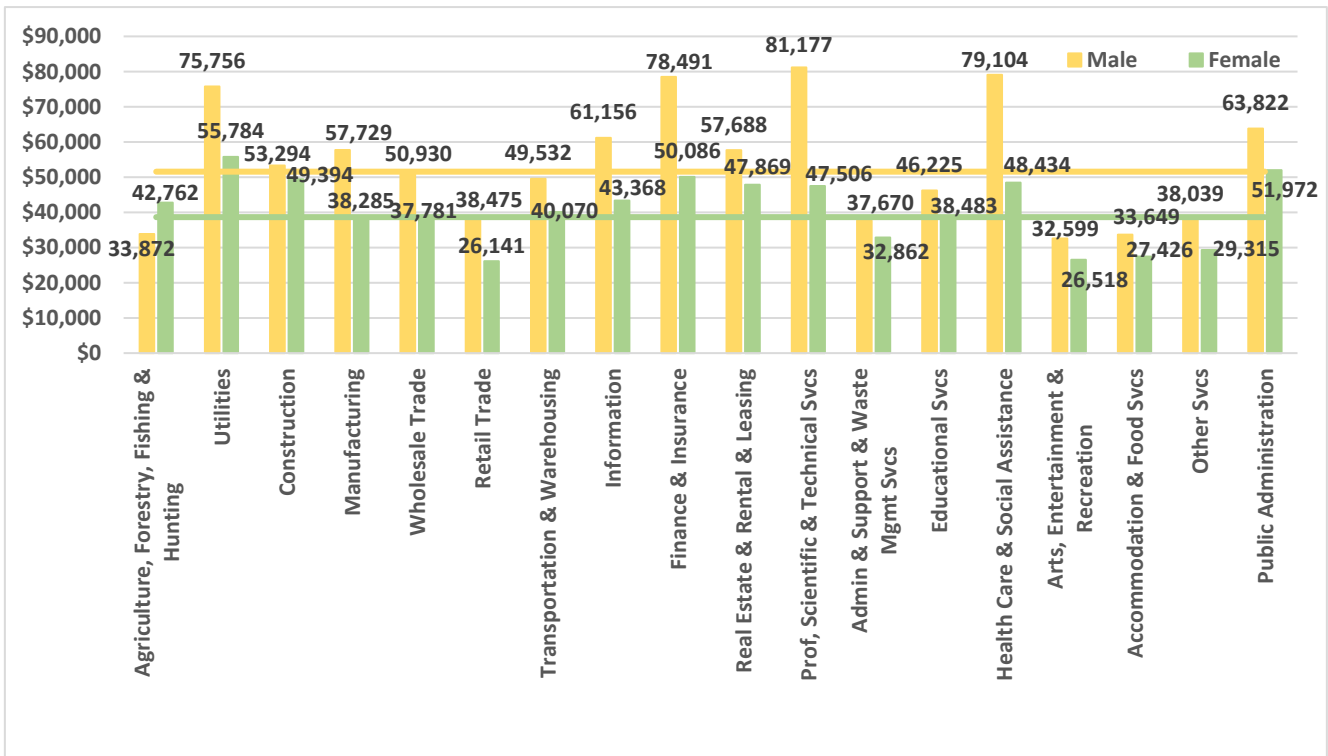


Figure 9 shows the average labor earning by major industry, comparing Hawaii and the U.S. during the 2012-2016 period. The figure shows some differences between Hawaii and the U.S. The top paying industry in the country was Professional, Scientific and Technical Services sector with average annual labor earning of \$80,833. People in the same industry in Hawaii earned 82.0% of the U.S. average labor earning. The No.1 industry with the highest labor earning in Hawaii was Utilities (\$70,576), which was the third highest industry in the nation with about the same amount (\$71,258). In most industries, the U.S. average labor earnings were higher than those of Hawaii. However, there were a few industries where Hawaii average labor earnings were higher than the U.S. averages. These industries included Accommodation and Food Services (\$9,630 higher than the U.S. average), Construction (\$7,915 higher)

and Health Care and Social Assistance (\$7,312 higher). Industries with similar average labor earnings between Hawaii and the nation included Retail Trade (\$31,616 vs. \$32,006, respectively), Transportation and Warehousing (\$46,704 vs. \$47,169) and Utilities (\$70,576 vs. \$71,258).

Average labor Earning by Gender

Figure 10. Average labor earning by industry by gender



During the 2012-2016 period, the state average labor earning for male workers was \$51,566, \$12,921 higher than the average labor earning by female workers (\$38,645). Male workers earned more on average than females in all the industries except Agriculture, Forestry, Fishing and Hunting where female workers earned more than males (\$42,762 for female and \$33,872 for male). There were nine industries that male labor earnings were higher than the state average. Male workers in Professional, Scientific and Technical Services earned \$81,177 annual average, the highest among all industries. There were three other industries with more than \$70,000 average male labor earnings. These were Health Care and Social Assistance (\$79,104), Finance and Insurance (\$78,491) and Utilities (\$75,756). The average labor earnings by female workers in 10 industries were higher than the state average. Female workers earned \$55,784 in Utilities, the highest among all industries.

Average Labor Earning by Major Age Group

Table 4. Average labor earning by industry by major age group (\$)

	Millennials (16 to 35 yrs)	Generation X (36 to 51 yrs)	Baby Boomers (52 to 70 yrs)	Silent & Greatest Gen (71 yrs+)	Total
Total	31,323	53,011	53,860	40,775	45,347
Agriculture, Forestry, Fishing & Hunting	23,593	40,330	45,310	20,212	36,575
Utilities	58,173	72,991	73,618	73,676	70,576
Construction	38,280	58,710	61,075	71,224	52,895
Manufacturing	38,074	60,846	53,237	56,858	51,446
Wholesale Trade	35,427	48,814	55,383	41,239	45,881
Retail Trade	23,071	39,165	39,707	28,728	31,616
Transportation & Warehousing	30,969	52,394	54,754	45,804	46,704
Information	33,288	66,893	67,716	66,271	54,655
Finance & Insurance	34,910	64,198	75,100	87,841	59,953
Real Estate & Rental & Leasing	32,616	58,958	58,173	50,835	52,613
Prof, Scientific & Technical Svcs	46,251	74,980	74,750	61,115	66,272
Admin & Support & Waste Mgmt Svcs	26,161	38,549	43,626	32,276	35,879
Educational Svcs	26,813	46,502	50,794	29,426	40,930
Health Care & Social Assistance	41,316	64,521	64,822	58,471	56,608
Arts, Entertainment & Recreation	20,689	38,727	33,337	22,697	29,940
Accommodation & Food Svcs	22,239	38,231	38,626	23,267	30,555
Other Svcs	27,788	36,859	36,518	18,161	33,151
Public Administration	47,929	64,800	65,257	53,901	59,461

