



Brain Drain: Characteristics of Hawai'i-Born Adults on the U.S. Mainland

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This report was prepared by Dr. Wayne Liou, Economist, under the direction of Dr. Eugene Tian, Division Administrator.

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Executive Summary

From 2017-2019, the population in Hawai‘i decreased, in large part due to a high rate of net domestic outmigration. Of primary concern with respect to economic growth, these outmigrants are more likely to be young, educated workers, a phenomenon often referred to as “brain drain”. Unlike the recent DBEDT report *Hawai‘i Migration Flows: 2013-2017*, which uses migration status over the past 12 months (whether in the past year, someone lived in the same house, moved within the state, moved between states, or moved from abroad) to look at people who have moved away from Hawai‘i, this report defines brain drain by birth place. A brain drain leaver from Hawai‘i is one who was born in Hawai‘i but now lives on the continental U.S. To assess possible reasons for and results of brain drain, this report compares socioeconomic characteristics and outcomes for Hawai‘i-born working-age individuals, and how these relate to whether one chooses to stay in Hawai‘i or move to other parts of the U.S.

According to data from 2014-2018, a little under 500,000 people born in Hawai‘i live on the mainland. People moving away from Hawai‘i primarily move to the western half of the U.S. (including Arizona and Colorado) and populous southern states (Texas, Florida, Georgia, and Virginia), with more educated leavers slightly more likely to move to New York and North Carolina. Hawai‘i-born people living on the mainland are more likely to be working-age with a bachelor’s degree or higher, female, and white compared to their counterparts who have remained in Hawai‘i. Comparing among those with a bachelor’s degree, those on the mainland are less likely to have business, health, or education degrees and more likely to have biology or arts degrees. The lower prevalence of health and education degrees translate to a lower percentage of Hawai‘i-born mainlanders working in health and education-related occupations and industries compared to those who stay in Hawai‘i.

With a low unemployment rate during the period of analysis, people born in Hawai‘i who stay in Hawai‘i have a higher labor force participation rate and a lower unemployment rate, and are more likely to work full time than their counterparts who move to the mainland. Median personal income and median hourly wage are comparable between Hawai‘i-born stayers and leavers (leavers earn about \$2,000-\$5,000 more per year), though more-educated Hawai‘i-born leavers make more money at the higher end of the income/wage distribution (about \$15,000 more). Differences in earnings seem to be largely compositional; taking into account age, gender, race, education, and occupation, differences in personal income and hourly wage are much smaller, and not statistically significant. This suggests that it is not higher wages, per se, that are encouraging people to move to the mainland, but the types of jobs available on the mainland instead. For those earning STEM or NSF-defined science and engineering degrees, a higher percentage of Hawai‘i-borns living on the mainland are in STEM or science and engineering occupations, compared to Hawai‘i-borns who stay in Hawai‘i.

Household income is much higher for people born and living in Hawai‘i, likely due to household composition making up for the much higher housing costs in Hawai‘i compared to the mainland. In fact, household income relative to housing cost is higher for Hawai‘i-born stayers than for those who move to the mainland. In other words, it appears that the advantage to moving to the mainland for cheaper housing is only for those who are set on avoiding multigenerational households.

I. Introduction

From 2017-2019, the population in Hawai‘i decreased. While small decreases in fertility and small increases in death rates have led to a decline in the natural growth rate in the state, the population decline in the past three years have been primarily attributed to a high rate of net domestic outmigration. Even more so, the popular sentiment is that much of this outmigration is of young, educated workers, a phenomenon sometimes referred to as “brain drain”. A recent report from DBEDT, *Hawai‘i Migration Flows: 2013-2017*, confirms that relative to Hawai‘i residents, domestic outmigrants (as defined by migration status over the past 12 months) are younger adults (aged 18-34) and educated (have a bachelor’s degree or higher) using data from the American Community Survey (see Table 1). Migration status in the American Community Survey specifies whether, in the past year, someone lived in the same house, moved within the state, moved between states, or moved from abroad.

Table 1. Age Composition and Educational Attainment of Migrants

	Hawai‘i residents*	Domestic outmigrant*
Age		
Younger than 18	20.3%	20.1%
18-34 years old	21.9%	45.8%
35-44 years old	12.6%	11.7%
45-64 years old	27.2%	15.8%
Older than 64	18.0%	6.5%
Education (aged 18+, not in school)		
Less than HS diploma	9.0%	5.1%
HS diploma	30.6%	26.2%
Some college	30.1%	30.2%
Bachelor’s degree	20.4%	23.9%
Master’s degree or higher	9.8%	14.7%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2013-2017 5-year PUMS, from *Hawai‘i Migration Flows: 2013-2017*.

*Excludes military personnel and their families. “Some college” includes associate degree earners.

One concern about using migration status from one year ago, as in *Hawai‘i Migration Flows: 2013-2017*, for evaluating brain drain away from Hawai‘i is that any migration that occurred outside of the previous 12 months is not captured (the decennial census used to ask about migration status over the past 5 years, but that question was last asked in 2000). Accordingly, this report assesses brain drain from Hawai‘i based on the birth place of the individual, as used in a recent U.S. Congress Joint Economic Committee publication, *Losing Our Minds: Brain Drain across the United States*¹, with the understanding that there are two ways this could mismeasure brain drain: (1) non-Hawai‘i-born individuals who moved to Hawai‘i, particularly those who were educated in Hawai‘i and spent some time in Hawai‘i’s labor market as a (young) adult

¹ *Losing Our Minds* defines a “brain drain leaver” by education (top third in the national education distribution) and age (31-40 years of age) that do not align with how this report will assess brain drain from Hawai‘i. Available at <https://www.jec.senate.gov/public/index.cfm/republicans/2019/4/losing-our-minds-brain-drain-across-the-united-states>.

would not be counted as a brain drain leaver, and (2) Hawai‘i-born individuals who might have moved away from Hawai‘i at a young age and might not be considered a brain drain leaver by some people are counted. While there is no way to capture the former (outside of a very limited migration status variable), the latter can still be viewed within the lens of a decline of the population and loss of labor supply, even if they moved away from Hawai‘i at a young age.

The purpose of this report is to look at brain drain from Hawai‘i by comparing socioeconomic characteristics and outcomes for Hawai‘i-born working-age individuals, and how these relate to whether one chooses to stay in Hawai‘i or move to other parts of the U.S.² This is complemented by comparisons to mainland-born individuals living in Hawai‘i, who are similar to Hawai‘i-born individuals on the mainland in that people in both populations have decided to move halfway across the Pacific Ocean, possibly without family at the destination to help acclimate. The analysis begins with a look at where Hawai‘i-born working-age individuals are living on the mainland, followed by the characteristics and outcome comparisons. This comparison section starts by looking at demographic characteristics (gender and race) before focusing on education outcomes (educational attainment and field of degree) and economic outcomes (employment, income, and housing) that both affect and are affected by the decision to relocate. A more rigorous analysis of economic outcomes is performed to disentangle possible reasons for moving, and to evaluate whether any differences in these outcomes are due to composition effects (e.g., being in different occupations), or if holding all other things equal, Hawai‘i-born individuals living on the mainland have different outcomes from those who stay in Hawai‘i.

The data for this report comes from the American Community Survey (ACS), covering the years 2014-2018, taking advantage of a question in the ACS about birthplace of the respondent. While active military personnel and their spouses can contribute to the labor supply and economic growth, their migration decisions are not directly affected by factors associated with brain drain (though one could choose to join the military because of a lack of job opportunities). Thus, active military personnel and their families are excluded from the following analyses. For the purposes of this report, the U.S. “mainland” is defined as the 48 contiguous states and Alaska; Puerto Rico, Guam, and other territories are not included.

II. Defining “Brain Drain”

The coining of the term “brain drain” is generally credited to the British Royal Society, which used it to describe the phenomenon of British scientists moving to the US and elsewhere in the 1950s and 1960s.³ More broadly, brain drain usually refers to the outflow of highly trained or intelligent people. Brain drain typically is used in the context of moving from one area of residence to another (geographical), but it can also apply to movement from one sector to another (industrial) or from one organization to another (organizational). Most geographical brain drain research looks at the flow of educated workers from less developed countries to more developed countries, but geographical units can be smaller, such as at the state or province level, or less well-defined, such as rural-to-urban brain drain.

² Migration out of the U.S. cannot be easily tracked, so Hawai‘i-born people living abroad are not in this report.

³ Royal Society (1963), “Emigration of scientists from the United Kingdom: Report of a committee appointed by the Council of the Royal Society”, Royal Society: London.

Because there is concern for the general migration-related decline in the younger labor force in Hawai‘i, and how Hawai‘i’s economy will fare in the near future as a result of this decline, individuals between the ages of 18 and 34 are the focus of this report. For the sake of providing a historical context of brain drain away from Hawai‘i, older cohorts are briefly examined. Tables and figures for 18-34 year olds are in the main text, while supplemental tables and figures for older cohorts are in Appendix A. As much of the brain drain literature looks at higher educated migrants, with research on economic development pointing to growth positively correlated to education and training, this report will look more closely at individuals with more education, including some analysis on STEM degrees and occupations.

III. Where are People Moving to?

It is generally accepted that people moving away from Hawai‘i primarily move to the western half of the U.S. (including Arizona and Colorado), but what are other common destinations for brain drain leavers? Across the three age cohorts used in this report (18-34, 35-44, and 45-64), the top ten states that Hawai‘i-born individuals move to are the same: the West Coast (California, Washington, Oregon, and Nevada), populous western states (Arizona and Colorado), and populous southern states (Texas, Florida, Georgia, and Virginia). More-educated brain drain leavers generally follow this pattern, with New York and North Carolina being more popular destinations in some cases. Table 2 shows the top 10 destinations by age cohort.

Table 2. States that Hawai‘i-born People Move to, by Age and Education

18-34 years old	35-44 years old	45-64 years old
<i>Total: 131,341</i>	<i>Total: 75,282</i>	<i>Total: 138,226</i>
California (19.8%)	California (23.8%)	California (26.1%)
Washington (10.0%)	Washington (8.9%)	Washington (8.6%)
Nevada (7.6%)	Nevada (7.5%)	Texas (7.1%)
Texas (6.2%)	Texas (6.4%)	Nevada (5.8%)
Florida (5.2%)	Florida (4.1%)	Florida (4.7%)
Oregon (5.1%)	Oregon (4.0%)	Oregon (3.7%)
Virginia (4.1%)	Virginia (3.5%)	Virginia (3.4%)
Colorado (3.2%)	Arizona (3.4%)	Arizona (2.8%)
Arizona (2.9%)	Colorado (2.7%)	Colorado (2.8%)
Georgia (2.8%)	Georgia (2.5%)	Georgia (2.6%)
18-34 years old, Bachelor’s or higher	35-44 years old, Bachelor’s or higher	45-64 years old, Bachelor’s or higher
<i>Total: 40,832</i>	<i>Total: 32,305</i>	<i>Total: 56,568</i>
California (25.3%)	California (28.6%)	California (27.5%)
Washington (9.7%)	Washington (8.3%)	Washington (8.8%)
Texas (5.3%)	Texas (5.5%)	Texas (7.0%)
Oregon (5.3%)	Nevada (4.7%)	Florida (4.2%)
Virginia (4.8%)	Virginia (3.6%)	Virginia (4.2%)
Florida (4.8%)	Oregon (3.6%)	Colorado (3.8%)
Nevada (3.7%)	Florida (3.6%)	Oregon (3.8%)
New York (3.4%)	New York (3.3%)	Nevada (2.7%)
Colorado (3.4%)	Colorado (2.9%)	Arizona (2.7%)
North Carolina (2.4%)	Georgia (2.9%)	North Carolina (2.3%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of movers in parentheses.

Several other interesting patterns emerge. The order of the top 10 destinations is nearly identical across the three age cohorts for all brain drain leavers, while only the top 3 destinations (and Virginia in 5th) are identical across the age cohorts for those with a bachelor’s degree or higher. Older age cohorts and those with more education are more likely to move to California, usually at the expense of Nevada. Despite some sentiment of Nevada as a retirement destination, there is actually a smaller percentage of Hawai‘i-born individuals living there in the 45-64 years old age cohort compared to the two younger cohorts. Instead, an individual in the older cohort is more likely to live in Texas, by over 1.5 percentage points for those with a bachelor’s degree or higher.

IV. Comparing Characteristics and Outcomes

A little under 500,000 people born in Hawai‘i now live on the mainland. For comparison, about 730,000 people were born and live in Hawai‘i, while just over 290,000 people were born on the mainland and live in Hawai‘i.⁴ As noted earlier, people leaving Hawai‘i (regardless of birthplace) tend to be younger and more educated than Hawai‘i-born Hawai‘i residents. The age and educational attainment differences are apparent between Hawai‘i-born residents and

⁴ There are actually more foreign-born (including those born in American territories) people living in Hawai‘i, 300,266, than there are mainlanders.

Hawai‘i-born individuals living on the mainland as well, particularly with regards to educational attainment (see Table 3). Importantly, for brain drain considerations, it is the case that those leaving for the mainland are both younger *and* more educated; almost 15% of Hawai‘i-born mainlanders are between the ages of 18 and 44 and have a bachelor’s degree or higher, compared to 7.7% of those remaining in Hawai‘i. In other words, the more optimistic scenario (with respect to economic growth) where educated leavers are close to retirement age is not the scenario that Hawai‘i is experiencing. Perhaps of most concern, not only are there these differences in percentages, but raw numbers show that there are more Hawai‘i-born people with a bachelor’s degree or higher living on the mainland than there are who stayed in Hawai‘i across all age cohorts.

Hawai‘i residents born on the mainland comprise a higher percentage of young adults and a higher percentage of educated people, which can make up for some of the workforce leaving Hawai‘i. However, much of these mainland-born Hawai‘i residents are older as well, and much of the educated mainland-born Hawai‘i residents are old – 9.5% of mainland-born Hawai‘i residents are older than 64 and have a bachelor’s degree or higher, compared to 4.3% for Hawai‘i-born residents and 5.1% for Hawai‘i-born leavers. With regards to raw numbers, more-educated mainland-born Hawai‘i residents only exceed Hawai‘i-born mainland residents in the older-than-64 cohort

Thus, brain drain of young, educated working-age adults appears to be non-trivial.

Table 3. Education by Age Breakdown, Percentage of Birthplace-by-Residence Category

	Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
Total	733,745	490,088	290,669
Less than 18 years			
All education levels	30.5%	15.6%	12.1%
Age 18-34			
HS degree or less	8.9%	7.8%	5.7%
Some college	8.1%	10.7%	9.1%
Bachelor’s degree	3.5%	6.2%	5.8%
Master’s or higher	1.0%	2.1%	1.9%
Age 35-44			
HS degree or less	3.5%	3.4%	2.5%
Some college	3.6%	5.3%	4.5%
Bachelor’s degree	2.3%	4.2%	4.1%
Master’s or higher	1.0%	2.4%	2.6%
Age 45-64			
HS degree or less	7.9%	7.1%	7.3%
Some college	6.9%	9.6%	11.3%
Bachelor’s degree	4.5%	7.1%	8.1%
Master’s or higher	1.9%	4.4%	5.9%
Age 65 and older			
HS degree or less	7.7%	4.7%	3.9%
Some college	4.5%	4.4%	5.9%
Bachelor’s degree	2.9%	2.9%	4.5%
Master’s or higher	1.5%	2.2%	5.0%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. “Some college” includes associate degree earners.

Demographic Characteristics

There were substantial gender and racial differences between Hawai‘i-born people who stayed in Hawai‘i compared to Hawai‘i-born people who moved to the mainland. Movers were more likely to be female and more likely to be white compared to stayers, a difference that was consistent across age cohorts and levels of education.

Gender

A higher percentage of Hawai‘i-born people moving to the mainland were females compared to the Hawai‘i-born-Hawai‘i-resident population, by around 4 percentage points overall (Table 4). The gap between Hawai‘i residents and mainland residents was a little smaller among those with a bachelor’s degree or higher, though the female population among Hawai‘i-born mainland residents was quite high (over 58%) for those aged 18-34 years old. Older Hawai‘i-born cohorts (living in Hawai‘i or living on the mainland) tend to have slightly higher percentage of females overall, but a lower percentage of females with a bachelor’s degree or higher, regardless of birthplace or residence (see Appendix A).

Table 4. Gender Composition, Age 18-34

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 18-34			
Male	52.6%	48.1%	51.9%
Female	47.4%	51.9%	48.1%
Age 18-34, Bachelor's or higher			
Male	42.3%	41.8%	41.9%
Female	57.7%	58.2%	58.1%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Tables for 35-64 year olds in Appendix A.

Race

Table 5 shows that people who are born in Hawai'i but move to the mainland are far more likely to be white, compared to the Hawai'i-born people who live in Hawai'i (people born on the mainland moving to Hawai'i are even more likely to be white, unsurprisingly; the share of whites on the mainland is over 70%, but the share of whites age 18-34 is less than 60%). Racial differences between Hawai'i-born stayers and leavers are more muted for those with bachelor's degrees or higher, for the most part. The racial breakdown for older cohorts was similar for Hawai'i-born stayers, with a slightly higher percentage of Asian-alones and slightly lower percentage of two-or-more-races. For Hawai'i-born leavers, older cohorts also had similar racial breakdowns, with older movers being slightly more white and slightly less multi-racial (see Appendix A).

Table 5. Race Composition, Age 18-34

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 18-34			
White alone	8.0%	43.1%	61.1%
Asian alone	27.1%	14.5%	7.1%
NH/Other PI alone	14.7%	11.2%	2.9%
Other race alone	7.3%	10.6%	10.7%
Two or more races	42.8%	20.6%	18.2%
Age 18-34, Bachelor's or higher			
White alone	9.2%	42.4%	67.4%
Asian alone	40.8%	23.1%	9.0%
NH/Other PI alone	6.1%	4.8%	1.2%
Other race alone	9.5%	10.1%	9.9%
Two or more races	34.3%	19.7%	12.5%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Tables for 35-64 year olds in Appendix A.
 "NH/Other PI alone" refers to Native Hawaiians or other Pacific Islanders alone.

Even though Native Hawaiians and Pacific Islanders made up less than 5% of movers aged 18-34 with a bachelor's degree or higher, the number of Native Hawaiians and Pacific Islanders with a bachelor's degree that were born in Hawai'i and living on the mainland is effectively

equal to the number born and living in Hawai‘i - 49.4% of college-educated Native Hawaiians and Pacific Islanders move to the mainland (see Table 6). In contrast, nearly 6 times as many Hawai‘i-born whites aged 18-34 with a bachelor’s degree or higher are living on the mainland compared to those still living in Hawai‘i (85.2% of college-educated whites move to the mainland, compared to 14.8% who stay in Hawai‘i). In fact, more Hawai‘i-born whites aged 18-34 with a bachelor’s degree or higher are living on the mainland than there are whites aged 18-34 of any educational attainment that were born and living in Hawai‘i. Other-race-alone also had more people moving to the mainland than staying in Hawai‘i. For Asians-alone and two-or-more-races, more stayed in Hawai‘i than moved to the mainland.

Table 6. Percentage of Hawai‘i-borns who Move to Mainland, Age 18-34, by Race

	White alone	Asian alone	NH/other PI alone	Other race alone	Two or more races
All	81.7%	30.8%	38.8%	55.0%	28.6%
Bachelor’s or higher	85.2%	41.5%	49.4%	57.0%	41.8%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. “NH/Other PI alone” refers to Native Hawaiians or other Pacific Islanders alone.

Educational Characteristics

As shown in Table 3, working age adults born in Hawai‘i who move to the mainland tend to be younger and more educated than those who stay in Hawai‘i. However, Table 3 does not show what percentage of people within an age-by-education cohort move to the mainland.

Furthermore, not all majors are created equal; some fields have higher earning potential or can lead to jobs in growing occupations or industries. Relevant to the brain drain discussion, some fields might not have many job opportunities in Hawai‘i, all but necessitating a move to the mainland where more opportunities might be available.

Educational Attainment

Table 7 highlights the brain drain concern: over half of those who earn a bachelor’s degree or higher to move to mainland (51.4% to 54.5% for bachelor’s degree earners, 59.2% to 62.8% for graduate degree earners), whereas around 40% of those born in Hawai‘i who have a high school degree or less move to the mainland. Among younger adults, over 55% of Hawai‘i-born people with a bachelor’s degree move away, a percentage surpassed by the 60% of those earning a master’s degree or higher.

Table 7. Percentage of Hawai‘i-borns who Move to Mainland, by Age Group and Educational Attainment

Age	Less than high school	High school degree	Some college	Associates degree	Bachelor’s degree	Master’s or higher
18-34	40.9%	35.9%	47.8%	44.6%	54.5%	59.2%
35-44	49.4%	39.0%	54.0%	41.6%	54.5%	62.8%
45-64	50.4%	35.7%	51.7%	41.6%	51.4%	60.6%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families.

Interestingly, those who earn an associates degree are more likely to remain in (or leave and move back to) Hawai‘i compared to those who have some college. Some of this might be due to

college attendance habits; one might be more likely to attend a mainland 4-year university as opposed to staying in Hawai‘i to attend community college. The similar percentages between the “some college” and “bachelor’s degree” among the older cohorts is suggestive that moving away for school leads to staying on the mainland, regardless of whether a degree is earned or not. The difference between these two columns for the 18-34 cohort could partly be due to some young adults still completing school in Hawai‘i who have not looked at moving to the mainland for employment yet (though the gap is large enough that this explanation seems rather insufficient). More educated individuals in older cohorts move to the mainland at about the same rate as the 18-34 cohort; this could happen for a variety of reasons:

- The rate of moving to the mainland as a young adult (for school or for job opportunities early in the career) has remained relatively unchanged for the past few decades;
- Older cohorts moved to the mainland at a lower rate while as a young adult, but have recently been more likely to move to the mainland (such as for retirement); or
- Older cohorts moved to the mainland at a higher rate while as a young adult, but have recently returned to Hawai‘i (such as to take care of parents).

A quick look at the 2005-2009 ACS (the earliest ACS with a 5-year sample) and comparing the age 18-34 cohort and age 35-44 cohort for the 2005-2009 sample with the 35-44 cohort and age 45-64 cohort in the 2014-2018 sample, respectively, suggests that there are not stark differences in the decision to move, though some evidence points to older cohorts moving at slightly higher rates and then returning.⁵ The age 18-34 cohort for the 2005-2009 sample had people moving to the mainland at slightly lower rates for those with less than an associates degree (37.4% to 53.2% compared to 39.0% to 54.0%) than the 35-44 cohort for the 2014-2018 sample and slightly higher rates for associates degree and bachelor’s degree earners (42.0% and 57.0% compared to 41.6% and 54.5%). Comparing the age 35-44 cohort for the 2005-2009 sample with the 45-64 cohort in the 2014-2019 sample, those with less than an associates have similar moving rates, but the gap between those with an associates or bachelor’s degree is even higher, by around 5 percentage points. The likelihood of moving to the mainland is considerably lower for the 45-64 cohort in the 2005-2009 sample compared to the same age cohort in the 2014-2019 sample for those without a high school degree (35.2%).

⁵ The 18-34 cohort in 2005-2009 has an age range of 23-47 in 2014-2018, so around half (if not more) of this cohort falls into the 35-44 cohort in 2014-2018. The 35-44 cohort in 2005-2009 has an age range of 40-57 in 2014-2018, so a majority of this cohort falls into the 45-64 cohort in 2014-2018. Some of the 45-64 cohort in 2005-2009 will still be under 64 in 2014-2018, as well.

Table 8. Percentage of Hawai‘i-borns who Move to Mainland, by Age Group and Educational Attainment, 2005-2009

Age	Less than high school	High school degree	Some college	Associates degree	Bachelor’s degree	Master’s or higher
18-34 (23-47) ^a	45.3%	37.4%	53.2%	42.0%	57.0%	59.2%
35-44 (40-57) ^a	51.1%	38.8%	53.4%	46.0%	56.9%	60.2%
45-64 (50-77) ^a	35.2%	37.0%	46.8%	38.1%	47.5%	54.3%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2005-2009 5-year PUMS.

Note: Excludes military personnel and their families.

^a Widest 2014-2018 age range in parentheses, e.g., assuming an 18-year old in 2009 is surveyed in 2014 and a 34-year old in 2005 is surveyed in 2018.

Field of Degree

Popular fields of degree are mostly consistent, regardless of residence or birthplace. Business is always the most popular field of degree, with health, education, psychology, and social sciences often in the top 5. Differences in the top fields can be for two reasons: (1) job opportunities for the field could be limited in Hawai‘i or (2) Hawai‘i’s post-secondary education system might not be particularly strong in the field. A combination of the two could also lead to someone born in Hawai‘i moving to the mainland – the person moves to the mainland for school and stays on the mainland for work.

Table 9. Top 10 Fields of Degrees Earned, Age 18-34

Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
Business (20.6%)	Business (17.0%)	Business (18.6%)
Health (10.7%)	Biology (9.1%)	Social sciences (9.5%)
Education (8.6%)	Social sciences (7.8%)	Health (9.1%)
Psychology (7.8%)	Health (7.1%)	Biology (8.5%)
Social sciences (7.4%)	Psychology (6.6%)	Psychology (8.4%)
Engineering (7.1%)	Engineering (6.3%)	Education (6.3%)
Biology (6.6%)	Art (6.3%)	Art (5.1%)
Communications (4.6%)	Education (5.9%)	Communications (4.7%)
English/literature (3.0%)	Communications (5.6%)	Engineering (3.9%)
Art (2.7%)	English/literature (4.6%)	Criminal justice (3.2%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of degree-earners earning degree in the field is in parentheses. Graduates who did not respond with the field of degree earned are omitted from calculations. Tables for 35-64 year olds in Appendix A.

Hawai‘i-born people living on the mainland are less likely to have business, health, and education degrees, and more likely to have a degree in biology or art. One stereotype of getting a job after majoring in business is that networking and connections matter, which could mean that finding a job in Hawai‘i is easier for business majors in Hawai‘i compared to the mainland.

Mainland-born Hawai‘i residents have slightly lower rates of majoring in business compared to Hawai‘i-born residents, perhaps reinforcing the notion that networking and connections matter in

business. Careers in health and education have similar constraints when finding jobs after graduating: certification/licensure can be different between jurisdictions, limiting job opportunities on and mobility to the mainland. However, while job options on the mainland for Hawai‘i teachers are limited because of licensure differences, there are numerous reciprocity agreements among states such that Hawai‘i teachers do not need to take additional coursework or training (though additional paperwork, such as evidence of teaching effectiveness, might still be a requirement).⁶ There are numerous interstate compacts for physicians and nurses/nurse practitioners, but it does not appear that Hawai‘i is a part of any.⁷ Despite this discrepancy in reciprocity, mainland-born Hawai‘i residents have a higher percentage of health-degree earners relative to education-degree earners. Mainland-born Hawai‘i residents are far less likely to have engineering degrees; this could also be licensure-related.

The decline in business and education degrees between Hawai‘i-born stayers and leavers is similar for older age cohorts. The decline in health degrees is similar, albeit slightly smaller, for the 35-44 cohort, but the percentage of health-degree earners among Hawai‘i-born people aged 45-64 is the same for those who live in Hawai‘i and those who live on the mainland. Biology and art degrees see a similar increase for Hawai‘i-born mainlanders in the older cohorts (see Appendix A).

Economic Outcomes

The state of Hawai‘i’s economy is somewhat of a mixed bag; even though Hawai‘i has a high labor force participation rate and a low unemployment rate, economic growth has been on the low end compared to other states. This contrast is reflected when comparing the labor market outcomes of people born and living in Hawai‘i to their Hawai‘i-born, mainland-living counterparts. Hawai‘i-born Hawai‘i residents are more likely to be working and tend to work more hours. However, personal income and hourly wages are higher for Hawai‘i-born mainland residents, particularly on the higher end of the income/wage distribution.⁸ While occupational and industry break downs of workers are broadly similar for Hawai‘i-borns living in Hawai‘i and Hawai‘i-borns on the mainland, there are some occupations and industries that are more commonly found among Hawai‘i-born workers living on the mainland, which could account for some of the differences in personal income and wage. Household income is higher for Hawai‘i-born people who stay in Hawai‘i, but this might be due to differences in household composition in response to the high housing costs in Hawai‘i.

Labor Force Participation and Employment

Hawai‘i has generally had among the lowest unemployment rates among the states, and this shows up when comparing the unemployment rate between Hawai‘i-born stayers and leavers;

⁶ For example, the National Association of State Directors of Teaching Education and Certification (NASDTEC) Interstate Agreement facilitates interstate agreements that outline which states’ educator certificates will be accepted in another jurisdiction. See <http://ecs.force.com/mbdata/MBProfAllIRTANW?Rep=TCL17STA> for a list of states with reciprocity and the level of reciprocity the states have.

⁷ Hawai‘i is not a part of the Interstate Medical Licensure Compact (<https://imlcc.org/>) or the Nurse Licensure Compact (<https://www.ncsbn.org/nurse-licensure-compact.htm>).

⁸ “Personal income” follows the Census Bureau’s definition, and is found directly in the ACS data: see https://www.census.gov/glossary/#term_Income for the definition. Personal income include salary and wages, interest and rental income, Social Security benefits, and cash public assistance and welfare payments. “Hourly wage” is calculated by the author, using the ACS’s data on wage and usual hours worked.

among those aged 18-34, 5.0% of Hawai‘i-born people living in Hawai‘i are unemployed, compared to 5.9% of Hawai‘i-born people living on the mainland (Table 10).⁹ However, a higher percentage of Hawai‘i-born mainland residents are employed, leading to a 2 percentage point higher labor force participation rate. Mainland-born Hawai‘i residents have an even higher labor force participation rate and employment rate. One possible interpretation of this is that moving halfway across the Pacific Ocean is costly, and moving without a job in hand is risky. One does not move from Hawai‘i to the mainland, or vice versa, without a job waiting at the destination; there is some selection bias among the movers.

Alas, the higher percentage of people not in the labor force for Hawai‘i-born residents is unique to the 18-34 cohort. In fact, the difference already disappears for this age cohort when focusing on people who have a bachelor’s degree or higher. For those in the 18-34 year old cohort with a bachelor’s degree or higher, and for older cohorts (regardless of education), the labor force participation rate is higher and the unemployment rate is lower among Hawai‘i-born Hawai‘i residents, compared to either Hawai‘i-born mainland residents or mainland-born Hawai‘i residents. Note that not participating in the labor force at older ages is not necessarily a bad outcome; one could have earned enough to retire early.

Table 10. Labor Force Participation and Employment, Age 18-34

	Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
Age 18-34			
Employed	75.7%	77.1%	78.7%
Unemployed	5.0%	5.9%	4.5%
Not in labor force	19.3%	17.1%	16.7%
Age 18-34, Bachelor’s or higher			
Employed	88.0%	86.5%	86.5%
Unemployed	3.1%	3.5%	4.0%
Not in labor force	8.9%	9.9%	9.6%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Tables for 35-64 year olds in Appendix A.

When looking at the number of hours worked per week, the younger cohort of Hawai‘i-born Hawai‘i residents is again unique; while older cohorts of Hawai‘i-born Hawai‘i residents are more likely to work full-time compared to Hawai‘i-born mainland residents, the younger cohort of Hawai‘i-born people living in Hawai‘i is less likely to work full-time compared to their mainland counterparts, 76% compared to 80%, respectively (Table 11). Full-time is defined as 30 hours, according to federal definitions under the Affordable Care Act. Those with a bachelor’s degree or higher are much more likely to work full-time among the younger cohort, by around 10 percentage points, likely due to school attendance within the broader 18-34 cohort (the gap is around 3 percentage points or less for older cohorts).

⁹ The unemployment rate is actually computed based on those in the labor force, so the 19.3% (17.1%) of Hawai‘i-born stayers (leavers) who are not in the labor force need to be removed from calculations. Excluding those who are not in the labor force, the unemployment rate for Hawai‘i-born Hawai‘i residents is 6.2%, compared to the 7.1% for Hawai‘i-born mainland residents.

Table 11. Full-Time vs. Part-Time Work, Age 18-34

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 18-34			
Full-time	76.0%	80.4%	81.0%
Part-time	24.0%	19.6%	19.0%
Age 18-34, Bachelor's or higher			
Full-time	85.3%	89.8%	85.6%
Part-time	14.7%	10.2%	14.4%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Full-time is defined as 30 hours, according to federal definitions under the Affordable Care Act. Tables for 35-64 year olds in Appendix A.

Hawai'i-born people who move to the mainland are more likely to work in the private and non-profit sector, compared to Hawai'i-born people who stay in Hawai'i. For the 18-34 cohort, this difference is primarily due to wo government (local/state/federal) workers, with a small difference among rates of self-employment. Among older cohorts, the difference in private and non-profit employment is larger, but Hawai'i-born stayers work in government at even higher rates, particularly in state government (Hawai'i-born Hawai'i residents who have a bachelor's degree are between 2 to 3 times more likely to work in state government than their mainland-resident counterparts) (see Appendix A). To make up for this increasing gap in government employment, Hawai'i-born leavers are more likely to be self-employed. Mainland-born people living in Hawai'i are also much more likely to work in government compared to Hawai'i-born people living on the mainland; overall, the difference is mainly due to federal employment, but for those with a bachelor's degree or higher, the difference is split between higher state employment and federal employment.

Table 12. Class of Worker, Age 18-34

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 18-34			
Private/non-profit	81.3%	84.0%	70.9%
Local/state/federal	14.9%	11.6%	22.6%
Self-employed	3.4%	4.1%	5.9%
Age 18-34, Bachelor's or higher			
Private/non-profit	67.0%	79.9%	65.9%
Local/state/federal	28.5%	16.1%	27.7%
Self-employed	4.3%	3.8%	5.7%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Columns do not sum to 100%, as family employment, which account for less than 1% of employment, has been excluded from each column. Tables for 35-64 year olds in Appendix A.

Occupation

Perhaps the clearest occupational differences between Hawai'i-born people aged 18-34 who stayed in Hawai'i versus those who moved to the mainland is in construction and extraction

occupations (see Table 13). In Hawai‘i, construction and extraction occupations made up 7.8% of responses; in contrast, only 2.9% of Hawai‘i-born mainlanders worked in construction and extraction occupations. Hawai‘i-born mainlanders were slightly less likely to be in sales and related occupations and food preparation and serving occupations; they were more likely to work in an office and administrative support occupation, management occupation, or production occupations compared to their counterparts who live in Hawai‘i. Mainland-born Hawai‘i residents are also less likely to be in construction and extraction occupations (3.8%) and more likely to work in a food preparation and serving occupation. Despite the differences in the percentage of people who majored in education or health among Hawai‘i-born stayers and leavers, a similar percentage of people work in education and training occupations and healthcare practitioner occupations. This is likely due to a lower percentage of Hawai‘i-born residents earning a bachelor’s degree or higher compared to those who move to the mainland.

Table 13. Top 10 Occupations, Age 18-34

Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
Sales & related (13.0%)	Office & admin. supp. (14.0%)	Food prep. & serving (14.2%)
Food prep. & serving (12.8%)	Sales & related (11.9%)	Sales & related (11.8%)
Office & admin. supp. (12.5%)	Food prep. & serving (11.5%)	Office & admin. supp. (9.1%)
Transportation (8.2%)	Transportation (7.4%)	Education & training (6.6%)
Construction & extraction (7.8%)	Management (6.4%)	Healthcare practitioners (6.6%)
Education & training (6.1%)	Education & training (5.6%)	Management (6.5%)
Management (4.8%)	Healthcare practitioners (5.3%)	Transportation (6.4%)
Healthcare practitioners (4.7%)	Production (4.0%)	Personal care and service (4.2%)
Personal care and service (3.8%)	Personal care and service (3.7%)	Installation, maint., repair (4.0%)
Bldng & grnds cleaning (3.6%)	Healthcare support (3.3%)	Construction & extraction (3.8%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of workers in occupation is in parentheses. Workers who did not respond with occupations are omitted from calculations. Tables for 35-64 year olds in Appendix A.

The occupation breakdown for people aged 18-34 with a bachelor’s degree or higher is rather different from the overall population (Table 14). A much smaller percentage of those with a bachelor’s degree or higher are in sales and related occupations, food preparation and serving occupations, and construction and extraction occupations. The differences in the percentage in education and health degrees/occupations between Hawai‘i-born stayers and leavers shows up here. Hawai‘i-born stayers are also slightly more likely to be in architecture and engineering occupations, by a little over 1 percentage point. Hawai‘i-born people living on the mainland are more likely to be in a management occupation; computer and mathematics occupation; business operations specialist occupation; financial specialist occupation; and arts, design, entertainment, sports, and media occupations.

Table 14. Top 10 Occupations, Age 18-34, Bachelor’s Degree or Higher

Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
Education & training (14.7%)	Education & training (11.5%)	Healthcare practitioners (12.4%)
Healthcare practitioners (13.1%)	Management (11.5%)	Education & training (12.3%)
Office & admin. supp. (12.1%)	Office & admin. supp. (10.9%)	Sales & related (10.5%)
Management (9.4%)	Healthcare practitioners (9.7%)	Management (10.0%)
Sales & related (7.5%)	Sales & related (7.3%)	Office & admin. supp. (9.7%)
Arch. & engineering (5.0%)	Computer & mathematics (6.5%)	Food prep. & serving (6.7%)
Community & soc. service (4.0%)	Business op. specialists (6.2%)	Business op. specialists (4.4%)
Food prep. & serving (4.0%)	Arts, design, entertainment (5.4%)	Personal care and service (3.9%)
Business op. specialists (3.8%)	Financial specialists (5.0%)	Arts, design, entertainment (3.6%)
Financial specialists (3.5%)	Food prep. & serving (4.1%)	Community & soc. service (3.5%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of workers in occupation is in parentheses. Workers who did not respond with occupations are omitted from calculations. Tables for 35-64 year olds in Appendix A.

These occupational patterns are consistent for older cohorts; licensure limits the ease of being in education and training occupations and healthcare practitioner occupations for Hawai‘i-born people living on the mainland, while there are a higher percentage in management occupations and arts, design, entertainment, sports, and media occupations. Differences in business operation specialists and financial specialists are mixed. Overall, people in older cohorts are less likely to be in food preparation and serving occupations and sales and related occupations (see Appendix A).

Industry

With the size of the tourism industry in Hawai‘i, it is unsurprising that the top two industries that Hawai‘i residents (Hawai‘i-born or mainland-born) aged 18-34 work in are the arts, entertainment, and recreation, and accommodation and food services industry and the retail trade industry (Table 15). Construction is also a major industry among Hawai‘i-born residents. The arts, entertainment, and recreation, and accommodation and food services industry and the retail trade industry are also common for Hawai‘i-born mainland residents, but construction is not in the top 10 industries. More common industries to work in among Hawai‘i-born mainland residents are the professional, scientific, and management, and administrative, and waste management services industry and the manufacturing industry. Mainland-born Hawai‘i residents are much more likely to be in public administration, likely due to people moving to Hawai‘i for federal jobs.