In general, average labor earning increased with age until Baby Boomers age (52-70 years of age during the 2012-2016 period). In all the industry sectors, Generation X had higher average earnings than Millennials. Baby Boomers had higher average earning than Generation X in most of the industry sectors except in Manufacturing (Baby Boomer at \$53,237 vs \$60,846 for Generation X), Real Estate and Rental and Leasing (Baby Boomers at \$58,173 vs \$58,958 for Generation X), Professional, Scientific and Technical Services (Baby Boomers at \$74,750 vs \$74,980 for Generation X), Art, Entertainment and Recreation (Baby Boomers at \$33,337 vs \$38,727 for Generation X), and Other Services (Baby Boomers at \$36,518 vs \$36,859 for Generation X). However, the differences between the average labor earnings were small. The difference may be due to the number of part-time workers and/or the number of self-employed workers in these industry sectors.

Sample sizes for the Silent and Greatest Generation were small, the average wage numbers may not be representative of the true wage in the industry groups.

Average Labor Earning by Major Race Group

Table 5. Average labor earning by industry by major race group (\$)

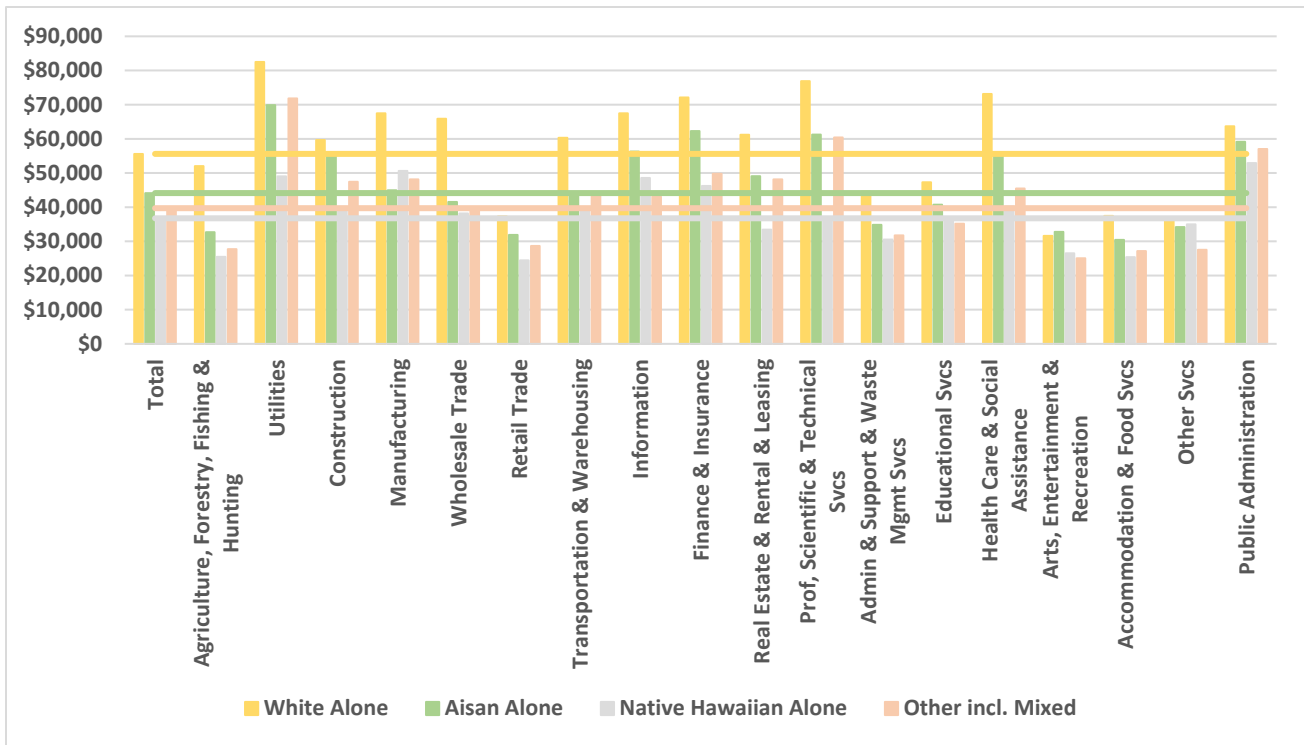
Industry	White Alone	Asian Alone	Native Hawaiian Alone	Other incl. Mixed
Total	55,597	44,126	36,748	39,706
Agriculture, Forestry, Fishing & Hunting	52,038	32,687	25,483	27,722
Utilities	82,501	69,879	49,020	71,840
Construction	59,661	56,069	40,096	47,436
Manufacturing	67,476	44,954	50,598	48,117
Wholesale Trade	65,888	41,524	38,163	39,963
Retail Trade	37,308	31,875	24,426	28,639
Transportation & Warehousing	60,287	44,196	39,745	43,354
Information	67,483	56,260	48,567	43,068
Finance & Insurance	72,103	62,286	46,221	49,748
Real Estate & Rental & Leasing	61,193	49,078	33,445	48,133
Prof, Scientific & Technical Svcs	76,898	61,262	36,289	60,393
Admin & Support & Waste Mgmt Svcs	44,585	34,826	30,522	31,727
Educational Svcs	47,275	40,716	35,900	35,154
Health Care & Social Assistance	73,131	55,385	40,173	45,484
Arts, Entertainment & Recreation	31,612	32,771	26,504	25,037
Accommodation & Food Svcs	37,451	30,430	25,395	27,148
Other Svcs	37,086	34,155	34,968	27,517
Public Administration	63,698	59,115	52,922	57,045

The average wage and salary and self-employment income earned by White alone workers during the 2012-2016 period was \$55,597. Utilities sector had the highest average labor earning by this group (\$82,501), followed by Professional, Scientific and Technical Services (\$76,898) and Health Care and Social Assistance (\$73,131). Compared to other race alone groups, the average labor earning by White alone was higher in all industries except Arts, Entertainment and Recreation sector.