Table 15. Top 10 Industries, Age 18-34

Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Arts, ent, accom, & food (21.4%)	Arts, ent, accom, & food (18.2%)	Arts, ent, accom, & food (21.9%)
Retail trade (15.2%)	Retail trade (15.4%)	Retail trade (13.0%)
Construction (9.1%)	Prof, sci, admin services (12.3%)	Public administration (12.7%)
Educational services (8.7%)	Health care (9.5%)	Prof, sci, admin services (8.2%)
Health care (8.6%)	Educational services (8.6%)	Health care (8.2%)
Prof, sci, admin services (8.3%)	Manufacturing (7.1%)	Educational services (8.0%)
Public administration (4.8%)	Fin. & insurance, real estate (4.9%)	Construction (4.9%)
Transportation & warehsing (4.6%)	Transportation & warehsing (4.1%)	Other services (4.1%)
Fin. & insurance, real estate (4.5%)	Other services (3.9%)	Fin. & insurance, real estate (4.1%)
Other services (4.0%)	Public administration (3.6%)	Transportation & warehsing (4.0%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of workers in industry is in parentheses. Workers who did not respond with industry are omitted from calculations. Tables for 35-64 year olds in Appendix A.

For 18-34 year olds with a bachelor's degree or higher, work in the arts, entertainment, and recreation, and accommodation and food services industry; the retail trade industry; and the construction industry is less common. Instead, these more educated workers work in the educational services industry; health care industry; and professional, scientific, and management, and administrative, and waste management services industry. As noted several times previously, licensure differences could make working in education or health care less appealing for those moving to the mainland, so the professional, scientific, and management, and administrative, and waste management services industry is the top industry Hawai'i-born mainlanders work in. Hawai'i-born mainlanders also work more in manufacturing than Hawai'i-born Hawai'i residents. The gap between more educated Hawai'i-born stayers and leavers shrinks for the construction industry and grows for public administration.

Table 16. Top 10 Industries, Age 18-34, Bachelor's Degree or Higher

Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Educational services (19.5%)	Prof, sci, admin services (19.3%)	Educational services (15.8%)
Health care (17.0%)	Educational services (15.8%)	Arts, ent, accom, & food (14.6%)
Prof, sci, admin services (10.7%)	Health care (12.6%)	Health care (13.9%)
Arts, ent, accom, & food (10.5%)	Arts, ent, accom, & food (9.6%)	Public administration (10.8%)
Retail trade (7.7%)	Manufacturing (7.7%)	Prof, sci, admin services (9.4%)
Public administration (7.6%)	Retail trade (7.7%)	Fin. & insurance, real estate (6.7%)
Fin. & insurance, real estate (7.2%)	Fin. & insurance, real estate (6.8%)	Retail trade (6.0%)
Construction (3.7%)	Public administration (4.8%)	Other services (4.3%)
Manufacturing (3.1%)	Information (3.7%)	Wholesale (3.3%)
Transportation & warehsing (3.1%)	Other services (3.6%)	Construction (3.2%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of workers in industry is in parentheses. Workers who did not respond with industry are omitted from calculations. Tables for 35-64 year olds in Appendix A.

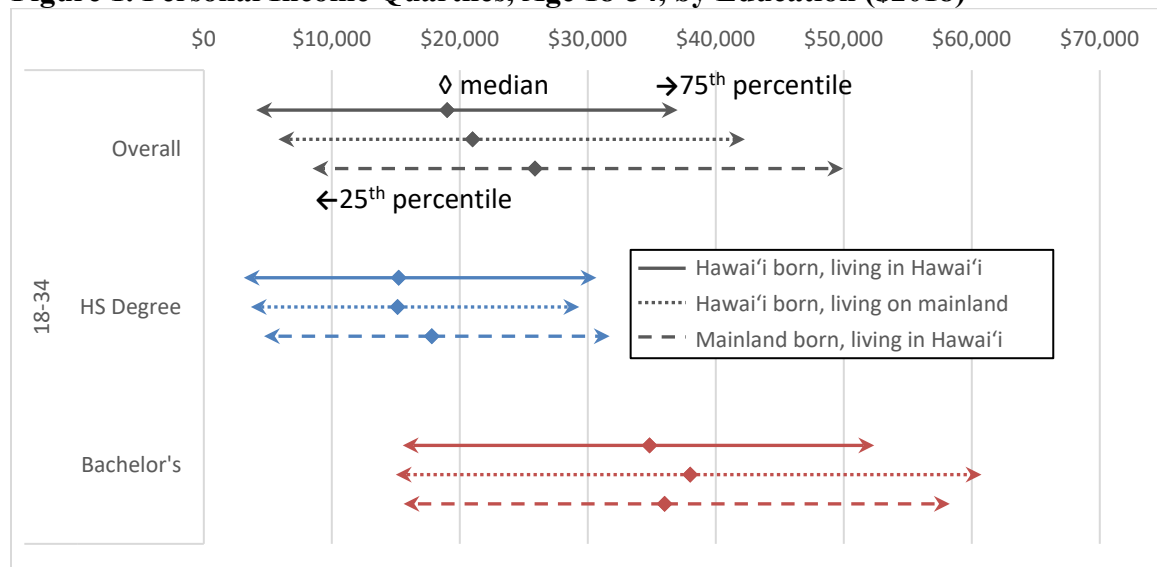
Educational services; professional, scientific, and management, and administrative and waste management services; and public administration become more popular industries to work in for

older cohorts. The percentage of people in public administration equalizes across the three populations for the older cohorts. For Hawai‘i residents (both Hawai‘i-born and mainland-born), retail trade decreases in popularity for 35-44 year olds before increasing for 45-64 year olds; retail trade might be an easier low-skill industry for older workers to participate in, compared to arts, entertainment, and recreation, and accommodation and food services or construction. With that being said, older Hawai‘i-born mainland residents are more likely to work in manufacturing than younger Hawai‘i-born mainlanders (see Appendix A).

Income and Wage

Overall, 18-34 year-olds born and living in Hawai‘i had lower personal incomes than 18-34 year-olds born in Hawai‘i and living on the mainland, who in turn had lower personal incomes than 18-34 year-olds born on the mainland and living in Hawai‘i (Figure 1). The median incomes for these populations were around \$19,000, \$21,000, and \$26,000, respectively (in real terms, 2018 base year). The first and third quartiles showed a similar pattern. When looking at personal income by education, Hawai‘i-born people aged 18-34 with just a high school degree had similar personal incomes (a median just over \$15,000), regardless of place of residence, compared to mainland-born Hawai‘i residents (a median slightly under \$18,000). In contrast, Hawai‘i-born people aged 18-34 with a bachelor’s degree living in Hawai‘i had lower personal incomes (\$35,000 median, \$52,500 75th percentile) than Hawai‘i-born mainland residents of the same age and educational attainment (\$38,000 median, \$60,750 75th percentile), though the 25th percentile of personal income was similar.

Figure 1. Personal Income Quartiles, Age 18-34, by Education (\$2018)



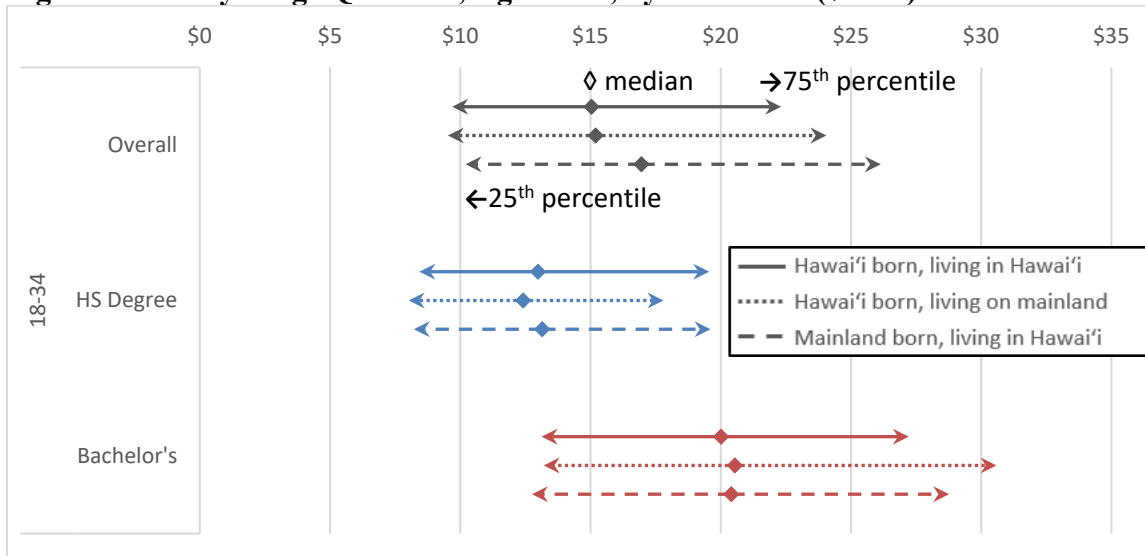
Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. *Note:* Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount. Figures for 35-64 year olds in Appendix A.

A similar pattern emerged for older cohorts: overall, median personal incomes were similar between Hawai‘i-born stayers and leavers, with a larger gap at the 75th percentile, while high school graduates who had no post-secondary education had a similar spread (though median income for stayers was slightly higher than for leavers). The income gap was more evident

among those with bachelor's degrees, particularly among higher earners. For those with a bachelor's degree, Hawai'i-born mainlanders earned \$2,000-\$5,000 more than Hawai'i-born locals at the median and around \$15,000 more at the 75th percentile (see Appendix A).

To evaluate whether this difference in personal income is a function of higher (hourly) pay or a function of working longer hours, Figure 2 looks at the distribution (25th percentile, median, 75th percentile) of hourly wages for Hawai'i-born Hawai'i residents, Hawai'i-born mainland residents, and mainland-born Hawai'i residents overall and by educational attainment. For all age cohorts and all educational attainment, there are no major differences between income distributions and hourly wage distributions, so while there are differences between the percentage of workers in part/full time work when comparing Hawai'i-born stayers and leavers, differences in personal income are not completely driven by hours worked. Rather, overall, Hawai'i-born mainlanders get paid more, per hour, than their counterparts who stayed in Hawai'i, with slightly lower hourly wages for high school degree earners and slightly higher hourly wages for bachelor's degree earners when comparing Hawai'i-born stayers versus leavers.

Figure 2. Hourly Wage Quartiles, Age 18-34, by Education (\$2018)

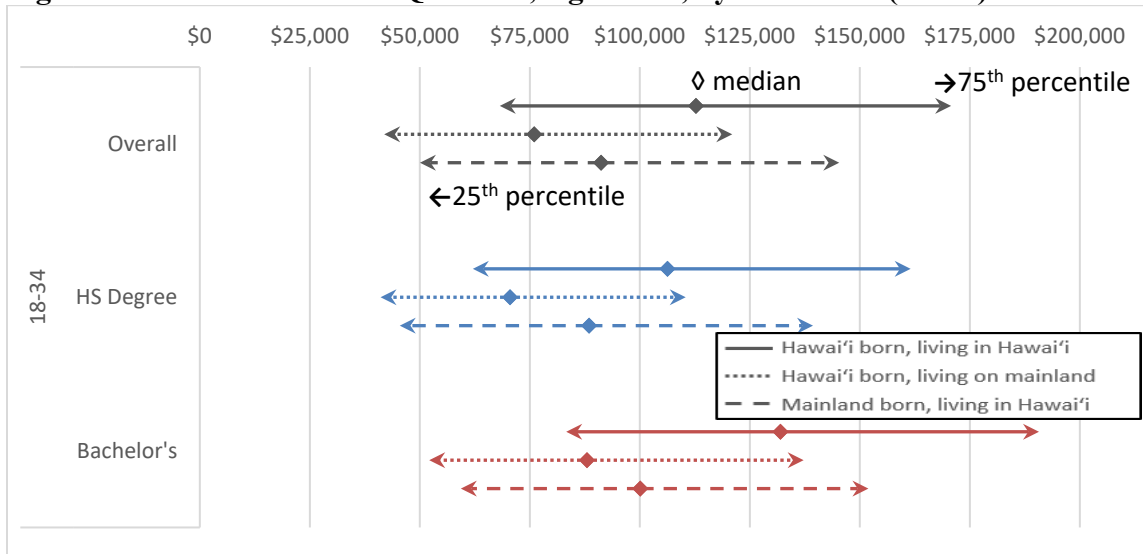


Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. *Note:* Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount. Figures for 35-64 year olds in Appendix A.

Household income tells a completely different story, likely due to differences in household composition (Figure 3). Household income for Hawai'i-born people who stay in Hawai'i is significantly higher than Hawai'i-born people who move to the mainland, by at least \$15,000 overall and up to \$45,000 when taking into account educational attainment. People who stay in Hawai'i could be staying with parents or other family members, contributing to household income in ways that a nuclear family moving to the mainland would not be able to take advantage of. In that sense, mainland-born people who move to Hawai'i might offer a more apt comparison, as these movers are also unlikely to take advantage of extended family adding to household income. However, even this comparison does not seem particularly helpful for those

moving to the mainland; mainland-born movers to Hawai‘i also have higher household income, though the magnitude of the difference is noticeably smaller.

Figure 3. Household Income Quartiles, Age 18-34, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. *Note:* Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount. Figures for 35-64 year olds in Appendix A.

Differences in median household income between Hawai‘i-born residents and their counterparts on the mainland persist among the older cohorts, though the gap narrows considerably, particularly among those with a bachelor’s degree. In fact, among the older cohorts, household income at the 75th percentile for bachelor’s-degree-earning Hawai‘i-born movers to the mainland is slightly higher than Hawai‘i-born people who stayed in Hawai‘i. This reinforces the idea that young adults might still be living with family members.

Housing

With different household compositions (and thus household incomes) come different home ownership rates. Even if housing costs are significantly cheaper on the mainland, this is insufficient to make up for lower household incomes, resulting in a homeownership gap of over 20 percentage points between Hawai‘i-born Hawai‘i residents and Hawai‘i-born mainland residents for the 18-34 age cohort. Again, mainland-born Hawai‘i residents might be a more apt comparison, and for this comparison, Hawai‘i-born mainland residents do relatively well; Hawai‘i-born mainland residents have a homeownership rate 10 percentage points higher than mainland-born Hawai‘i residents.

Table 17. Home Ownership, Age 18-34

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 18-34			
Own home, mortgage	47.2%	35.4%	24.9%
Own free & clear	15.3%	6.8%	7.0%
Renting	37.5%	57.8%	68.1%
Age 18-34, Bachelor's or higher			
Own home, mortgage	55.3%	36.8%	28.0%
Own free & clear	18.9%	5.8%	7.8%
Renting	25.8%	57.4%	64.2%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

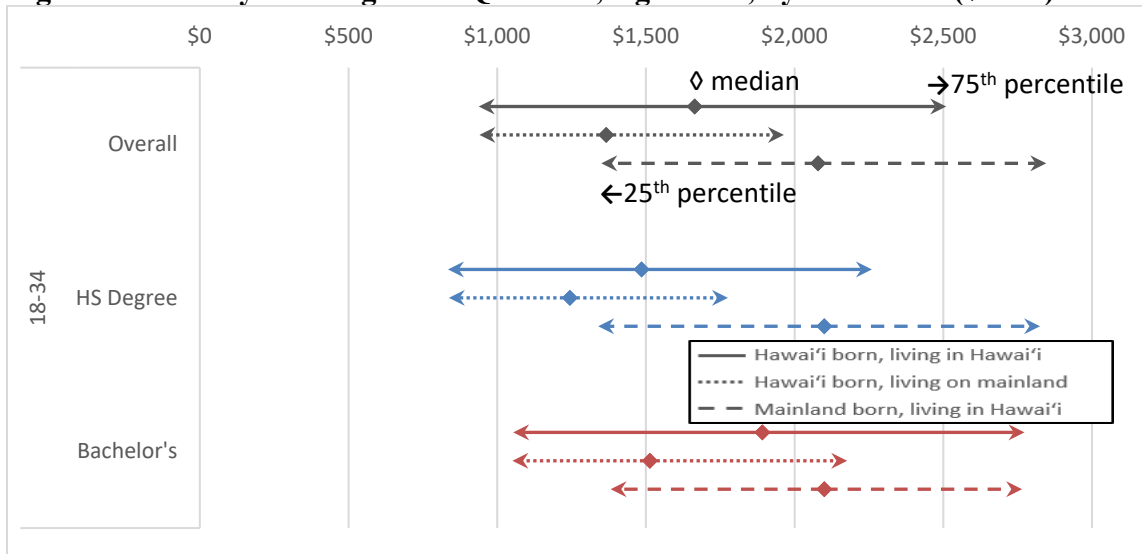
Note: Excludes military personnel and their families. Tables for 35-64 year olds in Appendix A.

Differences in homeownership between Hawai'i-born Hawai'i residents and their counterparts living on the mainland all but disappear among the older cohorts; for some populations, the rates are nearly identical. With that being said, Hawai'i-born residents are more likely to own their homes free and clear, without any mortgage left to pay. In contrast, mainland-born Hawai'i residents continue to have lower homeownership rates, by around 10 percentage points.

As one might expect, housing costs are significantly less for those living on the mainland. Figure 4 compares the monthly housing costs for Hawai'i-born young adults living in Hawai'i, Hawai'i-born young adults living on the mainland, and mainland-born young adults living in Hawai'i, by quartile and by education. Renters (gross rent) and homeowners (mortgage and other ownership costs) are included in the figure below. Median monthly housing costs almost \$300 higher for Hawai'i-born young adults in Hawai'i, compared to Hawai'i-born young adults on the mainland. Median monthly housing costs are even higher for mainland-born adults in Hawai'i, almost \$400 higher than Hawai'i residents who were born in Hawai'i. The gap for higher-cost housing (the 75th percentile) is even larger when comparing Hawai'i-born residents and Hawai'i-born mainlanders, though not by much.

Differences in monthly housing costs are persistent, regardless of age or educational attainment, and rent and homeownership costs are similarly cheap on the mainland (see Appendix A for the supplemental monthly housing costs quartiles figure for 35-64 year olds, as well as the gross rent quartiles figure and the select monthly homeownership costs quartiles figure), with some small exceptions (e.g., the median gross rent for 35-44 year olds with a bachelor's degree is slightly higher for Hawai'i-born mainlanders). Higher monthly homeownership costs are not necessarily due to Hawai'i-born mainlanders having mortgages versus Hawai'i-born residents living in free and clear homes, either. Across the board, mortgages are higher for Hawai'i-born residents, and even higher for mainland-born people living in Hawai'i (primarily for older adults with only a high school degree). Mortgage amount quartiles by age and education can also be found in Appendix A.

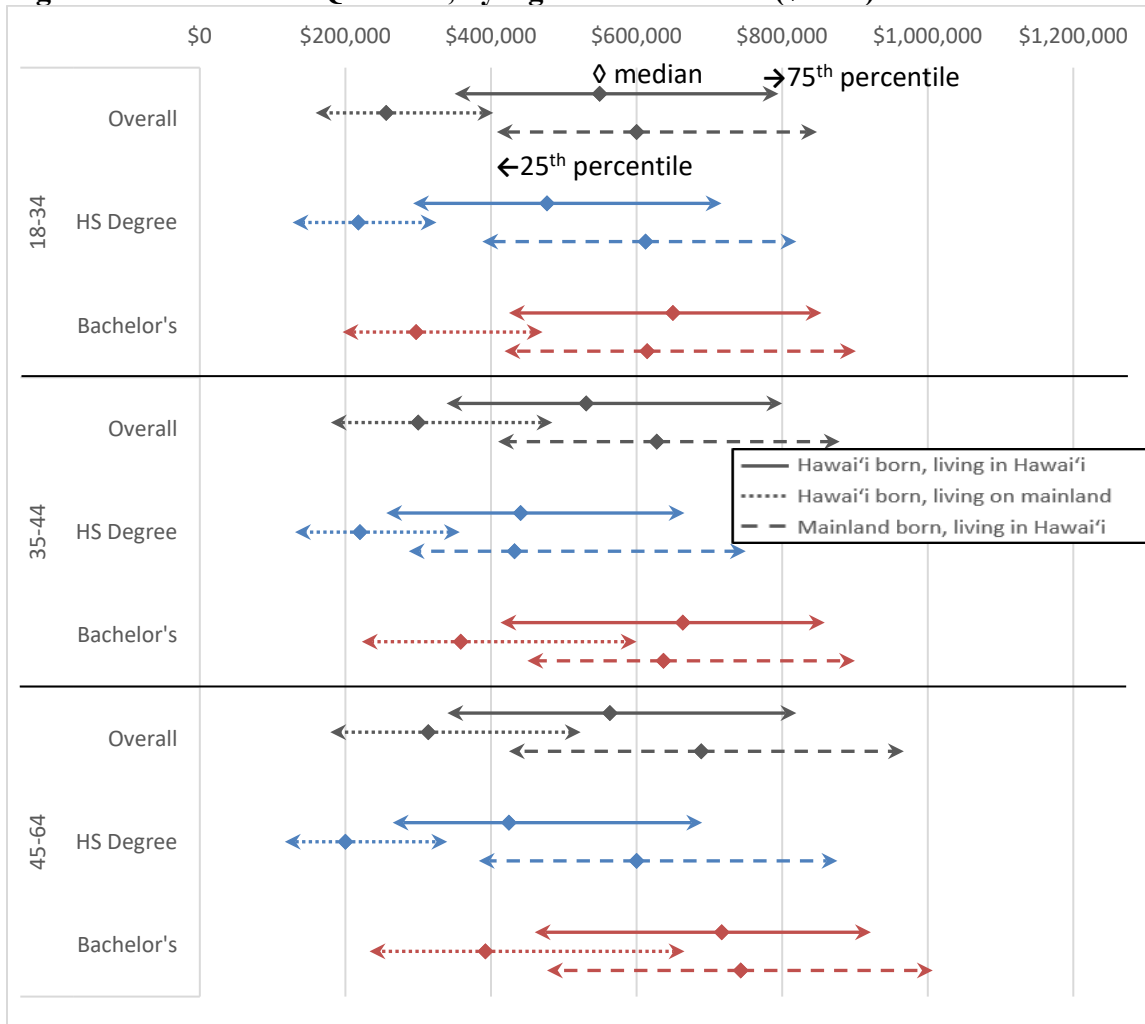
Figure 4. Monthly Housing Costs Quartiles, Age 18-34, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. *Note:* Excludes military personnel and their families. Income deflated to 2018 levels. Renters and homeowners included. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount. Figures for 35-64 year olds in Appendix A.

The really sharp contrast in housing between Hawai'i and the mainland is in house value (see Figure 5). The median house value for young adults born and living in Hawai'i is just under \$550,000, compared to around \$250,000 for young adults born in Hawai'i and living on the mainland (young adults born on the mainland and living in Hawai'i have a median house value of over \$600,000). Across all age cohorts and levels of education, and across the different quartiles, house values in Hawai'i are approximately double that of the Hawai'i-born people living on the mainland. The 25th percentile house values for some populations of Hawai'i-born Hawai'i residents almost exceed the 75th percentile house values for their mainland-resident counterparts.

Figure 5. House Value Quartiles, by Age and Education (\$2018)

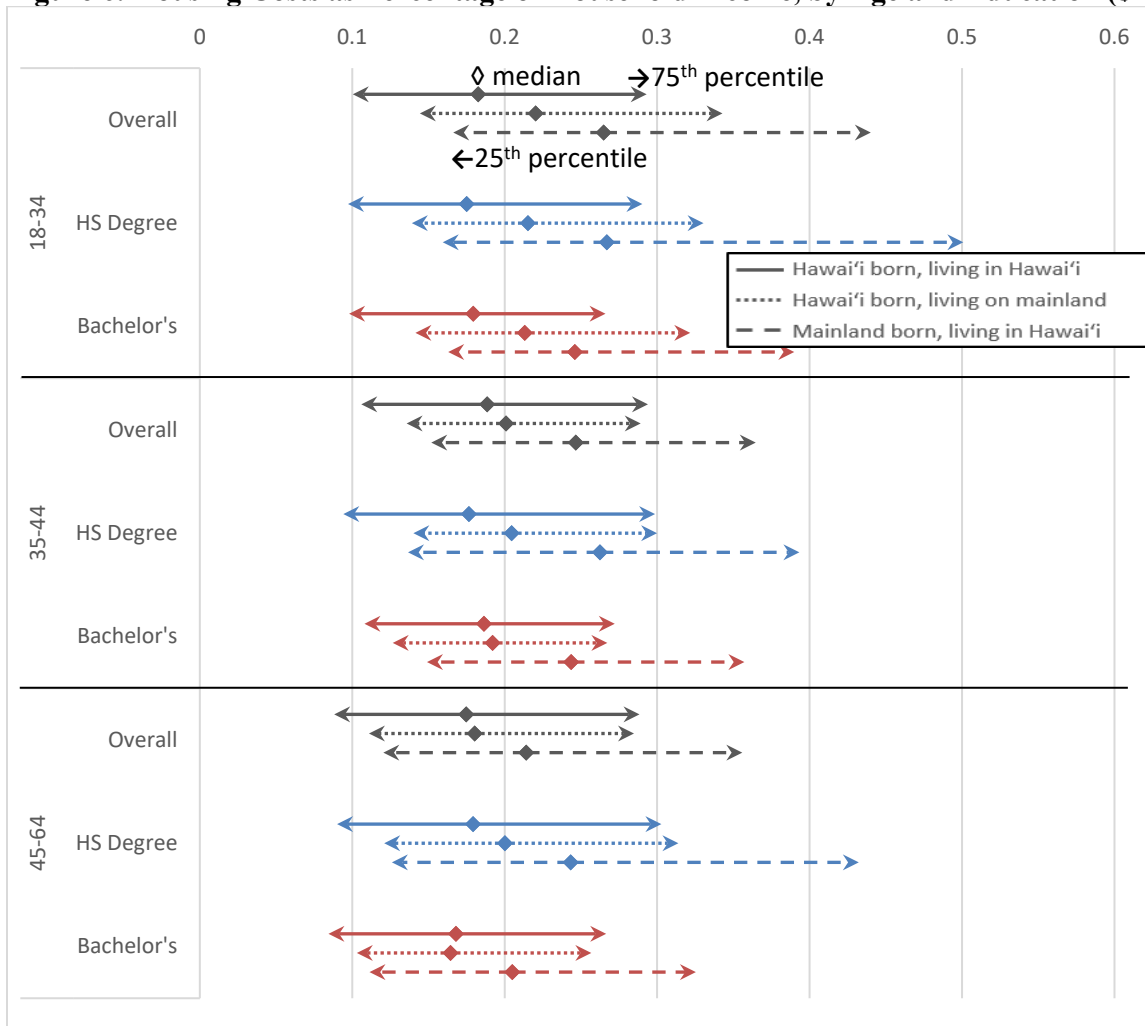


Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Renters and homeowners included. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

V. Why Move to the Mainland? A Closer Analysis of Economic Outcomes

Personal income and hourly wage differences between Hawai'i-born stayers and leavers were small compared to the differences in housing costs. One might conclude that housing costs were the primary driver of moves. However, for those moving to the mainland, while housing costs are lower, household income is also lower; with more expensive housing in Hawai'i, household composition changes – multigenerational and extended family households are more prevalent, to increase household income. The question, then, for those who are considering moving to the mainland to more affordable housing, are housing costs low enough to offset the lower household income? Figure 6 suggests that this is unlikely, particularly for younger adults.

Figure 6. Housing Costs as Percentage of Household Income, by Age and Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. *Note:* Excludes military personnel and their families. Income deflated to 2018 levels. Renters and homeowners included. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure 6 presents housing costs as a percentage of household income – monthly housing costs are scaled up to annual costs (multiplied by 12) and then divided by annual household income, as a measure of cost burden. Lower percentages indicate a lower cost burden. If lower housing costs on the mainland were more “affordable” even with lower household incomes, housing costs would be a lower percentage of household income. Instead, it looks like Hawai‘i-born young adults living in Hawai‘i have housing costs that make up a smaller percentage of household income compared to Hawai‘i-born young adults who move to the mainland. Hawai‘i-born older adults have a much smaller gap between living in Hawai‘i and the mainland, and those with bachelor’s degrees have effectively the same cost burden. For these older adults, cost burdens are relatively equal, so moving to the mainland for housing affordability is supported by the data. Note that the gap closes because the percentage decreases for Hawai‘i-born mainlanders; the percentage is stable for Hawai‘i-born residents. The stability of the household costs as a percentage of household income for Hawai‘i-born residents lends credence to the idea that

households in Hawai‘i (particularly of those who are from Hawai‘i) are multigenerational; younger adults with lower earnings live with their higher-earning parents, and when these younger adults grow older, get paid more, and have their own families, their children stay with them even when the children become working aged. In other words, there is a regular rotation of lower-earning younger generations and higher-earning older generations in the household.

For younger adults, Figure 6 paints somewhat of an incomplete picture. One could be set on living in their own household, even if it is slightly costlier to do so. As the Hawai‘i-born, living in Hawai‘i distributions include the larger, multigenerational/extended family households, this might not be a relevant comparison group. Instead, mainland-born people living in Hawai‘i might be the more apt comparison – these people are unlikely to be moving with their extended families, so their household composition (spouse and own children only) is closer to those Hawai‘i-born people who want to move out of a multigenerational/extended family household. In this case, younger adults born in Hawai‘i and living on the mainland have a lower cost burden than young adults born on the mainland and living in Hawai‘i, by about 5 percentage points. Alternatively, households can be broken out into multigenerational and single generation households, and then cost burden can be compared. This is still imperfect, as it does not account for extended family households or roommates, but it does provide a closer comparison. For single generation households, Hawai‘i-born younger adults living in Hawai‘i still have a lower median housing cost relative to household income compared to Hawai‘i-born younger adults living on the mainland, though the difference is about 2.5 percentage points, compared to the 3.8 percentage points when multigenerational households were included.¹⁰ Thus, it does not look like, strictly speaking, that housing costs are the reason for people born in Hawai‘i to move to the mainland. Note that this comparison does not take into context the size or amenities of the housing; Hawai‘i leavers could be spending slightly more than their counterparts who stay in Hawai‘i, but leavers could be getting substantially more house relative to the cost.

The Current Population Survey (CPS) asks about reasons for moving within the past year, and the responses confirm that housing costs are not the primary reason for leaving Hawai‘i for the mainland. Table 18 presents the breakdown of responses from the question about reasons for moving of outmigrants whose residence one year ago was in Hawai‘i. Employment is a major driver in the decision to move, even more so for 18-34 year olds. In particular, a majority of responses noted moving for a new job or job transfer as the reason for moving. Over 13% of movers moved for housing reasons, but “cheaper housing” was not a common response, even for those between the ages of 18-34 (though it had the fourth most responses). This is not to say that cheaper housing is not an impetus; one could want to move to the mainland for cheaper housing but will not do so unless there is a job to move to. The person is moving because of a new job, but this new job was found because of a desire to move to a more affordable location.

¹⁰ One possibility for why housing cost as a percentage of household income might be lower in Hawai‘i for single generation households despite higher personal income on the mainland is that spouses have a harder time finding jobs on the mainland. So, even in a single generation household, household income is less in Hawai‘i.

Table 18. Reasons for Moving to the Mainland: 2013-2017

	Percentage, all movers	Percentage, 18-34 year olds
Family Reason		
Change in marital status	2.4%	4.8%
Other family reason	26.3%	14.4%
Job-related Reason		
New job or job transfer	43%	54.4%
To look for work or lost job	1.7%	1.2%
For easier commute	0.1%	-
Other job-related reason	3.6%	4.7%
Housing reason		
Wanted new or better housing	2.4%	-
Wanted better neighborhood	0.2%	-
For cheaper housing	1.8%	5.1%
Other housing reason	11.7%	11.4%
Attend/leave college	1.3%	3.5%
Other reasons	5.5%	0.6%

Source: Estimates based on U.S. Census Bureau, Current Population Survey Annual Social and Economic Supplement 2013-2017 5-year PUMS, using the IPUMS Online Data Analysis System (<https://cps.ipums.org/cps/sda.shtml>).

Is there any evidence to suggest that job opportunities were strictly the reason for people born in Hawai‘i to move to the mainland, regardless of housing costs? There are no gross differences in personal income and hourly wage except for older, educated higher end earners. The analysis of personal income, hourly wage, and labor force participation are suggestive that younger adults might not be moving to better job situations on the mainland. However, one problem with simply using quartiles to do such a comparison is that the characteristics of the Hawai‘i-born-living-in-Hawai‘i median earner might be different from the Hawai‘i-born-living-on-the-mainland median earner. Their ages could be different, their genders could be different, and their occupations could be different. To address this, a more robust comparison strategy, propensity score matching, is used. The idea behind propensity score matching is that (near) identical individuals, similar in all variables except that one is exposed to some form of treatment while the other is untreated, are compared, and any difference in the outcome is due to the treatment.

For this analysis, all Hawai‘i-born 18-64 year olds were pooled together, and age, gender, race, and education were matched, with the treatment being whether the person moved to the mainland. The results from this matching show that Hawai‘i-born mainlanders have a personal income \$2,100 higher and an hourly wage \$1.60 higher than their local counterparts, similar to the differences found above. Personal income and hourly wage were statistically significant at the 10% level (p value of 0.56 and 0.067, respectively).

Noting the differences in field of degrees, occupations, and industry, this basic matching seems incomplete. Incorporating occupation categories into the matching analysis revealed that some of the difference in personal income and hourly wage between Hawai‘i-born stayers and leavers was due to the types of jobs people had on the mainland; controlling for this, the gap in personal

income decreased to \$1,350 and hourly wage decreased to \$1.20, and both lost statistical significance. Thus, while moving to the mainland leads to a slightly higher wage, all things equal, it is the jobs that are available on the mainland that are inducing the decision to move.

To explore this idea more carefully, Table 19 compares whether people with science, technology, engineering, and math (STEM) degrees or National Science Foundation (NSF) defined science and engineering (and science and engineering related) degrees are going into STEM or science and engineering occupations. The latter NSF definition is used because STEM degree and occupation definitions can be somewhat diverse and imprecise; for the purposes of this analysis, the Department of Homeland Security’s STEM Designated Degree Program was used for field of degree, while the U.S. Census Bureau’s STEM, STEM-related, and non-STEM code list were used.¹¹ Table 19 presents the percentage of people with a STEM degree who are in a STEM (related) occupation and the percentage of people with an NSF-defined science and engineering (related) degree who are in science or engineering occupations.

Table 19. Percentage of STEM and Science and Engineering Degree Earners in STEM and Science and Engineering Occupations, by Age

	Hawai‘i born, Hawai‘i resident	Hawai‘i born, Mainland resident	Mainland born, Hawai‘i resident
STEM			
18-34	36.9%	40.5%	35.4%
35-44	32.9%	44.2%	39.1%
45-64	41.6%	41.4%	36.2%
Science and Engineering			
18-34	4.3%	10.3%	4.5%
35-44	4.4%	11.6%	5.8%
45-64	4.5%	9.3%	6.7%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families.

The percentage of Hawai‘i-born mainlanders aged 18-34 who received a STEM degree and continued into a STEM occupation was 3.6 percentage points higher than the percentage of Hawai‘i-born residents aged 18-34; the difference was even higher for 35-44 year olds, but the percentage was essentially the same for the 45-64 year-old cohort. For science and engineering degree-earners going into a science or engineering occupation, the gap between Hawai‘i-born leavers and stayers was 6 percentage points for the 18-34 year-old cohort, 7.2 percentage points for the 35-44 year-old cohort, and 4.8 percentage points for the 45-64 year-old cohort. Mainland-born Hawai‘i residents have similarly low percentage of people with STEM/science and engineering degrees going into a STEM/science and engineering occupation as Hawai‘i-born Hawai‘i residents. This points to limited job opportunities in STEM fields in Hawai‘i.

¹¹ NSF’s science and engineering (related) degrees are flagged in the ACS under the “SCIENGP” and “SCIENGRPL” variable. Background on NSF’s studies on science and engineering degrees can be found in *Science and Engineering Degrees: 1966–2012*, NSF 15-326, available at <http://www.nsf.gov/statistics/2015/nsf15326/>. Information on the DHS’s STEM Designated Degree Program list can be found here: <https://studyinthestates.dhs.gov/eligible-cip-codes-for-the-stem-opt-extension>. The Census Bureau’s STEM code list can be found here: <https://www.census.gov/topics/employment/industry-occupation/guidance/code-lists.html>.

VI. Conclusion

According to 2014-2018 data, approximately half a million people born in Hawai‘i live on the mainland, of which 70% are working age (18-64 years old). Over a quarter of the Hawai‘i-born people living on the mainland are working-age adults with a bachelor’s degree or higher. Of concern for Hawai‘i’s economic growth, there are more Hawai‘i-born working-age adults with a bachelor’s degree or higher living on the mainland than there are living in Hawai‘i, and mainland-born movers to Hawai‘i do not come in enough numbers to make up for the loss in human capital.

Hawai‘i-born adults who move to the mainland are more likely to be female and white, compared to those who stay in Hawai‘i. They are more likely to have a degree in biology or art, and less likely to have a degree in education or health, probably due to occupational certification/licensure being a barrier to cross-state mobility for people in education and health occupations. These differences in obtaining education and health degrees shows up in occupation and industry, as Hawai‘i-born mainlanders are less likely to be in education or health occupations/industries, in addition to a smaller percentage working in construction, compared to Hawai‘i-born residents. Instead, Hawai‘i-born mainlanders are more likely to be in production, computer and mathematics, or arts and entertainment occupations, and are more likely to be in the manufacturing or professional services industry.

With a low unemployment rate, people born in Hawai‘i who stay in Hawai‘i have a higher labor force participation rate and a lower unemployment rate than their counterparts who move to the mainland. Hawai‘i-born stayers are also more likely to work full time. A higher percentage of Hawai‘i-born stayers work in government, by around 50% in most cases. There are small differences in median personal income and median hourly wage between Hawai‘i-born stayers and leavers, though more-educated Hawai‘i-born leavers make more money at the higher end of the income/wage distribution. Household income is much higher for people born and living in Hawai‘i, but that is likely due to household composition, to make up for the much higher housing costs in Hawai‘i compared to the mainland.

The decision to move to the mainland for Hawai‘i-born people looks to be a result of a combination of lower housing costs and more job opportunities. Gross rents and mortgages are much higher in Hawai‘i, and while multigenerational/extended family households earn more than enough to offset this – household costs as a percentage of household income is lower for Hawai‘i-born young adults living in Hawai‘i compared to Hawai‘i-born young adults living on the mainland – those who want to live by themselves (with just their spouse and own children) might not be able to afford doing so in Hawai‘i. Broadly speaking, jobs alone do not appear to be incentivizing moves. While Hawai‘i-born mainlanders earn slightly more than those who stay in Hawai‘i, by \$2,000-\$5,000, the difference seems to be largely compositional; taking into account age, gender, race, education, and occupation, differences in personal income and hourly wage are much smaller, and not statistically significant. Instead, it appears that the types of jobs that are available on the mainland are drawing Hawai‘i-borns away from Hawai‘i. For those earning STEM or NSF-defined science and engineering degrees, a higher percentage of Hawai‘i-borns living on the mainland are in STEM or science and engineering occupations, compared to Hawai‘i-borns who stay in Hawai‘i.