The average labor earning by Asian alone followed the same pattern as White alone. Utilities sector was the top industry among Asian alone (\$69,879), followed by Finance and Insurance (\$62,286) and Professional, Scientific and Technical Services (\$61,262). The ratio of income earned by Asian alone (\$32,771) to State average (\$29,940 in figure 9) in Arts, Entertainment and Recreation sector was 109%, the highest compared to Asian alone worked in other industries.

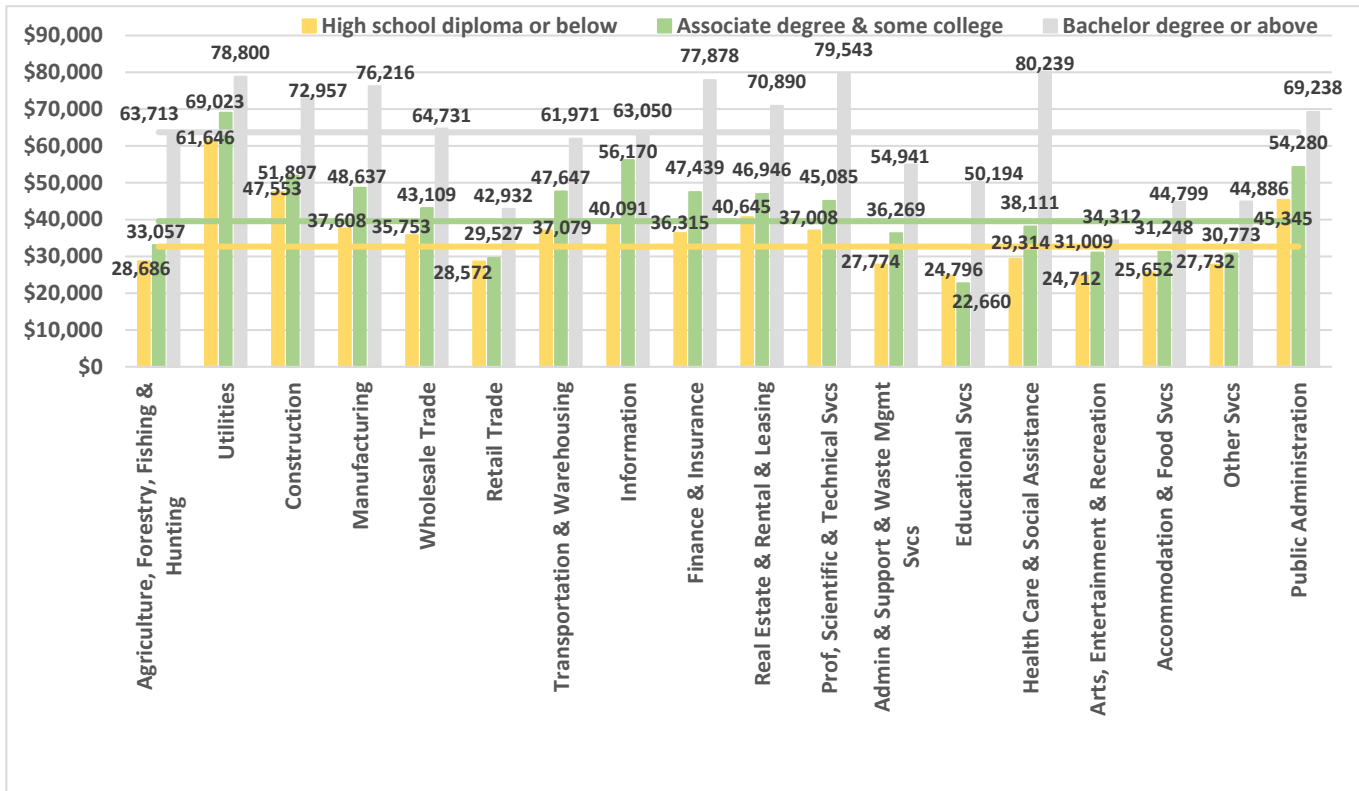
The average labor earning by Hawaiian alone was the highest in Public Administration sector at \$52,922. Manufacturing sector was the second highest average earning for Hawaiian alone (\$50,598). The third highest average labor earning by Hawaiian alone was Utilities sector (\$49,020). The average income earned by this race group in Other Services sector (\$34,968) was 105% of the state average (\$33,151 in figure 9).

Figure 11. Average labor earning by industry by major race group



Average Labor Earning by Educational Attainment

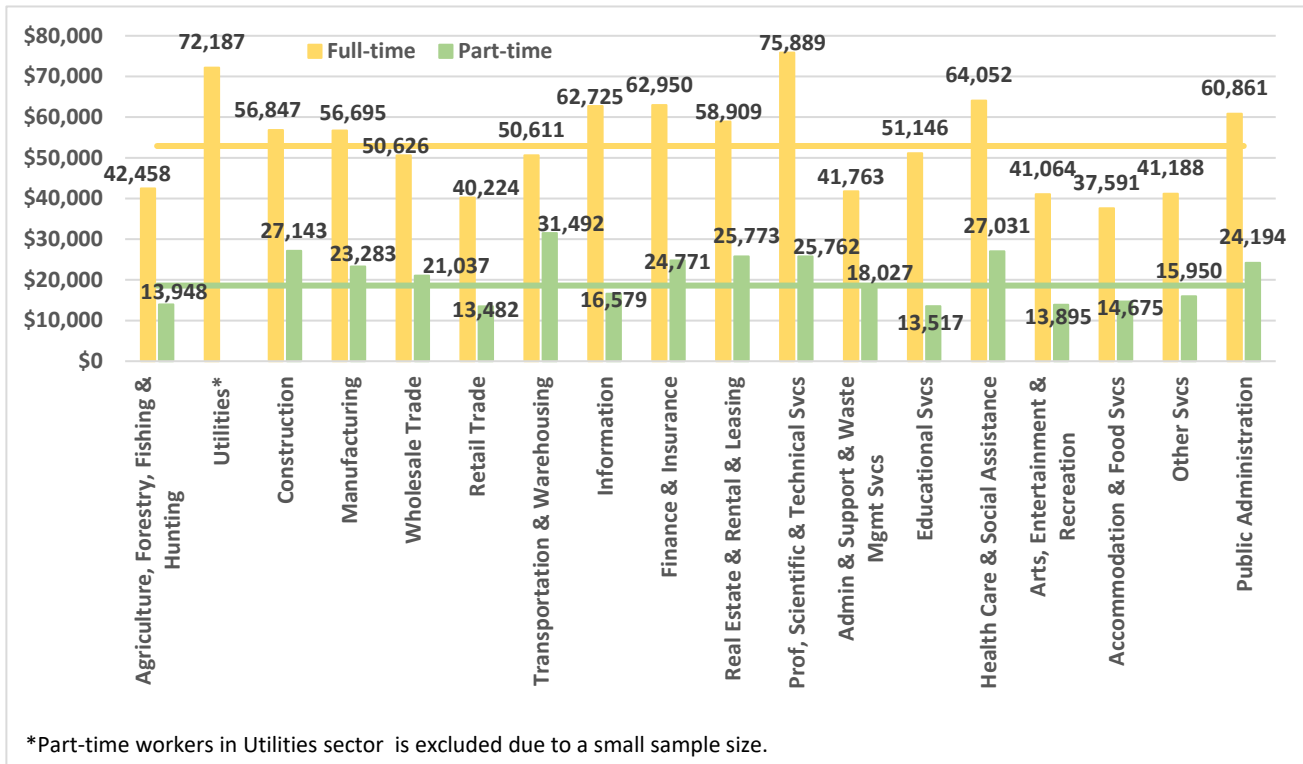
Figure 12. Average labor earning by industry by educational attainment