Appendix A. Supplementary Tables and Figures

Table A1. Gender Composition, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
Male	51.8%	48.0%	54.2%
Female	48.2%	52.0%	45.8%
Age 35-44, college or more			
Male	44.4%	42.7%	48.3%
Female	55.6%	57.3%	51.7%
Age 45-64			
Male	50.2%	47.5%	54.2%
Female	49.8%	52.5%	45.8%
Age 45-64, college or more			
Male	44.9%	48.9%	51.9%
Female	55.1%	51.1%	48.1%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families.

Table A2. Race Composition, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
White alone	7.2%	46.5%	67.6%
Asian alone	30.4%	15.8%	9.5%
NH/Other PI alone	15.9%	11.9%	1.3%
Other race alone	8.0%	7.4%	11.3%
Two or more races	38.5%	18.4%	15.6%
Age 35-44, Bachelor's or higher			
White alone	8.4%	48.5%	71.1%
Asian alone	41.6%	20.8%	11.2%
NH/Other PI alone	7.8%	5.7%	0.6%
Other race alone	9.7%	6.6%	6.7%
Two or more races	32.5%	18.4%	14.0%
Age 45-64			
White alone	8.0%	53.2%	74.6%
Asian alone	43.9%	17.0%	5.9%
NH/Other PI alone	14.0%	10.5%	1.9%
Other race alone	5.4%	5.9%	6.2%
Two or more races	28.8%	13.4%	11.4%
Age 45-64, Bachelor's or higher			
White alone	7.9%	54.6%	79.0%
Asian alone	61.4%	23.9%	7.4%
NH/Other PI alone	6.7%	5.3%	0.8%
Other race alone	6.6%	4.9%	4.8%
Two or more races	17.4%	11.3%	8.0%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families.

Table A3. Top 10 Fields of Degrees Earned, Age 35-64

35-44		
Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Business (21.6%)	Business (18.2%)	Business (15.0%)
Education (10.2%)	Social sciences (9.8%)	Social sciences (9.9%)
Health (9.5%)	Health (7.8%)	Biology (8.2%)
Social sciences (8.2%)	Education (7.4%)	Psychology (7.1%)
Psychology (6.5%)	Engineering (7.3%)	Education (6.5%)
Engineering (5.0%)	Biology (6.3%)	Health (6.5%)
Biology (4.8%)	Psychology (6.0%)	Communications (5.8%)
Communications (4.4%)	Info. & comp. sci. (5.2%)	Art (5.3%)
English/literature (3.3%)	Art (4.6%)	Engineering (5.1%)
Art (3.0%)	English/literature (4.5%)	Physical sciences (3.1%)
45-64		
Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Business (24.4%)	Business (22.0%)	Business (18.6%)
Education (14.1%)	Education (9.2%)	Education (9.8%)
Social sciences (10.4%)	Social sciences (9.0%)	Social sciences (9.1%)
Engineering (6.9%)	Engineering (7.9%)	Health (8.0%)
Health (6.5%)	Health (6.4%)	Biology (6.4%)
Psychology (5.0%)	Biology (5.3%)	Psychology (5.8%)
Art (4.2%)	Psychology (5.1%)	Art (5.6%)
Biology (3.9%)	Art (4.9%)	Engineering (5.3%)
Communications (3.6%)	Communications (4.2%)	Communications (4.4%)
Pub. admin. (2.1%)	Info. & comp. sci. (3.5%)	Physical sciences (3.2%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of degree-earners earning degree in the field is in parentheses. Graduates who did not respond with the field of degree earned are omitted from calculations.

Table A4. Labor Force Participation and Employment, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
Employed	85.0%	82.1%	82.4%
Unemployed	3.8%	4.1%	3.1%
Not in labor force	11.5%	14.2%	14.5%
Age 35-44, Bachelor's or higher			
Employed	93.1%	87.8%	88.0%
Unemployed	1.1%	2.1%	2.8%
Not in labor force	6.0%	10.4%	9.2%
Age 45-64			
Employed	75.0%	71.4%	72.4%
Unemployed	1.8%	3.0%	2.8%
Not in labor force	23.2%	25.6%	24.8%
Age 45-64, Bachelor's or higher			
Employed	82.8%	79.0%	79.8%
Unemployed	0.9%	2.7%	1.9%
Not in labor force	16.3%	18.3%	18.4%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families.

Table A5. Full Time vs. Part Time Work, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
Full time	91.5%	90.9%	87.0%
Part time	8.5%	9.1%	13.0%
Age 35-44, Bachelor's or higher			
Full time	94.7%	92.1%	90.1%
Part time	5.3%	7.9%	9.9%
Age 45-64			
Full time	90.4%	88.5%	86.5%
Part time	9.6%	11.5%	13.5%
Age 45-64, Bachelor's or higher			
Full time	91.4%	88.9%	88.2%
Part time	8.6%	11.1%	11.8%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families.

Table A6. Class of Worker, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
Private/non-profit	69.1%	75.4%	63.9%
Local/state/federal	23.6%	16.4%	21.4%
Self-employed	7.0%	2.9%	14.7%
Age 35-44, Bachelor's or higher			
Private/non-profit	55.8%	70.9%	57.1%
Local/state/federal	37.7%	21.8%	28.2%
Self-employed	5.9%	7.2%	14.6%
Age 45-64			
Private/non-profit	62.0%	68.0%	54.8%
Local/state/federal	28.8%	20.1%	23.1%
Self-employed	9.1%	11.6%	21.6%
Age 45-64, Bachelor's or higher			
Private/non-profit	49.6%	61.8%	48.2%
Local/state/federal	39.9%	25.7%	31.9%
Self-employed	10.5%	12.3%	19.5%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Columns do not sum to 100%, as family employment, which account for less than 1% of employment, has been excluded from each column.

Table A7. Top 10 Occupations, Age 35-64

35-44		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Office & admin. supp. (15.1%)	Office & admin. supp. (13.3%)	Management (13.8%)
Management (9.8%)	Management (12.5%)	Education & training (8.5%)
Sales & related (9.1%)	Sales & related (8.2%)	Office & admin. supp. (8.5%)
Construction & extraction (8.5%)	Education & training (7.4%)	Healthcare practitioners (8.5%)
Education & training (7.4%)	Healthcare practitioners (7.3%)	Sales & related (7.1%)
Transportation (7.1%)	Transportation (6.4%)	Food prep. & serving (5.1%)
Healthcare practitioners (5.3%)	Computer & mathematics (4.8%)	Construction & extraction (5.0%)
Food prep. & serving (4.9%)	Production (4.7%)	Computer & mathematics (4.7%)
Protective services (4.9%)	Construction & extraction (4.0%)	Transportation (4.5%)
Installation, maint., repair (3.7%)	Food prep. & serving (3.7%)	Business op. specialists (3.9%)
35-44, Bachelor's or higher		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Education & training (16.3%)	Management (17.5%)	Management (15.4%)
Management (14.6%)	Education & training (12.8%)	Education & training (13.6%)
Healthcare practitioners (11.2%)	Healthcare practitioners (11.0%)	Healthcare practitioners (12.0%)
Military (9.5%)	Office & admin. supp. (8.9%)	Office & admin. supp. (6.3%)
Community & soc. service (5.9%)	Computer & mathematics (6.9%)	Sales & related (5.7%)
Financial specialists (5.1%)	Sales & related (6.1%)	Business op. specialists (4.9%)
Business op. specialists (4.4%)	Financial specialists (5.1%)	Computer & mathematics (4.6%)
Protective services (4.2%)	Arts, design, entertainment (4.8%)	Arts, design, entertainment (4.4%)
Sales & related (3.9%)	Business op. specialists (4.6%)	Arch. & engineering (4.3%)
Computer & mathematics (3.6%)	Arch. & engineering (3.4%)	Community & soc. service (4.7%)
45-64		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Office & admin. supp. (16.6%)	Office & admin. supp. (14.0%)	Management (14.8%)
Management (9.5%)	Management (13.3%)	Sales & related (10.9%)
Sales & related (8.9%)	Sales & related (9.6%)	Office & admin. supp. (10.4%)
Transportation (8.0%)	Education & training (7.3%)	Education & training (8.6%)
Construction & extraction (7.2%)	Transportation (6.1%)	Healthcare practitioners (7.0%)
Education & training (6.8%)	Healthcare practitioners (6.1%)	Construction & extraction (6.8%)
Bldng & grnds cleaning (5.0%)	Business op. specialists (4.2%)	Transportation (5.4%)
Installation, maint., repair (4.5%)	Production (4.2%)	Food prep. & serving (4.1%)
Healthcare practitioners (4.2%)	Construction & extraction (3.7%)	Business op. specialists (3.8%)
Food prep. & serving (4.0%)	Computer & mathematics (3.6%)	Arts, design, entertainment (3.1%)
45-64, Bachelor's or higher		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Education & training (15.1%)	Management (19.1%)	Management (19.0%)
Management (15.0%)	Education & training (13.0%)	Education & training (15.7%)
Office & admin. supp. (12.3%)	Healthcare practitioners (9.7%)	Healthcare practitioners (10.1%)
Healthcare practitioners (9.3%)	Sales & related (9.0%)	Sales & related (8.9%)
Sales & related (6.4%)	Office & admin. supp. (8.5%)	Office & admin. supp. (6.6%)
Financial specialists (5.8%)	Business op. specialists (5.9%)	Business op. specialists (5.3%)
Business op. specialists (5.7%)	Computer & mathematics (5.3%)	Community & soc. service (4.0%)
Arch. & engineering (4.2%)	Arch. & engineering (4.7%)	Computer & mathematics (3.9%)
Community & soc. service (3.8%)	Financial specialists (4.0%)	Arts, design, entertainment (3.4%)
Computer & mathematics (3.3%)	Arts, design, entertainment (3.2%)	Transportation (2.9%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

Note: Excludes military personnel and their families. Percentage of workers in occupation is in parentheses. Workers who did not respond with occupations are omitted from calculations.

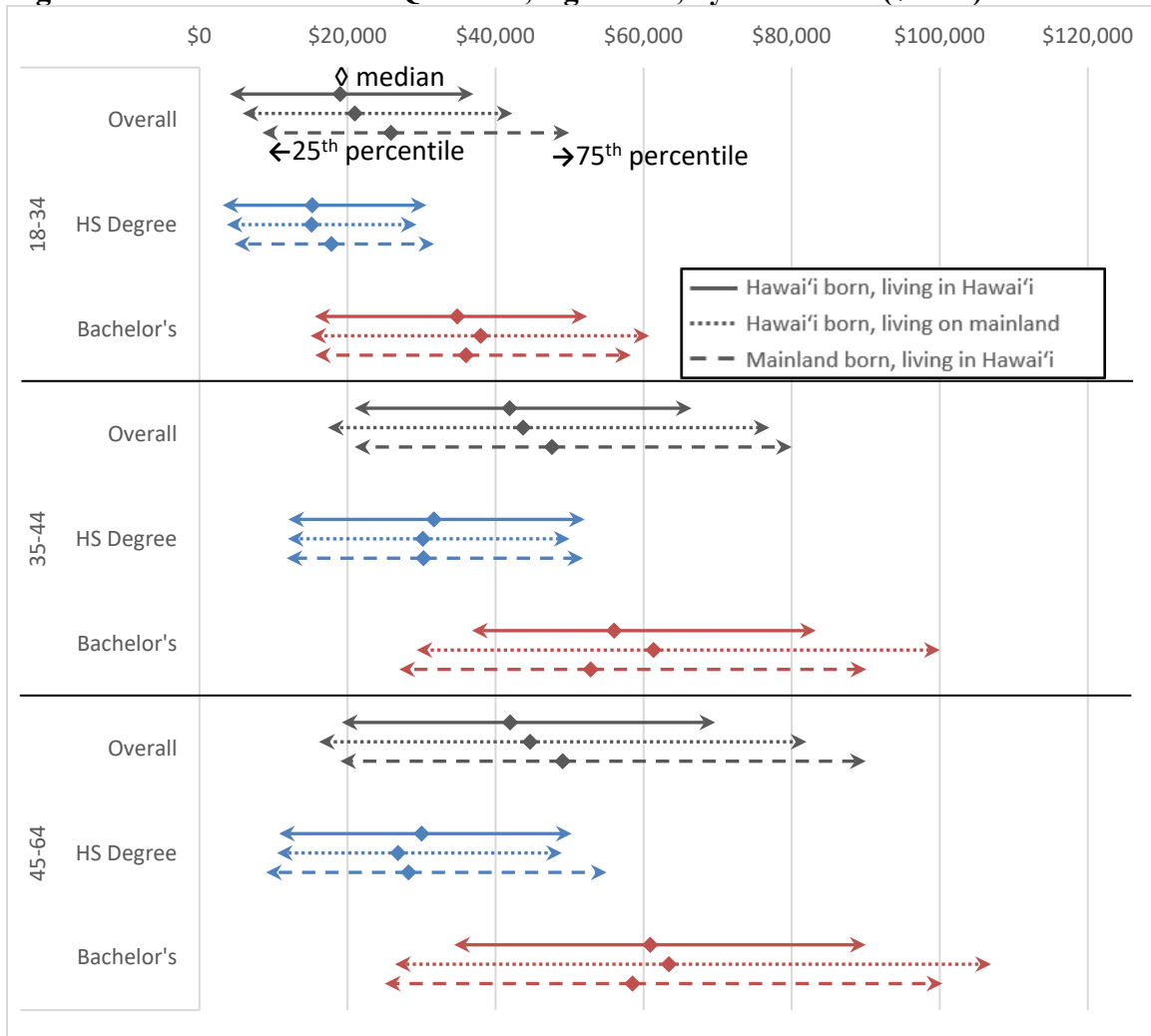
Table A8. Top 10 Industries, Age 35-64

35-44		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Educational services (10.9%)	Prof, sci, admin services (13.4%)	Prof, sci, admin services (15.4%)
Arts, ent, accom, & food (10.7%)	Health care (11.8%)	Arts, ent, accom, & food (12.3%)
Public administration (10.5%)	Educational services (10.4%)	Health care (11.7%)
Retail trade (10.4%)	Retail trade (10.0%)	Public administration (10.8%)
Construction (10.0%)	Arts, ent, accom, & food (9.7%)	Educational services (10.1%)
Prof, sci, admin services (9.8%)	Manufacturing (7.9%)	Construction (7.9%)
Health care (9.5%)	Fin. & insurance, real estate (7.6%)	Retail trade (6.6%)
Fin. & insurance, real estate (7.3%)	Public administration (6.1%)	Fin. & insurance, real estate (5.3%)
Transportation & warehsing (5.4%)	Construction (5.6%)	Other services (4.8%)
Other services (3.9%)	Transportation & warehsing (5.0%)	Transportation & warehsing (4.1%)
35-44, Bachelor's or higher		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Educational services (22.3%)	Educational services (18.0%)	Prof, sci, admin services (19.1%)
Public administration (15.5%)	Prof, sci, admin services (17.4%)	Educational services (16.8%)
Health care (14.9%)	Health care (12.5%)	Health care (15.5%)
Prof, sci, admin services (10.1%)	Fin. & insurance, real estate (8.2%)	Public administration (11.9%)
Fin. & insurance, real estate (8.3%)	Public administration (8.0%)	Arts, ent, accom, & food (6.9%)
Arts, ent, accom, & food (6.0%)	Arts, ent, accom, & food (6.9%)	Fin. & insurance, real estate (5.3%)
Construction (3.9%)	Manufacturing (6.2%)	Other services (5.3%)
Transportation & warehsing (3.6%)	Retail trade (5.7%)	Retail trade (4.1%)
Retail trade (3.6%)	Information (4.3%)	Construction (3.5%)
Social assistance (3.4%)	Other services (3.5%)	Social assistance (2.7%)
45-64		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Public administration (12.8%)	Prof, sci, admin services (13.3%)	Prof, sci, admin services (12.6%)
Educational services (11.0%)	Educational services (10.7%)	Educational services (10.6%)
Arts, ent, accom, & food (9.6%)	Health care (10.5%)	Public administration (10.6%)
Retail trade (9.4%)	Retail trade (9.2%)	Health care (9.9%)
Health care (8.8%)	Manufacturing (9.1%)	Arts, ent, accom, & food (9.7%)
Construction (8.6%)	Public administration (7.8%)	Construction (9.0%)
Prof, sci, admin services (8.5%)	Fin. & insurance, real estate (7.3%)	Retail trade (8.7%)
Fin. & insurance, real estate (8.2%)	Arts, ent, accom, & food (6.3%)	Fin. & insurance, real estate (8.3%)
Transportation & warehsing (6.9%)	Transportation & warehsing (5.7%)	Transportation & warehsing (4.6%)
Other services (4.4%)	Construction (5.5%)	Other services (4.6%)
45-64, Bachelor's or higher		
Hawai'i born, Hawai'i resident	Hawai'i born, mainland resident	Mainland born, Hawai'i resident
Educational services (21.2%)	Educational services (18.0%)	Educational services (17.7%)
Public administration (16.4%)	Prof, sci, admin services (17.0%)	Public administration (14.1%)
Health care (12.2%)	Health care (12.1%)	Health care (12.7%)
Prof, sci, admin services (10.5%)	Manufacturing (8.8%)	Prof, sci, admin services (12.7%)
Fin. & insurance, real estate (9.7%)	Public administration (8.6%)	Fin. & insurance, real estate (8.1%)
Retail trade (5.2%)	Fin. & insurance, real estate (7.8%)	Arts, ent, accom, & food (6.7%)
Arts, ent, accom, & food (4.8%)	Retail trade (5.2%)	Retail trade (5.4%)
Transportation & warehsing (3.4%)	Transportation & warehsing (3.8%)	Construction (4.0%)
Construction (3.1%)	Other services (3.8%)	Other services (3.5%)
Other services (2.7%)	Arts, ent, accom, & food (3.7%)	Transportation & warehsing (2.6%)

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

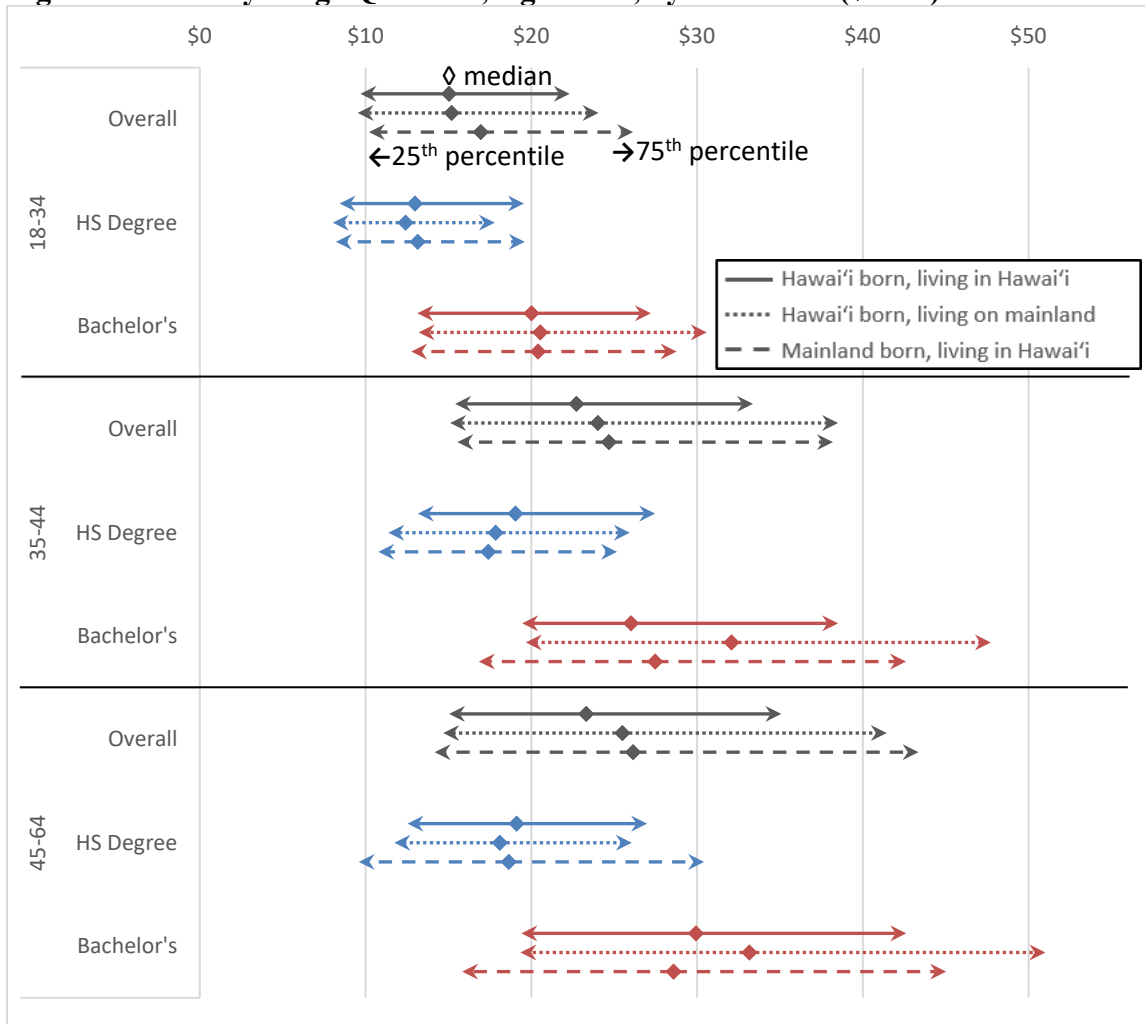
Note: Excludes military personnel and their families. Percentage of workers in industry is in parentheses. Workers who did not respond with industry are omitted from calculations.