As depicted in Figure 12, the higher the education level, the higher the earnings and it is true for all the industry sectors. The average labor earning by workers with high school diploma (including GED) or below was \$32,653 during the 2012-2016 period. The workers with associate degree and some college earned an average income of \$39,551, \$6,898 higher than the average income earned by those with high school diploma or below. The workers with bachelor degree or above earned an average income of \$63,700. 10 industries were found to have average labor earnings higher than the state average. Utilities sector was the top industry in terms of the highest income earned by high school diploma or below and associate degree and some college groups (\$61,646 and \$69,023, respectively). The workers with bachelor degree and above earned \$78,800 average in Utilities sector, the second highest industry among this group. The highest average income earned by this group was \$80,239 in Health Care and Social Assistance sector. The workers with associate degree and some college had the second highest average earning in Information sector (\$56,170), about \$1,890 more than those who were in Public Administration (\$ 54,280). The workers with bachelor degree or above earned more than \$70,000 average labor earning in seven industries.

Average Labor Earning by Full-Time and Part-Time Status

Figure 13. Average labor earning by industry by full-time/part-time status

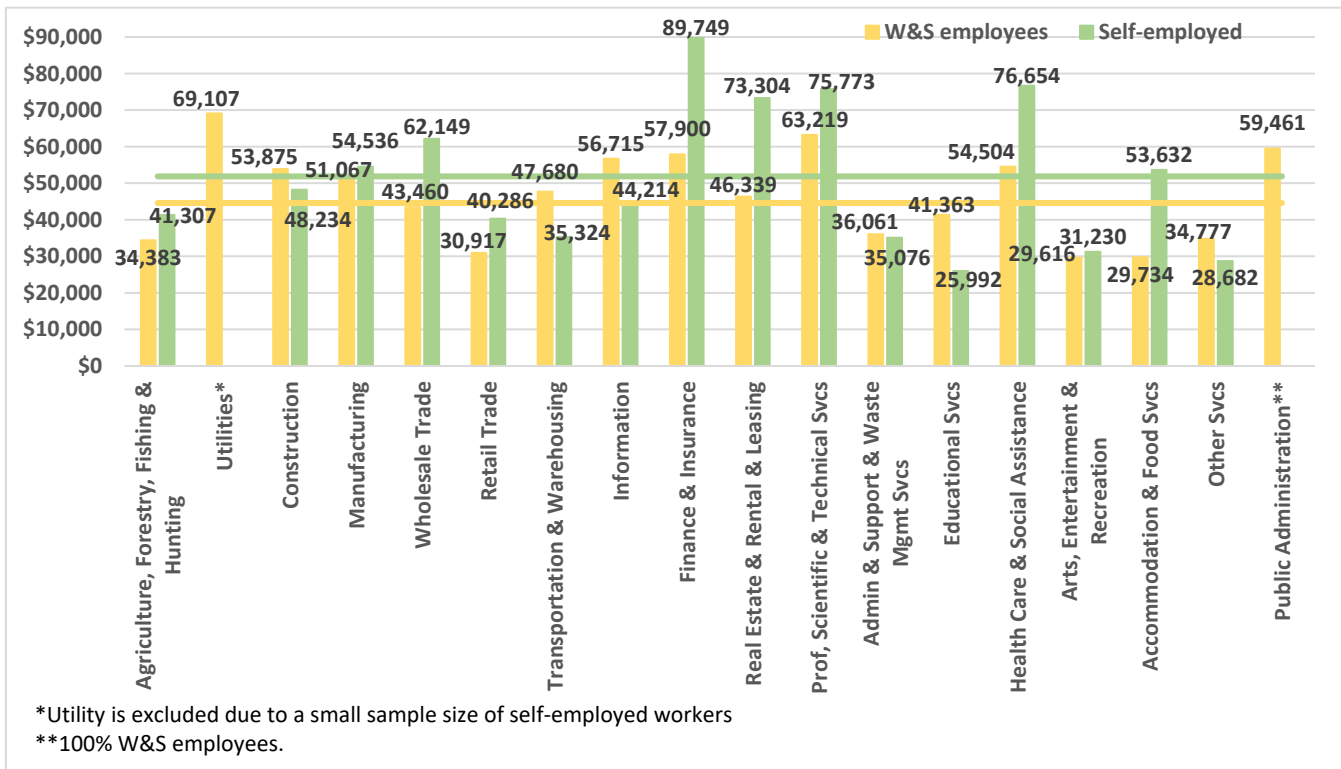


Overall for all the industries, full-time workers had \$52,907 average labor earning and part-time workers had an average labor earning of \$18,591 during the 2012-2016 period. Full-time workers in Professional, Scientific and Technical Services had the highest average labor earning at \$75,889 per year, followed by Utilities at \$72,187, Health Care and Social Assistance at \$64,052, Finance and Insurance at \$62,950, Information at \$62,725, and Public Administration at \$60,861. Full-time workers in Accommodation and Food Services had the lowest average labor earning at \$37,591 per year during the 2012-2016 period.

Part-time workers in Transportation and Warehousing had the highest average labor earning at \$31,492 per year, followed by Construction at \$27,143, Health Care and Social Assistance at \$27,031, Real Estate and Rental and Leasing at \$25,773, and Professional, Scientific and Technical Services at \$25,762.

Average Labor Earning by Payroll Status

Figure 14. Average labor earning by industry by payroll status



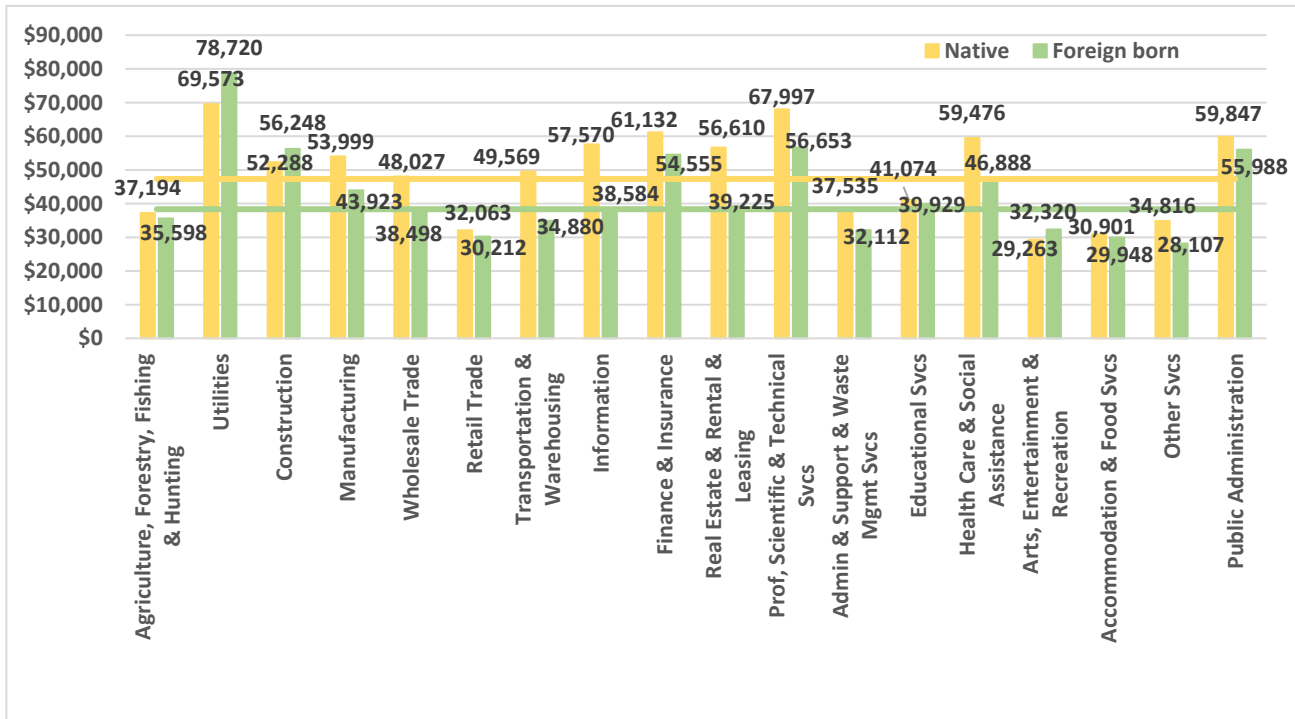
State average labor earning for payroll (wage and salary) workers was \$44,584 per year, including full-time and part-time workers during the 2012-2016 period. Self-employed workers made more money on average than payroll workers. The average labor earning by self-employed workers was \$51,868 per year, 16.3% higher than that of payroll workers.

Of the 16 industry sectors that with self-employed workers, self-employed average labor earnings were higher than those of payroll workers in 11 industry sectors. Self-employed workers made significantly more money than payroll workers in Finance and Insurance, Real Estate and Renting and Leasing, Professional, Scientific and Technical Services, Health Care and Social Assistance, Accommodation and Food Services, Wholesale Trade, and Retail Trade.

Payroll workers in Utilities sector had the highest average labor earning at \$69,107, followed by Professional, Scientific and Technical Services at \$63,219, and Public Administration at \$59,461. Self-employed workers in Finance and Insurance sector earned \$89,749, the highest among self-employed workers, followed by Health Care and Social Assistance at \$76,654, Professional, Scientific and Technical Services at \$75,773.

Average Labor Earning by Nativity

Figure 15. Average labor earning by industry by nativity



Overall, the native born workers in Hawaii had an average labor earning of \$47,320, higher than that of the foreign born workers at \$38,339 during the 2012-2016 period. In most of the industry sectors, the native born workers had higher average labor earnings than the foreign born workers except three of them: Utilities, Construction, and Art, Entertainment and Recreation.