Figure A1. Personal Income Quartiles, Age 18-64, by Education (\$2018)



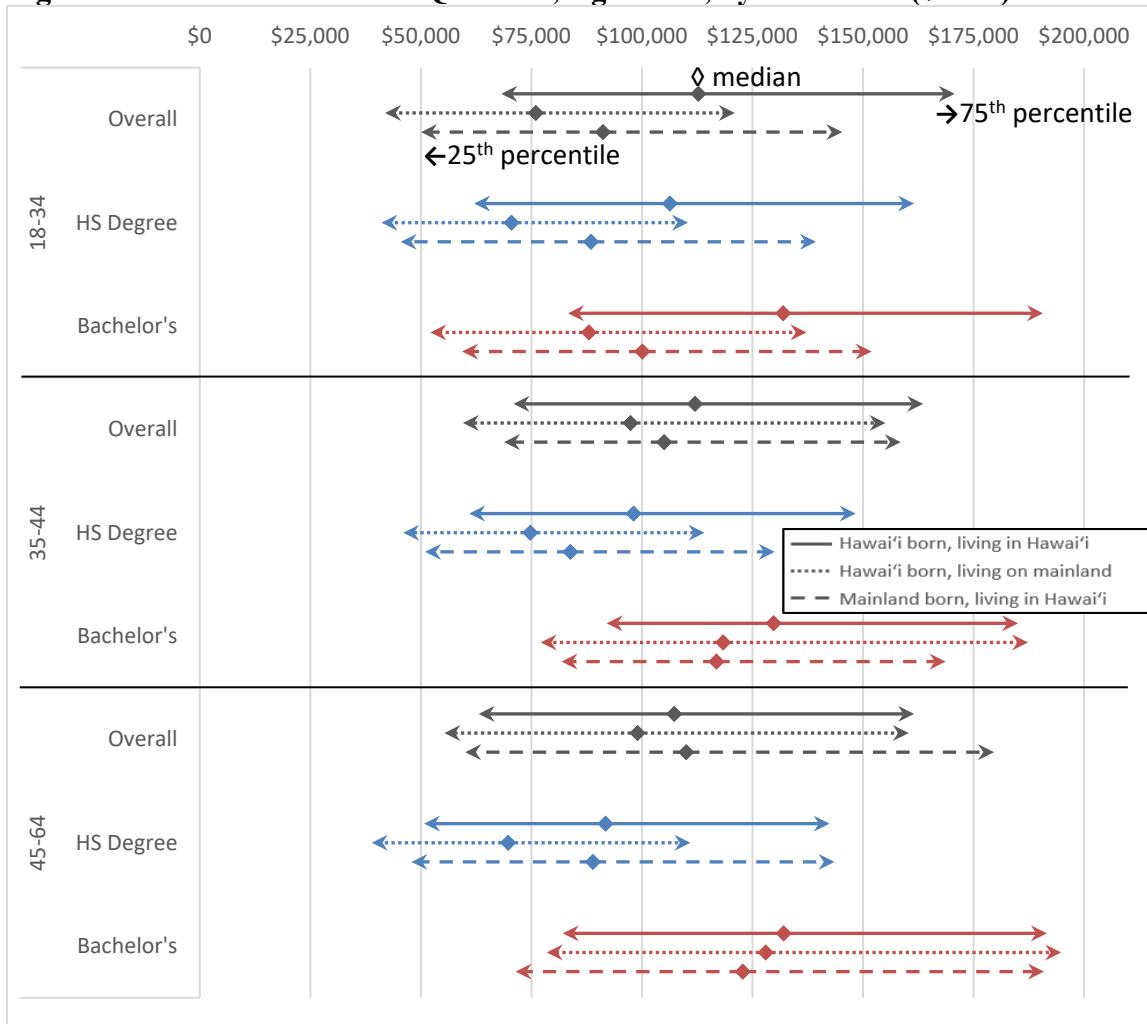
Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure A2. Hourly Wage Quartiles, Age 18-64, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure A3. Household Income Quartiles, Age 18-64, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

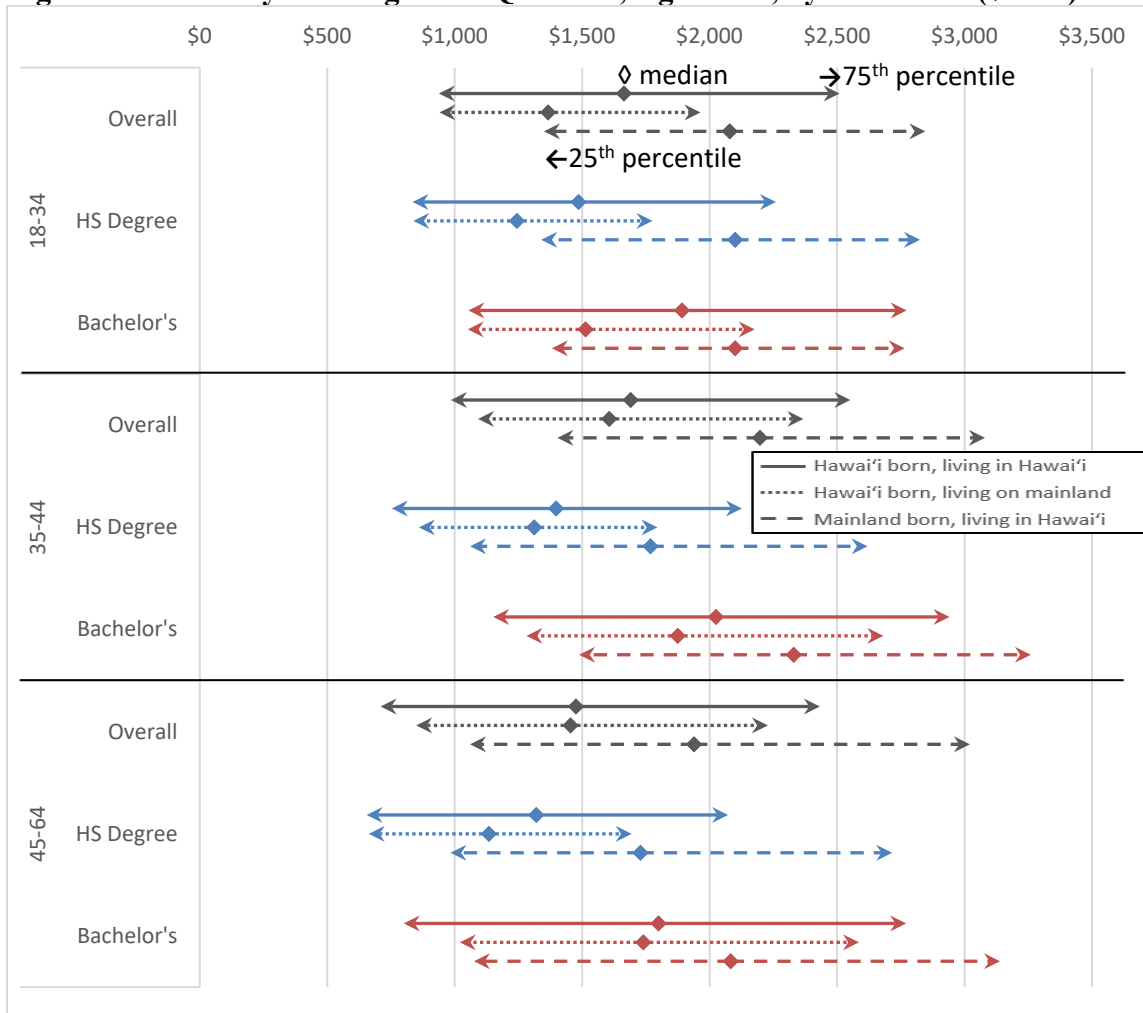
Table A9. Home Ownership, Age 35-64

	Hawai'i born, Hawai'i resident	Hawai'i born, Mainland resident	Mainland born, Hawai'i resident
Age 35-44			
Own home, mortgage	51.5%	51.4%	37.8%
Own free & clear	13.1%	9.1%	8.1%
Renting	35.4%	39.5%	54.1%
Age 35-44, Bachelor's or higher			
Own home, mortgage	61.0%	61.9%	46.2%
Own free & clear	13.5%	7.3%	7.7%
Renting	25.4%	30.8%	46.1%
Age 45-64			
Own home, mortgage	53.2%	56.7%	51.0%
Own free & clear	22.1%	18.4%	16.6%
Renting	24.7%	24.9%	32.4%
Age 45-64, Bachelor's or higher			
Own home, mortgage	61.8%	65.7%	55.6%
Own free & clear	24.8%	18.5%	18.7%
Renting	13.4%	15.8%	25.8%

Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.

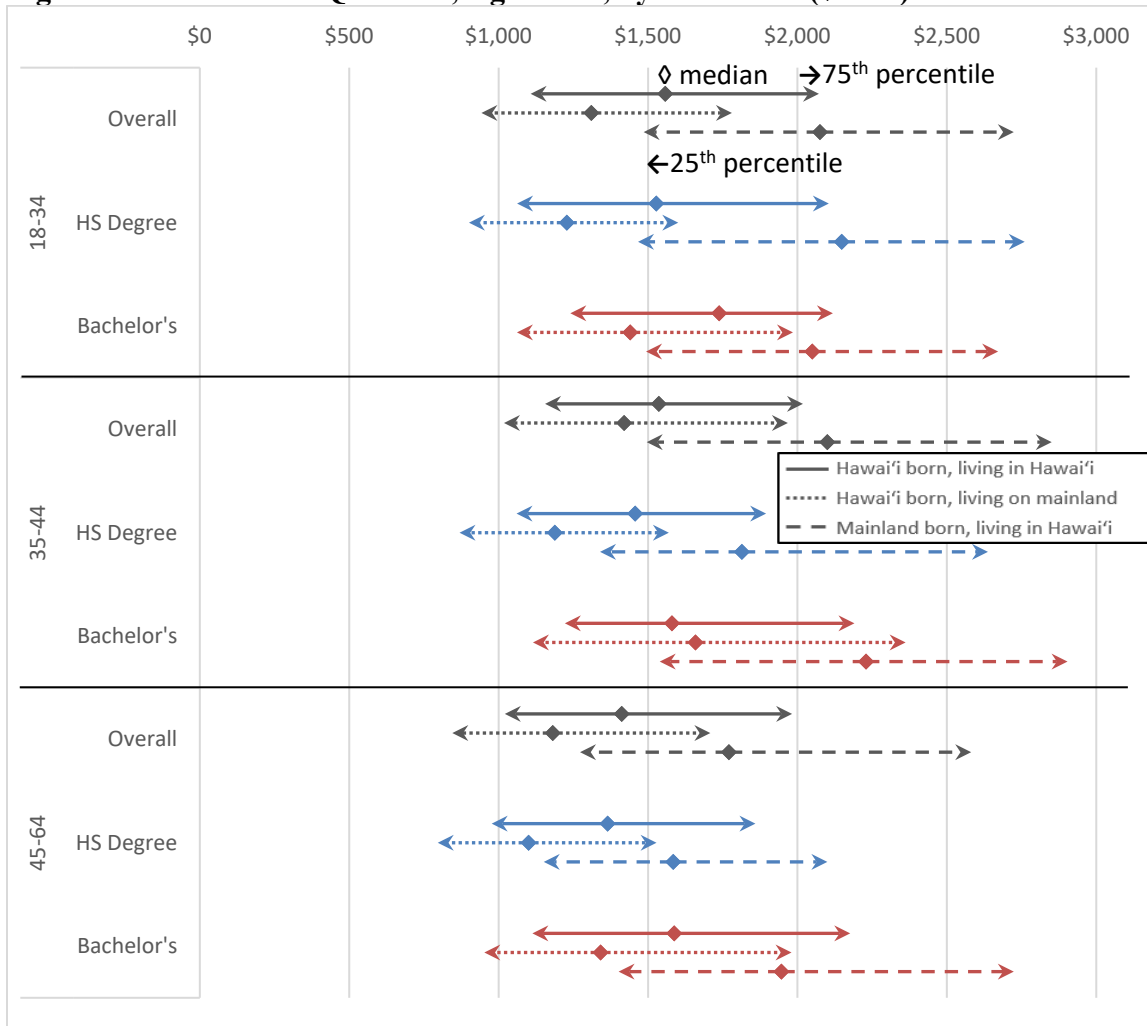
Note: Excludes military personnel and their families.

Figure A4. Monthly Housing Costs Quartiles, Age 18-64, by Education (\$2018)



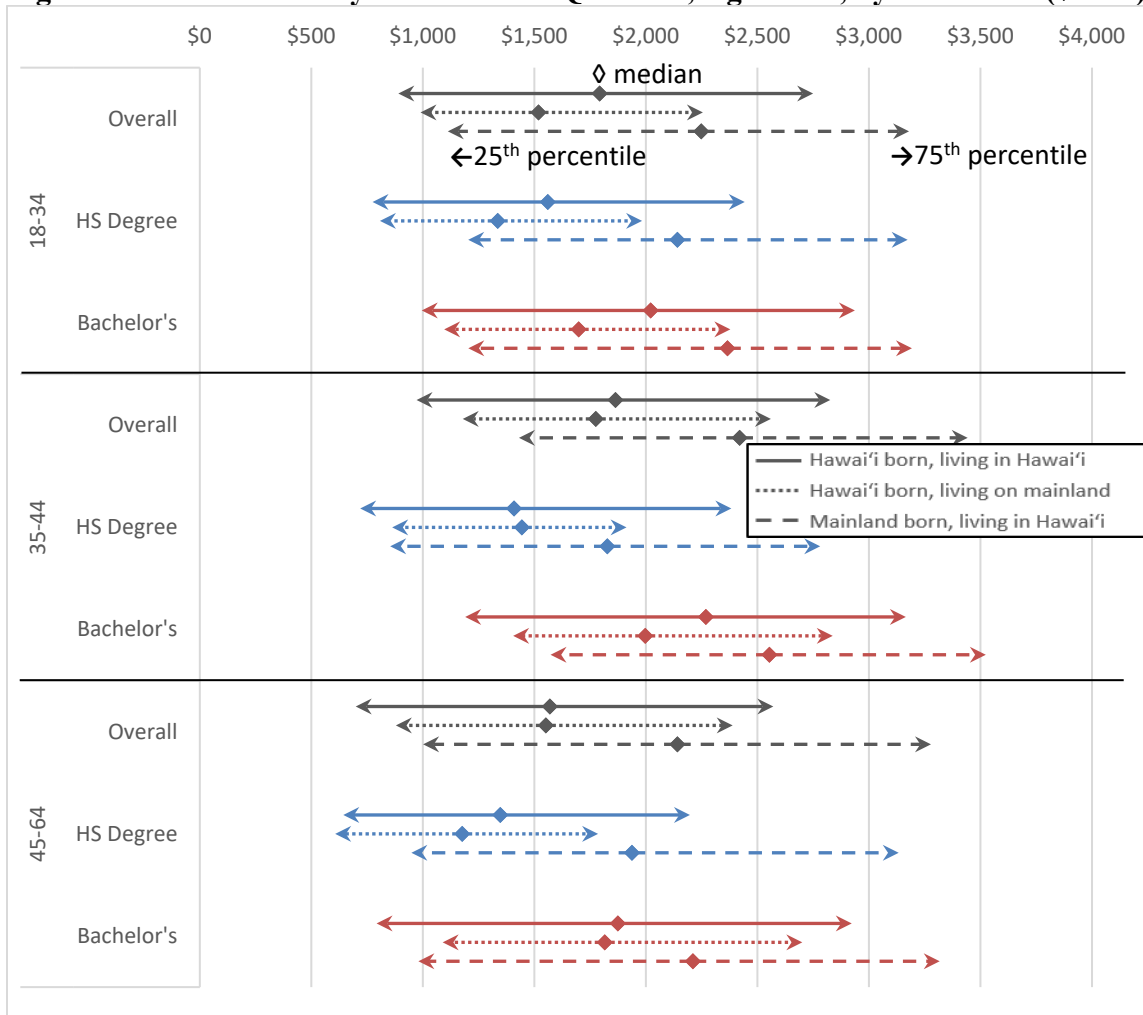
Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure A5. Gross Rent Quartiles, Age 18-64, by Education (\$2018)