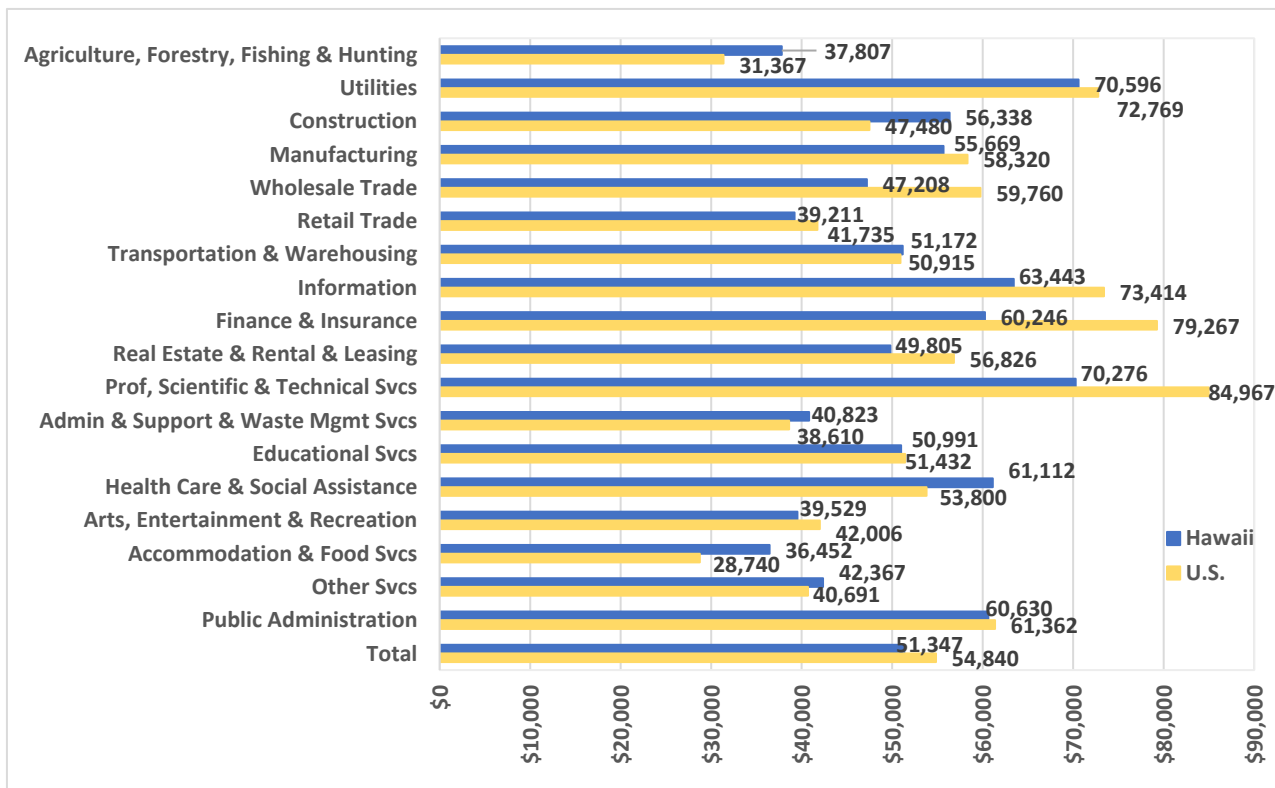
The native born workers in Utilities sector earned the most at \$69,573, followed by Professional, Scientific and Technical Services at \$67,997, Finance and Insurance at \$61,132. Similar to the native born workers, the foreign born workers in Utilities sector had the highest average labor earning at \$78,720, followed by Professional, Scientific and Technical services at \$56,653, and Construction at \$56,248.

C. Average Wage Analysis

This section provides some statistics on average wages by industry and by demographic and social characteristics for full-time payroll workers. Part-time and self-employed workers are not included. The information may be useful for college students and even high school students in planning their field of studies. The average wage for an industry was calculated for all the employees in that industry regardless of occupation. A report comparing wages by occupation and by industry is underway.

Average Wage for Full-Time Payroll Workers by Industry

Figure 16. Average wage for full-time payroll workers by industry: Hawaii vs U.S.



Overall industry average wage of full-time payroll workers was \$51,347 for Hawaii, lower than the U.S. average of \$54,840 during the 2012-2016 period. In other words, Hawaii’s average wage for full-time payroll workers was 93.6% of the U.S. average.

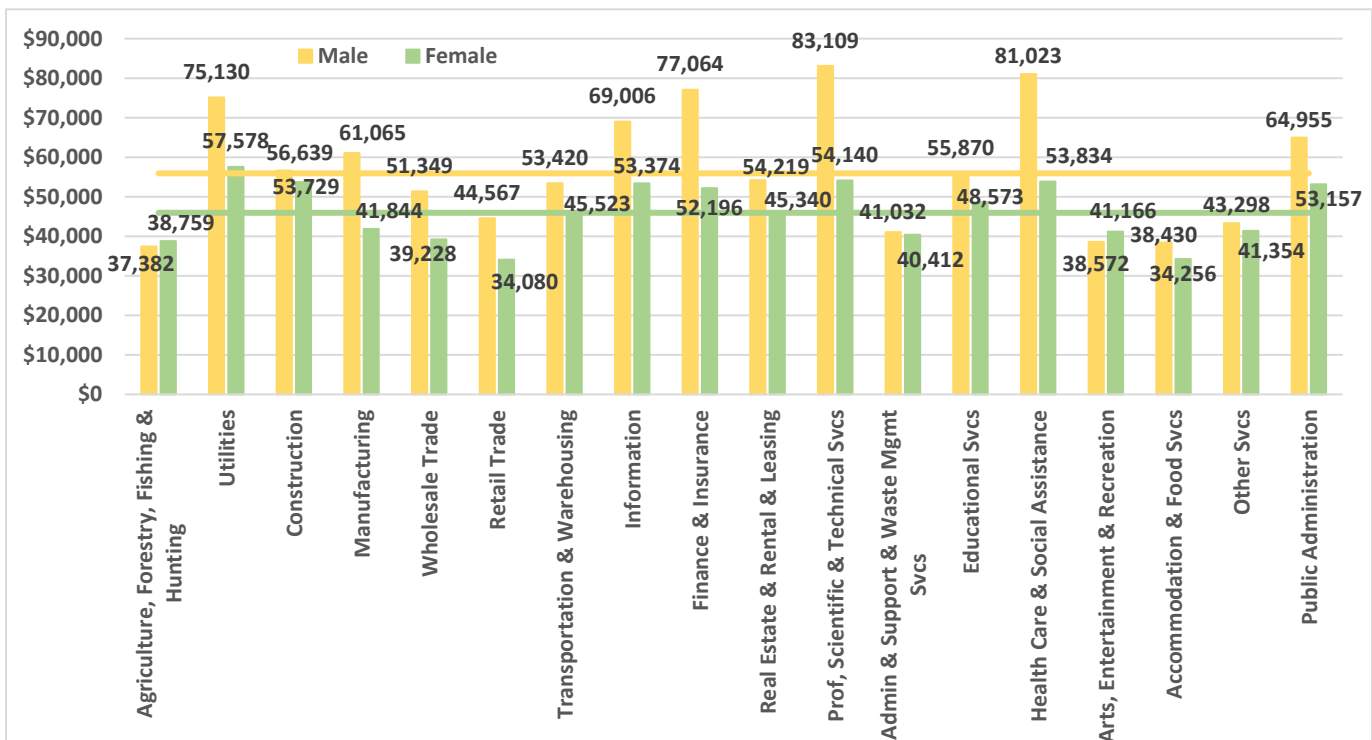
U.S. average wages were higher than Hawaii in most of the industry sectors, except Agriculture, Forestry, Fishing and Hunting, Construction, Transportation and Warehousing, Administration and Support and Waste Management and Remediation Services, Health Care and Social Assistance, and Accommodation and Food Services, and Other Services.

Industry sectors with larger differences in average wage between Hawaii and U.S. included Professional, Scientific and Technical Services (\$84,967 for U.S. and \$70,276 for Hawaii), Finance and Insurance

(\$79,267 for U.S. and \$60,246 for Hawaii), Information (\$73,414 for U.S. and \$63,443 for Hawaii), Wholesale Trade (\$59,760 for U.S. and \$47,208 for Hawaii). Hawaii’s average wages were much higher than the U.S. in three industry sectors: Health Care and Social Assistance (Hawaii \$61,112 vs U.S. \$53,800), Construction (Hawaii \$ 56,338 vs U.S. \$47,480), Accommodation and Food Services (Hawaii \$36,452 vs U.S. \$28,740), and Agriculture, Forestry, Fishing and Hunting (Hawaii \$37,807 vs U.S. \$31,367).

Average Wage for Full-Time Payroll Workers by Gender

Figure 17. Average wage for full-time payroll workers by industry by gender



Among the full-time payroll workers in Hawaii and for all the industry sectors combined, male employees had an average annual wage of \$55,925, about \$10,000 higher than female workers at \$45,948. An average male worker earned more wage than an average female worker for all industry sectors except Agriculture, Forestry, Fishing and Hunting, and Arts, Entertainment and Recreation where an average female worker earned more than an average male worker.

Industry sectors with larger differences in average wage between male and female included Professional, Scientific and Technical Services (\$83,109 for male and \$54,140 for female), Health Care and Social Assistance (Male \$81,023 vs female \$53,834), Finance and Insurance (Male \$77,064 vs female \$52,196), and Manufacturing (male \$61,065 vs female \$41,844).

Average Wage for Full-Time Payroll Workers by Major Age Group

Table 6. Average wage for full-time payroll workers by major age group (\$)

Industry	Millennials (16 to 35 yrs)	Generation X (36 to 51 yrs)	Baby Boomers (52 to 70 yrs)	Silent & Greatest Gen (71 yrs+)	Total
Total	39,491	56,430	58,361	56,180	51,347
Agriculture, Forestry, Fishing & Hunting	29,839	44,537	40,379	24,683	37,807
Utilities	59,226	74,129	71,832	73,676	70,596
Construction	42,361	61,346	67,078	87,597	56,338
Manufacturing	44,736	62,921	57,191	61,714	55,669
Wholesale Trade	40,130	47,071	57,307	38,706	47,208
Retail Trade	31,373	44,906	45,451	28,458	39,211
Transportation & Warehousing	34,724	56,677	59,730	70,715	51,172
Information	43,040	66,885	80,974	78,255	63,443
Finance & Insurance	37,762	63,793	73,688	91,553	60,246
Real Estate & Rental & Leasing	36,578	53,607	54,583	56,625	49,805
Prof, Scientific & Technical Svcs	56,940	74,517	78,779	82,469	70,276
Admin & Support & Waste Mgmt Svcs	31,544	42,618	49,843	33,107	40,823
Educational Svcs	40,292	51,712	58,262	58,146	50,991
Health Care & Social Assistance	47,586	69,059	66,540	71,327	61,112
Arts, Entertainment & Recreation	31,388	42,564	44,272	49,455	39,529
Accommodation & Food Svcs	30,145	40,265	41,555	33,668	36,452
Other Svcs	37,584	44,435	45,297	25,820	42,367
Public Administration	49,495	65,178	66,680	60,312	60,630

As shown in Table 6, average wage increased with age, especially up to the Baby Boomer's age, for most of the industry sectors. This indicates that experience did play an important role in wage schedule.

Among the Millennials, those worked in Utilities had the highest average wage at \$59,226 per year, followed by Professional, Scientific and Technical Services at \$56,940, Public Administration at \$49,495, and Health Care and Social Assistance at \$47,586. Those Millennials who worked in Agriculture, Forestry, Fishing and Hunting had the lowest annual wage at \$29,839 per year.

For Generation X workers, Professional, Scientific and Technical Services had the highest annual wage at \$74,517, followed by Utilities at \$74,129, Health Care and Social Assistance at \$69,059, and Information at \$66,885.

Those Baby Boomers worked in Information had the highest annual wage at \$80,974, followed by Professional, Scientific and Technical Services at \$78,779, Finance and Insurance at \$73,688, and Utilities at \$71,832.

Sample sizes for the Silent and Greatest Generation were small, the average wage numbers may not be representative of the true wage in the industry sectors.

Average Wage for Full-Time Payroll Workers by Major Race Group

Table 7. Average wage for full-time payroll workers by major race group (\$)

Industry	White alone	Asian alone	Native Hawaiian alone	Other incl. Mixed	Total
Total	62,994	49,393	41,964	46,667	51,347
Agriculture, Forestry, Fishing & Hunting	62,696	33,451	27,683	32,603	37,807
Utilities	78,191	70,425	49,313	75,090	70,596
Construction	68,369	58,241	42,119	51,134	56,338
Manufacturing	70,673	50,114	58,114	52,702	55,669
Wholesale Trade	73,334	42,136	39,138	40,763	47,208
Retail Trade	44,400	38,942	29,880	37,887	39,211
Transportation & Warehousing	59,659	50,341	45,337	48,777	51,172
Information	78,243	64,176	56,058	52,409	63,443
Finance & Insurance	73,241	61,692	49,516	51,061	60,246
Real Estate & Rental & Leasing	55,095	50,107	37,861	44,445	49,805
Prof, Scientific & Technical Svcs	83,042	61,810	42,548	69,938	70,276
Admin & Support & Waste Mgmt Svcs	55,935	39,402	33,219	35,456	40,823
Educational Svcs	58,212	50,842	43,072	44,826	50,991
Health Care & Social Assistance	82,914	58,790	41,640	49,196	61,112
Arts, Entertainment & Recreation	44,414	39,543	31,935	36,150	39,529
Accommodation & Food Svcs	42,791	34,729	34,055	36,294	36,452
Other Svcs	50,465	41,842	42,564	35,951	42,367
Public Administration	65,260	60,421	52,837	57,930	60,630

As shown in Table 7, White had the highest average wage than other major race groups during the 2012-2016 period. The average wage for White was the highest in every industry sectors. Among the workers with White alone race, Professional, Scientific and Technical Services sector had the highest average annual wage at \$83,042, followed by Health Care and Social Assistance at \$82,914, Information at \$78,243.