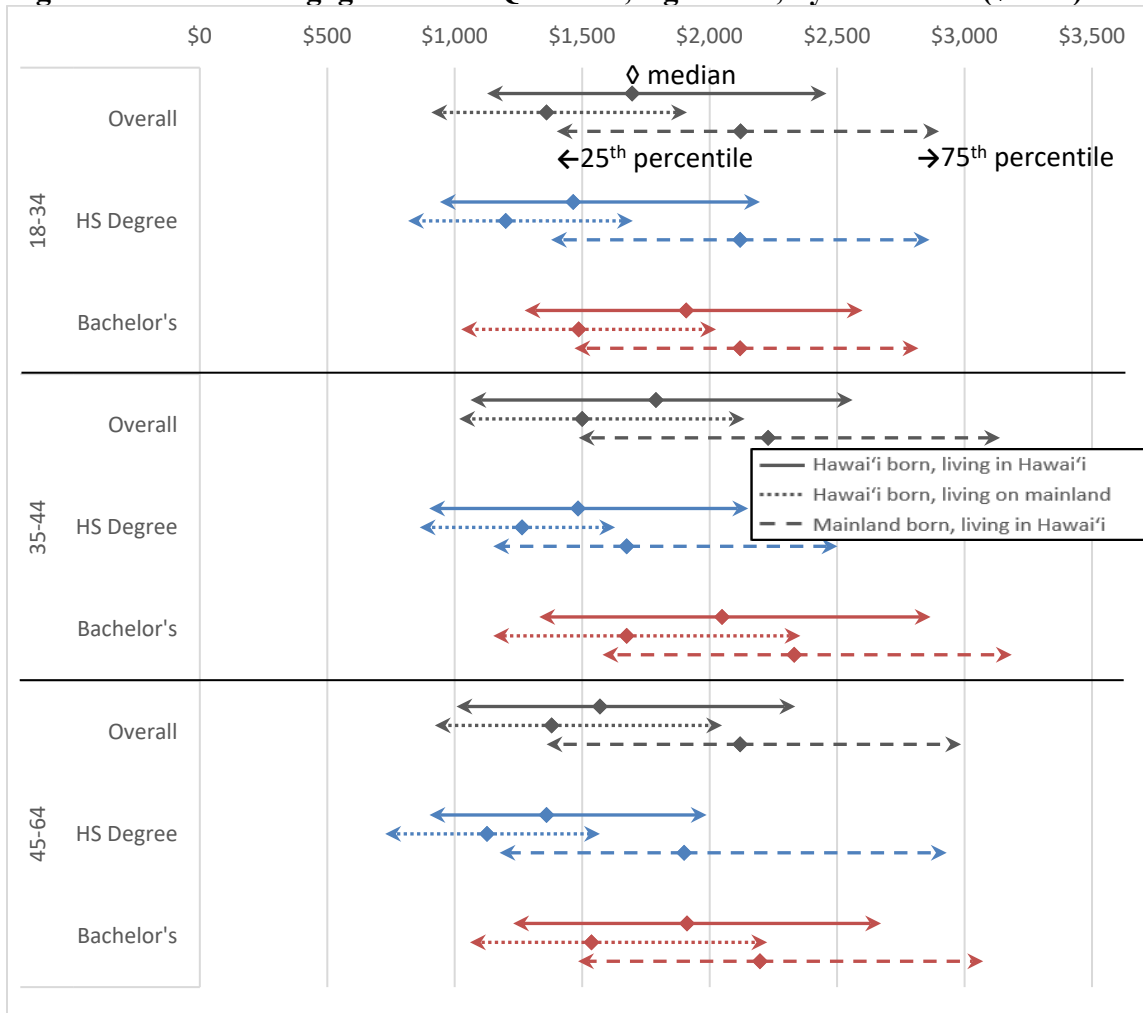
Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure A6. Select Monthly Owner Costs Quartiles, Age 18-64, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS. Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Figure A7. First Mortgage Amount Quartiles, Age 18-64, by Education (\$2018)



Source: Estimates based on U.S. Census Bureau, American Community Survey 2014-2018 5-year PUMS.
Note: Excludes military personnel and their families. Income deflated to 2018 levels. Diamond in middle of line represents median amount; left arrow represents 25th percentile amount; right arrow represents 75th percentile amount.

Self-Sufficiency Income Standard

Estimates for the State of Hawai‘i and Counties 2022



research
economic
analysis
division



Department of Business, Economic Development and Tourism

December 2023

This report fulfills the reporting requirements of 201-3(5), Hawai‘i Revised Statutes and was prepared by the Research and Economic Analysis Division. This publication was produced under the direction of the Economic Research Administrator Dr. Eugene Tian by Laura Viso, Senior Economist, and edited by Dr. Joseph Roos, Manager of the Economic Research Branch and Karl Ekroth, Economist.

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I. Executive Summary

Hawai'i Revised Statutes, 201-3(b) requires that, beginning in 2008, DBEDT establish and update a biennial self-sufficiency standard incorporating existing methods of calculation, and reflecting costs relating to housing, food, childcare, transportation, health care, clothing and household expenses, taxes, children's ages, geography, and the number of household wage earners. The first report was published in January 2009 and the consecutive reports were published every two years with the eighth report published in December 2021. These reports can be accessed at the following website: http://dbedt.hawaii.gov/economic/reports_studies/self-sufficiency-income-study/. This report is the ninth update to previous reports on the performance of Hawai'i's self-sufficiency standard.

Consistent with the Family Self-Sufficiency Study (FESS) methodology, this study defines economic self-sufficiency as the amount of money that individuals and families require to meet their basic needs without government and/or other subsidies. Also consistent with FESS, it is assumed that adults are working full-time (40-hours a week), with one or more jobs.

This study establishes Hawai'i's self-sufficient family income standards for year 2022 and compares annual self-sufficient family budgets with annual poverty thresholds, annual minimum wage level, and annual median family income for five family types.

Major highlights of the study are that:

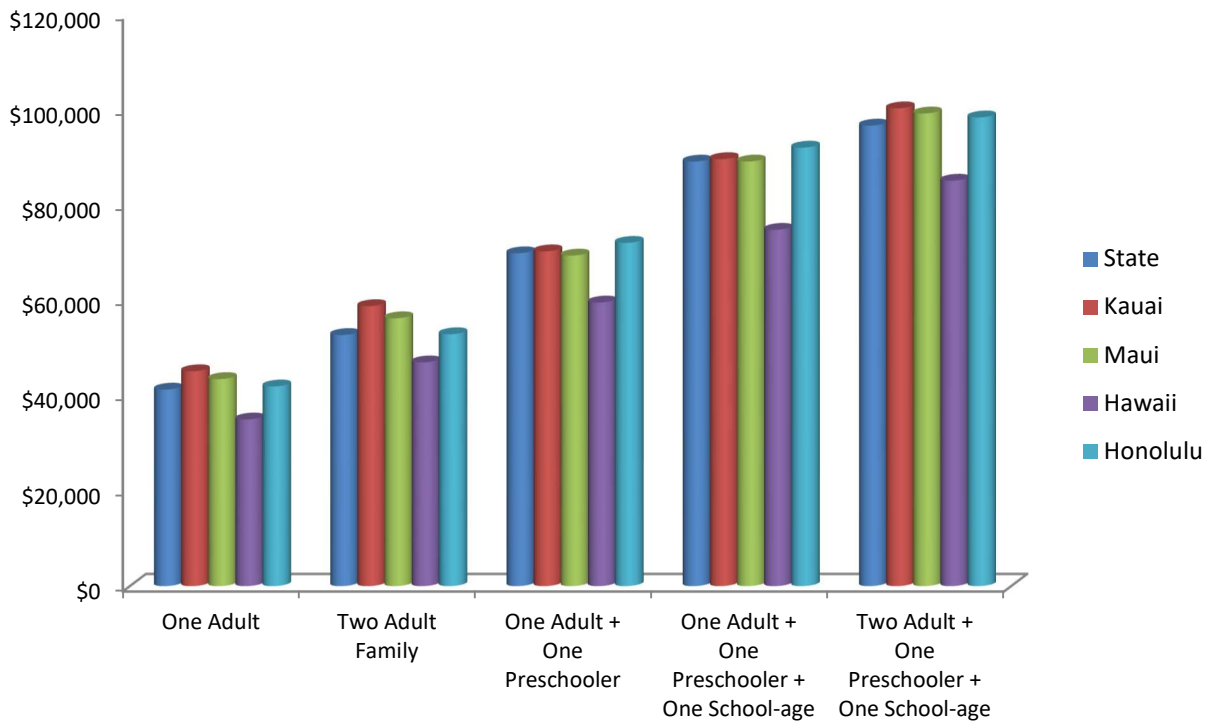
- Among all five family types, Hawai'i County had the lowest self-sufficiency budget requirements among all counties. Honolulu County had the highest self-sufficiency budget requirements for one adult and one preschooler, and one adult, one preschooler and one school-age child family types. Kaua'i County had the highest self-sufficiency budget requirements for one adult, two adult, and also for the two adult, one preschooler and one school-age child family types.
- State median income for families of one-adult, two-adult couple families without children, and two-adult couple families with two children exceeded self-sufficiency income needs. State median income of one-adult with one child and of one-adult with two children were below self-sufficiency income needs.
- Statewide, one-adult and two adult family types with no children had the lowest percentage of families with median incomes below the self-sufficiency level, at 42.9 percent and 19.2 percent respectively. On the other hand, one-adult families with children struggled the most economically. For one-adult families with one child, one-adult with two children, and two adults with two children family types, 64.5 percent, 100.0 percent, and 45.0 percent, had incomes below the self-sufficiency level, respectively.

Total budget levels by family size are summarized by county in Table I.A and displayed in Figure I.A. Appendix B provides comparisons between the results of this update study and past studies, including the 2007 DBEDT results.

Table I.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022

County	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Honolulu	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
Hawai'i	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
Maui	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
Kaua'i	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
State	\$41,245	\$52,700	\$69,861	\$89,131	\$96,696
Selected Income Benchmarks					
Poverty Threshold	\$15,630	\$21,060	\$21,060	\$26,490	\$31,920
Minimum Wage	\$24,960	\$49,920	\$24,960	\$24,960	\$49,920
State Median Family Income	\$47,425	\$105,065	\$53,575	\$71,919	\$106,316
Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	163.9%	150.2%	231.7%	236.5%	202.9%
Minimum Wage	65.2%	5.6%	179.9%	257.1%	93.7%
Median Family Income	-13.0%	-49.8%	30.4%	23.9%	-9.0%
Percent of Families with State Median Income Below Self-Sufficiency Level (based on ACS-PUMS data)					
State Total	42.9%	19.2%	64.5%	100.0%	45.0%

Figure I.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022



II. Introduction

Hawai'i Revised Statutes, 201-3(b) requires that, beginning in 2008, DBEDT establish and update a biennial self-sufficiency standard incorporating existing methods of calculation, and reflecting costs relating to housing, food, childcare, transportation, health care, clothing and household expenses, taxes, children's ages, geography, and the number of household wage earners. The first report was published in January 2009, the second in December 2011, the third in December 2012, the fourth in December 2014, the fifth in December 2015, the sixth in December 2017, the seventh in December 2019, and the eighth in December 2021.

These reports can be accessed at http://dbedt.hawaii.gov/economic/reports_studies/self-sufficiency-income-study/. This report is an update to previous reports on the performance of Hawai'i's self-sufficiency standard.

The measurement of self-sufficient family budgets and living standards in the United States dates back to the late 19th century. The first standard family budgets, developed by the U.S. Bureau of Labor Statistics (BLS), were part of a study of the living conditions of cotton mill workers in 1909. The budgets defined two levels of living standards: a 'minimum' standard of living consisting of bare essentials and a 'fair' standard of living that provided some allowances for comfort (Johnson, Rogers, & Tan, 2001). By the 1970s, the BLS had established three hypothetical budget levels measuring living costs for a family of four at what they termed low, intermediate, and higher living levels. These standards were measured for the U.S. and for most large metropolitan areas of the nation, including Honolulu. A major strength of the BLS four-person budget studies was the use of a consistent methodology and data sources. This permitted each metropolitan area to be readily compared with the others and to the national average. Unfortunately, budget constraints caused the Bureau to discontinue the four-person budget studies in the mid-1980s.

Since then, the official poverty thresholds produced by the U.S. Census Bureau have been the most universally cited measures of relative family well-being. However, the poverty thresholds measure only the cost of food based on the U.S. Department of Agriculture's Thrifty Food Plan, adjusting for family size, and family type composition. Food costs are then multiplied by three to estimate an overall poverty income threshold. The poverty thresholds are updated every year based on the consumer price index (CPI), and there have been only very minor changes in their calculation methodology since they were adopted in the late 1960s.

In recent years, several methodologies have been developed to estimate self-sufficient family budgets mainly based on the previous BLS methods, by summing up the family consumption expenditures of housing, childcare, food, transportation, health care, miscellaneous, and taxes. Two major efforts in this area were the Family Self Sufficiency Study (FESS) project (Pearce & Brooks, 2003) and the Economic Policy Institute's *Basic Family Budgets* (Bernstein, Brocht & Spade-Aguilar, 2000). The FESS methodology has been used as the basis for numerous studies across the mainland by Dr. Diana Pearce and has become a standard for similar studies conducted by others.

In July 2000, the American Friends Services Committee (AFSC), Hawai'i Area Program applied the FESS Self-Sufficiency Standard methodology directly with the childcare cost data from the Hawai'i State Department of Human Services, Self-Sufficiency and Support Services Division's Childcare Market Rate Study Survey (AFSC-Hawai'i, 2000).

In April 2003, the Hawai'i State Commission on the Status of Women contracted Dr. Diana Pearce, then director of the Women and Poverty Project at Wider Opportunities for Women, for a study. That study directly applied the FESS methodology. The childcare cost data were from the original Hawai'i State Department of Human Services, Self-Sufficiency and Support Services Division's Childcare Market Rate Study Survey 2000 but updated using the Consumer Price Index (CPI), (Pearce & Brooks, 2003).

In March 2008, Aloha United Way and the University of Hawai'i's Center on the Family and Hawai'i Kids Count did an update for a limited set of 2005 Hawai'i self-sufficient family budgets. That study used data sources not used in the previous studies, especially for housing rental and childcare cost data (He, Yuan, Illukpitiya & Yuen 2007). As a result of the differences in data sources, the three studies are not directly comparable, even though they share the same basic methodology and framework.

In January 2009, DBEDT updated Hawai'i's self-sufficient family budgets and living standards to 2007 using the FESS methodology underlying the previous three studies. However, due to the need to find some alternative data sources, full compatibility between the new DBEDT report series and the earlier studies was not possible and, therefore, comparison of results to earlier studies is not recommended.

This current study is an update on the performance of Hawai'i's self-sufficiency standard to 2022. As in the previous study, this update also compares self-sufficient family budgets with federal poverty thresholds, state minimum wage level and median family income. Appendix A lists the different data sources used and Appendix B lists the estimates of these five studies.

By using the Census Bureau American Community Survey's Public Use Microdata Sample File (ACS-PUMS) and Current Population Survey (CPS) data, this study also analyzed the following demographic and socioeconomic characteristics of people living in Hawai'i at different income levels: poverty threshold, minimum wage, median family income, and self-sufficient family budgets.

Finally, this updated study also estimated the percentages of families whose actual incomes fell below the self-sufficiency family budget levels. This was accomplished using the U.S. Census Bureau American Community Survey's Public Use Microdata Sample File (ACS-PUMS) and the Current Population Survey (CPS) data. Only families and individuals with positive earnings for the five family prototypes were included in the income analysis. For the counties, the percentages of families with income below the self-sufficiency level were not provided due to insufficient sample sizes of the types of families.

Appendix B provides comparisons between the results of this updated study and past studies, including the 2007 DBEDT results.

III. Self-Sufficiency Family Budget Methodology

Consistent with the FESS methodology, this study defines economic self-sufficiency as the amount of money that individuals and families require to meet their basic needs without government and/or other subsidies. Also consistent with FESS, it is assumed that adults are working full-time (40-hours a week) at one or more jobs.

A. Family Types

This study focused on estimating self-sufficiency budgets for five different family prototypes: one-adult, two-adult household without children (filing a joint income tax return), one-adult with one preschooler, one-adult with one preschooler and one school-aged child, and a two-adult couple (filing a joint income tax return) with one preschooler and one school-aged child. By following FESS' assumptions, we define preschool children as newborn to 5 years old, school-aged children as 6-12 years old, and adults as 19-64 years old.

B. Geographic Coverage

This study estimated the county-specific self-sufficiency family budgets for all four counties in Hawai'i and also the weighted average for the state as a whole. As a comparison to the self-sufficiency family budgets, the data was also categorized and calculated by age, gender, marital status, and family size-specific state level median household income using Census Bureau's American Community Survey ACS-PUMS raw data (ACS-PUMS variables HINCP, ADJINC, NP, HHT, HUPAOC, HUPARC, R18, AND WGTP). ACS-PUMS variable ADJINC was used to adjust the HINCP variable to constant dollars for the 1-year PUMS datasets. This is because household income (HINCP) is for the past 12 months. This means there are 12 different reference periods and ADJINC annualizes these rolling reference periods. The county level family-size-specific median income was not estimated due to insufficient sample size.

C. Budget Components

The following items represent the necessary components of the self-sufficiency family budget standard, with an explanation for the data sources and calculation methods. Appendix A lists the specific data sources and Appendix B compares differences in data sources among the four Hawai'i studies on the self-sufficiency standard.

1. Housing

Housing cost refers to the rental cost (shelter rent plus utilities) for a privately owned, decent, structurally safe, and sanitary rental housing unit of a modest nature with suitable amenities. Both the Economic Policy Institute's Basic Family Budgets framework (Bernstein 2000, Allegretto 2005) and FESS Self-Sufficiency Standard (Pearce & Brooks 2003, AFSC-Hawai'i 2000) used the U.S. Department of Housing and Urban Development's fair market rents (FMRs). The FMRs are based on data from the decennial census and the annual American Community Survey (ACS). This study used the U.S. Department of Housing and Urban Development's 50th percentile FMRs for each of Hawai'i's four

counties. At the 50th percentile level, half of the housing in a given area would be less expensive than the FMRs, while the remaining half would cost more than the FMRs. FMRs cover only housing that has been recently rented and thus depict current rental prices. It is assumed that parents and children do not share the same bedrooms. Therefore, housing for one-adult and two-adult couples without children consist of one-bedroom units, while families with one or two children are housed in two-bedroom units.

It is important to note that, while the self-sufficiency standards include the entire cost of maintaining a housing unit in each budget, this may not reflect actual living arrangements. For instance, many single adults share housing. Other family prototypes may also share housing, possibly making actual housing expenses less than indicated by the standard.

2. Food

Consistent with Pearce & Brooks, 2003, the food cost represents the expense of a family to meet the “low-cost plan” nutritional standard as defined by the *U.S. Department of Agriculture’s Official USDA Food Plans: Cost of Food at Home at Four Levels* (USDA, 2022). The food plans assume that all ingredients for meals and snacks are purchased at stores and prepared at home. USDA’s estimates for the low-cost plan are for the United States as a whole. To reflect the higher food costs in the Honolulu Metropolitan area, USDA recommends increasing the national estimates by 63.0 percent (Nord, Andrews, & Carlson, 2010). To calculate the monthly food cost for different family prototypes, this study followed the procedures recommended by AUW-Hawai'i and University of Hawai'i Center on the family’s study (He, Yuan, Illukpitiya & Yuen 2007).

Several adjustments were made based on USDA recommendations and assumptions. First, USDA reports food costs for individuals in four-person families on a monthly basis. This study followed USDA’s recommendation to use food costs for June as the average annual monthly food cost and of adding a 5 percent adjustment to the cost for each individual in a three-person family.

Second, food costs for individual family members are based on age-specific estimates for children and age-specific and sex-specific estimates for adults as provided in USDA’s low-cost food plan. The food cost for a female adult was assumed for the adult in a one-parent family. The estimates for the following age groups were used: 19-50 years old (for adults), 6-8 years old and 9-11 years old (where the simple average was taken) for school-age children, and 4-5 years old (for pre-school children).

Third, county-specific food costs were calculated based on a ratio created by the 2000 American Friends Service Committee study (AFSC-Hawai'i, 2000).