Among workers with Asian alone race, those worked in Utilities sector had the highest average wage at \$70,425, followed by Information at \$64,176, and Professional, Scientific and Technical Services at \$61,810.

Among the workers with Native Hawaiian alone race, those worked in Manufacturing sector had the highest average annual wage at \$58,114, followed by Information at \$56,058, Public Administration at \$52,837.

Average Wage for Full-Time Payroll Workers by Educational Attainment

Table 8. Average wage for full-time payroll workers by educational attainment (\$)

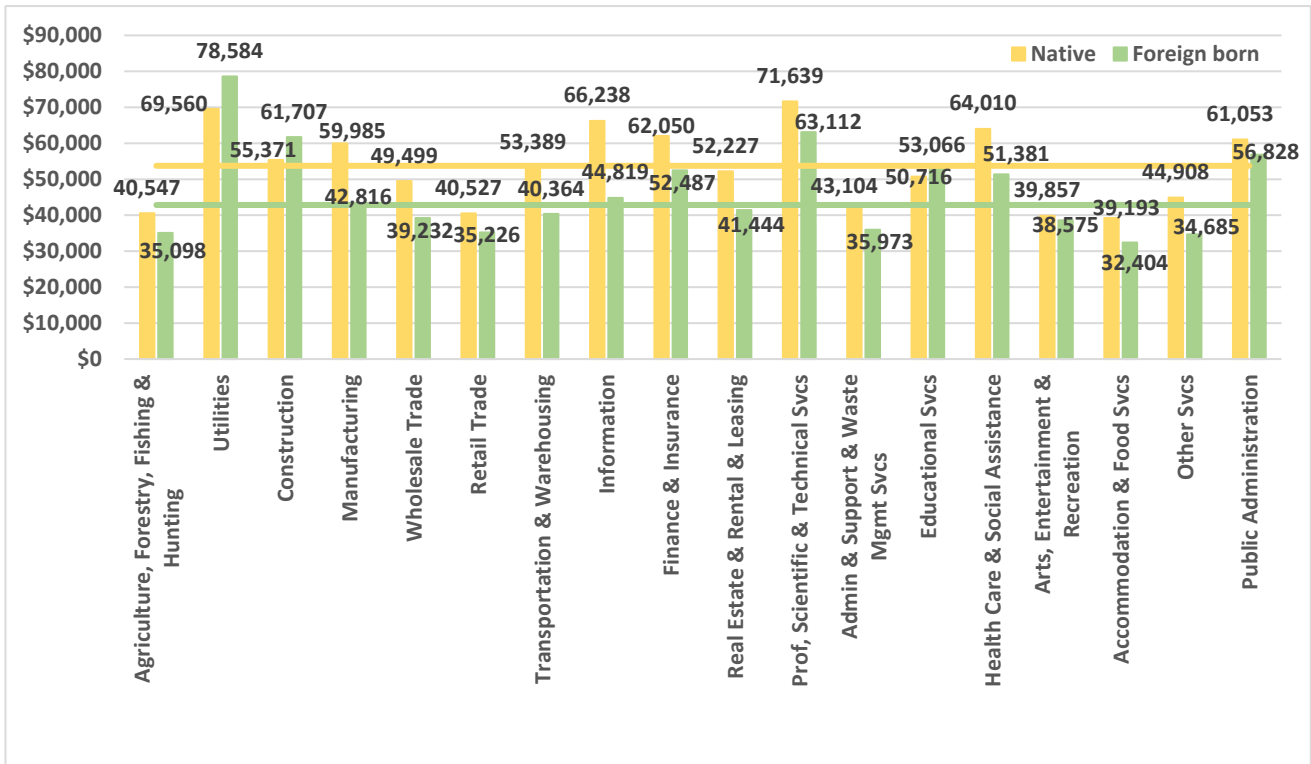
Industry	High school diploma or below	Associate degree & some college	Bachelor degree or above	Total
Total	37,977	46,780	67,680	51,347
Agriculture, Forestry, Fishing & Hunting	29,320	36,580	68,268	37,807
Utilities	63,895	69,444	76,826	70,596
Construction	49,682	56,098	79,195	56,338
Manufacturing	40,917	53,387	81,539	55,669
Wholesale Trade	37,680	45,358	67,504	47,208
Retail Trade	34,050	39,008	50,787	39,211
Transportation & Warehousing	42,593	52,430	64,182	51,172
Information	46,920	69,272	70,823	63,443
Finance & Insurance	38,435	48,565	77,186	60,246
Real Estate & Rental & Leasing	42,004	44,614	67,152	49,805
Prof, Scientific & Technical Svcs	49,015	52,780	80,552	70,276
Admin & Support & Waste Mgmt Svcs	32,717	39,210	62,275	40,823
Educational Svcs	34,015	35,971	56,300	50,991
Health Care & Social Assistance	32,819	44,666	84,127	61,112
Arts, Entertainment & Recreation	32,158	42,996	44,893	39,529
Accommodation & Food Svcs	31,533	38,199	47,561	36,452
Other Svcs	33,468	41,110	53,742	42,367
Public Administration	46,911	55,640	69,904	60,630

Table 8 presents the average wage of full-time payroll workers by educational attainment. It was clear that average wage went up with education level for every industry sector. The average annual wage for those with associate degree and some college education was 23.2% higher than those with high school diploma or below. Workers with at least bachelor degree had an average annual wage of \$67,680, 44.7% higher than those with associate degree, and 78.2% higher than those with high school diploma.

By industry sector, workers with at least bachelor degree had average wage much higher than those with associate degree including Health Care and Social Assistance at 88.3% higher, Agriculture, Forestry, Fishing and Hunting at 86.6% higher, Finance and Insurance at 58.9% higher, Administration and Support and Waste Management and Remediation Services at 58.8% higher.

Average Wage for Full-Time Payroll Workers by Nativity

Figure 18. Average wage for full-time payroll workers by nativity



As shown in Figure 18, the native born workers had higher average wage for most of the industry sectors except Utilities, Construction, and Educational Services where the foreign born workers had higher average wages.