3. Transportation

Transportation costs are based on the cost of either public transportation or owning and operating an automobile. When public transportation is very limited or not available (as in the case of the neighbor islands), transportation costs were estimated based on the cost of owning, maintaining, and operating a private automobile. Depending on variations in geography and other factors, some two-parent families require two automobiles to meet basic needs for work, childcare, etc., while others need only one.

Therefore for the standard, it was assumed that on average 1.5 cars were needed for the two-parent family. Again, wherever public transportation is widely available (as in the case of Honolulu), the transportation needs of some families may be satisfied by the bus, while others may still require private autos. Therefore, costs were estimated by averaging the cost of riding the bus and cost of owning, maintaining, and operating an automobile.

Private transportation costs cover the fixed cost (registration, taxes, and insurance), and the operation or variable cost (fuel, maintenance, and repairs) of automobile ownership. The maintenance and repair costs cover normal and preventive maintenance to ensure sound and economical operation during the retention cycle of the vehicle. It was assumed that the vehicle was acquired prior to the year for which the cost estimation was made and, therefore, no purchase and depreciation costs were included in the fixed cost.

For auto insurance, the 2022 Sample Annual Premiums from the Hawai'i State Department of Commerce and Consumer Affairs (DCCA) was used. The sample premiums were based on a 2020 Honda Accord LX, 4-door sedan or equivalent, with a clean driving record (no accidents and no traffic convictions) assumed. The premiums were also based upon the following minimum coverage: \$20,000/40,000 Bodily Injury Liability, \$10,000 Property Damage Liability, \$10,000 Personal Injury Protection, \$20,000/40,000 Uninsured Motorist (optional) and \$20,000/40,000 Underinsured Motorist (optional).

The vehicle was assumed to run on regular gasoline. The fuel cost was calculated by multiplying the per-gallon gas price by the number of gallons of gas consumed. The average per-gallon price of regular gasoline for each county was obtained from DBEDT Monthly Energy Trend (MET).

Maintenance and repair costs (MC) were estimated by multiplying the per-mile maintenance cost by the number of miles traveled. The firm Runzheimer International estimated the per-mile maintenance cost for Hawai'i using 2003 survey data (DBEDT State of Hawai'i Data Book 2005). The estimated cost was based on a typical intermediate-size vehicle, represented by the 2003 Ford Taurus SEL sedan, driven 15,000 miles per year and retained for four years. The rate for 2003 was adjusted for 2022 using Honolulu Consumer Price Index. The annual average number of miles traveled per vehicle was obtained from DBEDT's State of Hawai'i Data Book 2022.

4. Childcare

Childcare expense is the cost incurred for families to keep children in private care and before and after-school childcare programs while parents are at work. It was assumed that pre-school children receive full-time private care (8 hours/day, 5 days/week, and 4.33 weeks/month) from either family childcare (FCC) homes or group childcare (GCC) centers. School-age children, on the other hand, were assumed to receive two hours/day before-school private care and to be enrolled in the State Hawai'i Department of Education's A-Plus after-school program during school days (9 months), and to receive full-time private care during school breaks and summer vacation (3 months).

Age-specific and county-specific childcare costs for family childcare and group childcare for the year 2022 were obtained from the provider statistics provided by PATCH (People Attentive to Children), Hawai'i (PATCH-Hawai'i, 2023). For a school-age child, the monthly rate of private care was the average cost of all types of private care for children 5–10 years old. Since PATCH reported on two districts for Hawai'i County, the weighted average was taken as the county average.

5. Health Care

Health care costs include health insurance premiums and out-of-pocket medical expenses. The employee's share of the premium was assumed for the premium cost, as employers in Hawai'i are mandated to provide health insurance for all full-time employees, and all adults in our prototype families were assumed to work full time. Each family was assumed to purchase one family health plan providing coverage for every family member. The out-of-pocket medical expenses were payments by individual family members and families for medical and health services received and medicines purchased.

The health-insurance premium rate was a weighted average of the premiums for a family plan paid by employees in the private sector, state and local governments, and federal government. The average private-sector rates for Hawai'i were obtained from the National Medical Expenditure Panel Survey (MEPS). The public-sector rate was the average of Kaiser and HMSA family plans offered to government employees in Hawai'i. The rates for federal employees were those published by the U.S. Office of Personnel Management. The rates for state and local government employees were published by Hawai'i Employer-Union Health Benefits Trust Fund (EUTF). The average employee premiums for the private sector, state and local governments, and federal government were first weighted by their respective proportions of total employees in each of these sectors in Hawai'i, and then summed up to obtain the average health insurance cost. The weights were calculated based on 2022 employment statistics provided by Lightcast.

The out-of-pocket expenses for a family were the sum of such spending by individual family members. The National Medical Expenditure Panel Survey (MEPS) provides age-specific out-of-pocket Hawai'i medical spending data for 2008. The age groups that represented the closest approximation for members of our prototype family were included in this calculation: 0-4 years (pre-school children), 5-17 years (school-age children), and 25-44 years and 45-64 years (combined for adults). The MEPS reports the amount of out-of-pocket spending in five categories, with the estimated number of people in each spending category. This study calculated the median spending for adults, pre-school children, and school-age children for 2008 and adjusted it to the 2022 level using the Urban Hawai'i CPI.

6. Miscellaneous

Included in the miscellaneous category are the costs of telephone, clothing, personal care expenses, household supplies, reading materials, school supplies, union dues, bank fees, television, music, internet connection, and other miscellaneous items. Consistent with the practice of past studies, this category is assumed to be 10 percent of the total of all other basic living costs (Pearce & Brooks 2003; AFSC-Hawai'i 2000; He, Yuan, Illukpitiya & Yuen 2007).

7. Taxes

Taxes include the state general excise tax (GET), payroll taxes (Social Security and Medicare taxes), state income taxes, and federal income taxes. Unlike sales tax in other states, Hawai'i's GET is applied to the sale of both goods and services and is a tax liability of the seller. The law neither requires nor prohibits the GET tax from being passed on directly to the customer. According to the Pearce (2003) and University of Hawai'i Center on Family (2007) studies, in practice businesses involved in childcare, medical services, and renting or leasing real estate tend not to collect GET from their customers, while most other businesses in wholesale and retailing do. Thus, the methodology calls for GET to be calculated only for food and miscellaneous expenses for 2022 (Pearce & Brooks 2003; He, Yuan, Illukpitiya & Yuen 2007). Honolulu, Kaua'i, and Hawai'i have a GET rate at 4.712 percent, which includes the county surcharge (0.5 percent). Maui's GET rate of 4.166 percent does not include the county surcharge.

State income taxes were calculated based on the N-11 forms, instructions, and related schedules for 2022 from the Hawai'i State Department of Taxation. Employees' contributions to the federal payroll taxes for Social Security and Medicare were calculated at 7.65 percent (6.2 percent & 1.45 percent respectively) for 2022. Federal income taxes were calculated based on 1040 forms, instructions, and related publications for 2022 from the Internal Revenue Service of the U.S. Department of the Treasury. For each family prototype, federal and Hawai'i state income taxes were estimated, after considering all applicable standard deductions, exemptions, non-refundable tax credits, and refundable tax credits.

The prototype families that included children were eligible for two non-refundable tax credits for their federal tax return, Child and Dependent Care Expenses (CDCE) and Child Tax Credit (CTC). Additionally, families with children were eligible for Hawai'i's Child and Dependent Care Expenses tax credits from the state. The federal CDCE tax credit allowed working parents to deduct a percentage of their childcare costs from the income tax they owe. The federal CTC, on the other hand, allowed families with qualifying children to deduct up to \$2,000 per child for 2022. Hawai'i's Child and Dependent Care Expenses tax credit allowed working parents to deduct a percentage of their childcare costs from the state income tax they owe.

For tax and tax credit estimations, the study assumed that (a) single parents file as heads of household and two-adult couples file jointly for their income tax returns; (b) all adults are not qualifying children of another person; (c) the prototype families file resident income tax returns and claim standard deduction rather than itemized deduction; (d) the only sources of income are those wages, salaries, tips, etc. reported on the W-2 form; (e) the families have no income adjustment and no other tax liabilities; (f) all family members are U.S. citizens or resident aliens; (g) none of the family members is elderly or disabled; (h) the prototype families may be eligible for tax credits for child and dependent care expenses, child tax, earned income, low-income, low-income renters, and general income tax; and (i) the total income tax withholdings approximate the amount of owed tax minus refundable tax credits and, therefore, a family's tax refund in any specific year is approximately zero.

The estimations of taxes and tax credits were based on family income, family type, number of children, and other assumptions mentioned above. By definition, family self-sufficiency income must be able to cover the sum of living expenses plus tax liabilities. To fulfill this condition, the estimation of taxes and tax credits were done via a series of iterations. The initial iteration took the total cost of housing, childcare, food, transportation, health care, and miscellaneous as the initial estimate of a family's earned (consumption) income, based on which the applicable taxes and non-refundable and refundable tax credits were calculated. If the sum of income tax from earned (consumption) income and refundable tax credits was unable to balance the sum of total living costs and tax liabilities, the second iteration would take place using a revised estimate of earned income to re-estimate taxes and tax credits. The estimation iteration ended when the assumed condition of self-sufficiency was met (i.e. total family income = total living expenses + tax liabilities).

IV. 2022 Self-Sufficiency Family Budgets

A. State and County Overview

The Self-Sufficiency Family Standard budgets are estimated monthly expenses required for a family. These budgets vary by family size, type, location, and the age of children. This study estimated budgets for the state and four counties and for five different family compositions.

The budgets for the state level were derived by weighted averages based on the counties' population percentage (Census ACS, 2022). Included also was information on the federal poverty threshold, state minimum wage and state median family income information for comparison. In 2022, the minimum hourly wage in Hawai'i was \$12. The federal poverty threshold information for Hawai'i was from the U.S. Department of Health and Human Services' 2022 Poverty Guidelines. The Census Bureau provides family size-specific state median family income estimates based on its decennial census and annual American Community Surveys, but it does not provide detailed information by differences in age, sex and marital status. This study calculated family size-specific state median family income by age, sex, and marital status, for the five selected family prototypes using Census Bureau's American Community Survey ACS-PUMS data set. This makes it possible to compare the calculated self-sufficiency income needs of the prototype families with the estimated incomes of corresponding Hawai'i families.

Table IV.A and Figure I.A provides a comparison of annual Self-Sufficiency Family Budgets among four counties, state weighted averages, and five different family compositions.

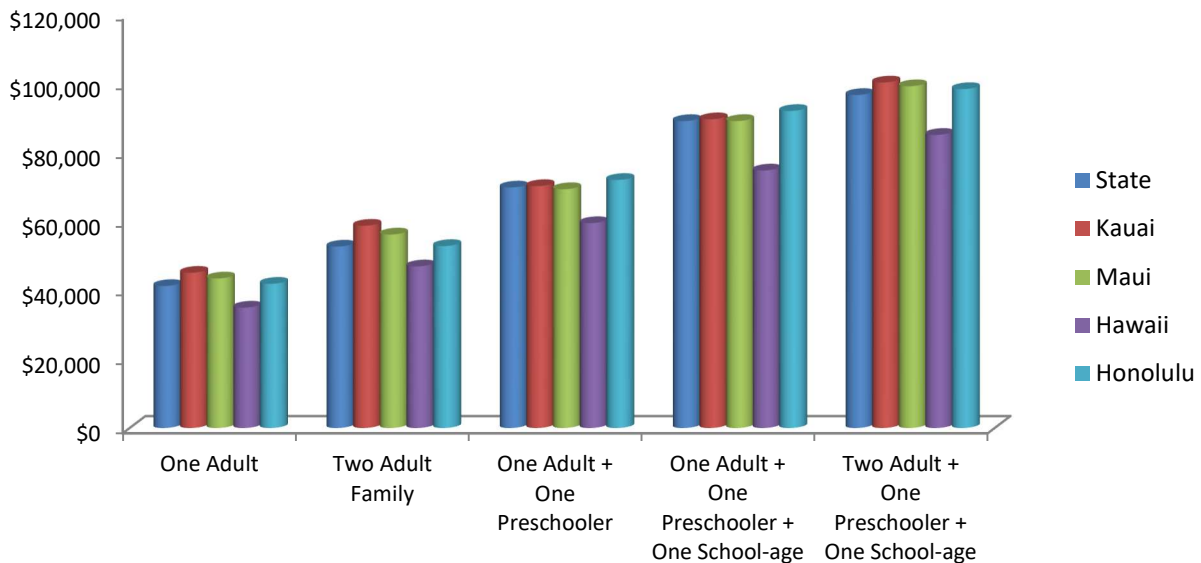
- Among all five family types, Hawai'i County had the lowest self-sufficiency income requirements among all counties. For the one-adult category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the two-adult couple category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the one-adult with one child and the one-adult with two children family types, Honolulu had the highest self-sufficiency income requirements. For couples with two children, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu.
- The state median income for families of one-adult, two-adult couple families without children, and two-adult couple families with two children exceeded self-sufficiency income needs. State median income of one-adult with one child and of one-adult with two children family types were below self-sufficiency income needs, by 30.4 percent and 23.9 percent respectively.
- For all family types, working full-time at minimum wage would not be enough to cover the self-sufficiency family budgets. The self-sufficiency budget for two-adult families with no children was closest to being covered by minimum wage, however, still 5.6 percent above minimum wage income. A one-adult family type needs an additional 65.2 percent above minimum wage income to cover the self-sufficiency budget. While one-adult with one child and the one-adult with two children family types need over double their income (100 percent increase) to meet self-sufficiency budgets. Two-adults with two children families need 93.7 percent more than a minimum wage income provides to meet the self-sufficiency family budget.

- Statewide, one-adult and two adult family types with no children had the lowest percentage of families with incomes below the self-sufficiency level, at 42.9 percent and 19.2 percent respectively. For one-adults with one child, one-adults with two children, and two adults and two children family types, 64.5 percent, 100.0 percent, and 45.0 percent, had incomes below the self-sufficiency level, respectively.

Table IV.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022

County	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Honolulu	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
Hawai'i	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
Maui	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
Kaua'i	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
State	\$41,245	\$52,700	\$69,861	\$89,131	\$96,696
Selected Income Benchmarks					
Poverty Threshold	\$15,630	\$21,060	\$21,060	\$26,490	\$31,920
Minimum Wage	\$24,960	\$49,920	\$24,960	\$24,960	\$49,920
Median Family Income	\$47,425	\$105,065	\$53,575	\$71,919	\$106,316
Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	163.9%	150.2%	231.7%	236.5%	202.9%
Minimum Wage	65.2%	5.6%	179.9%	257.1%	93.7%
Median Family Income	-13.0%	-49.8%	30.4%	23.9%	-9.0%
Percent of Families with State Median Income Below Self-Sufficiency Level (based on ACS-PUMS data)					
State Total	42.9%	19.2%	64.5%	100.0%	45.0%

Figure IV.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022



B. Honolulu County

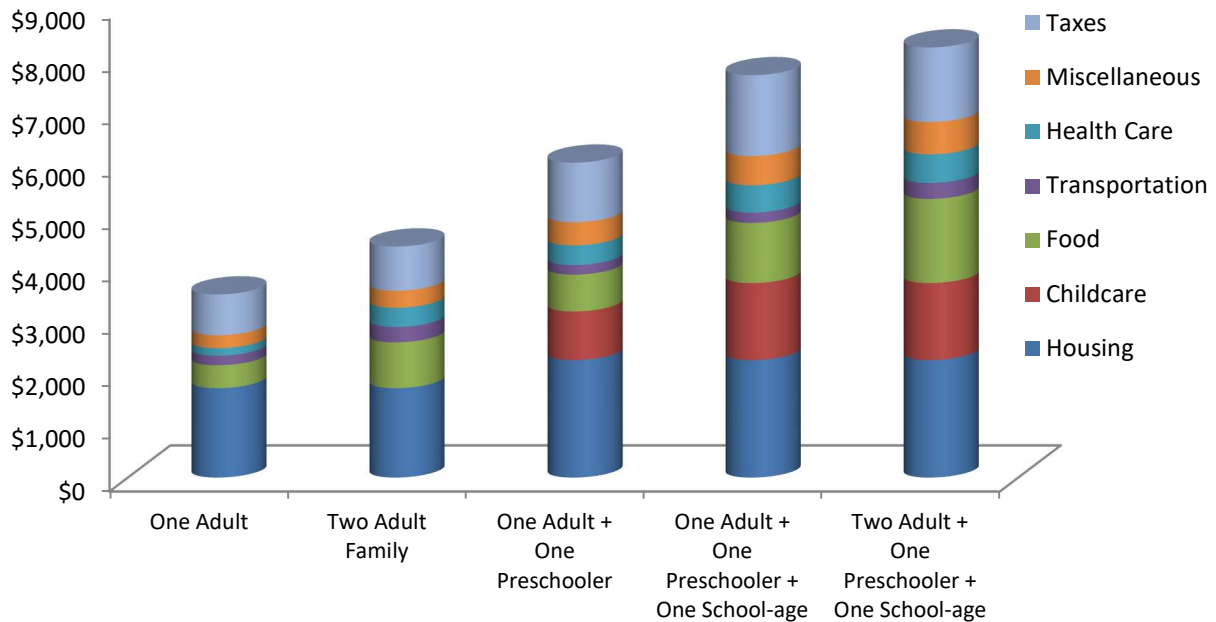
Honolulu County had the highest self-sufficiency income requirements for the one-adult with one child and the one-adult with two children family types. Honolulu also had the highest housing costs and childcare costs among the counties. The higher housing costs of Honolulu family budgets were partially offset by lower costs in transportation and food. Other notable observations regarding Honolulu self-sufficiency levels were:

- A one-adult with no children needed to earn an hourly wage of \$19.84 in 2022 to be able to meet his/her basic needs and to be economically self-sufficient. That was 67.9 percent above the minimum wage for Hawai'i and 168.0 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed a combined hourly wage of \$25.03 (or \$12.51 each on average) to be able to be economically self-sufficient. That was 5.9 percent above the minimum wage for Hawai'i and 151.0 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschooler needed to earn an hourly wage of \$34.12 to be economically self-sufficient. That was 188.7 percent above the state minimum wage level and 242.1 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschool and one school-age child needs to earn an hourly wage of \$43.59 to be economically self-sufficient. That was 268.8 percent above the state minimum wage level and 247.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult family with one preschool and one school-age child needed to earn a combined hourly wage of \$46.59 (or \$23.30 each on average) to be economically self-sufficient. That was 208.3 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between required Self-Sufficiency Family income and the poverty threshold and federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

Table IV.B: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Honolulu County, 2022

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,705	\$1,705	\$2,240	\$2,240	\$2,240
Childcare	\$0	\$0	\$926	\$1,468	\$1,468
Food	\$436	\$873	\$702	\$1,147	\$1,606
Transportation	\$182	\$293	\$182	\$197	\$303
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$247	\$324	\$443	\$557	\$616
Taxes	\$777	\$843	\$1,135	\$1,541	\$1,422
Total	\$3,491	\$4,405	\$6,004	\$7,672	\$8,201
Self-Sufficiency Income Requirement					
Hourly	\$19.84	\$12.51	\$34.12	\$43.59	\$23.30
Monthly	\$3,491	\$4,405	\$6,004	\$7,672	\$8,201
Annual	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
Percent by Which Self-Sufficiency Budget Is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	168.0%	151.0%	242.1%	247.5%	208.3%
Minimum Wage	67.9%	5.9%	188.7%	268.8%	97.1%

Figure IV.B: Monthly Self-Sufficiency Family Budgets for Honolulu County, 2022



C. Hawai'i County

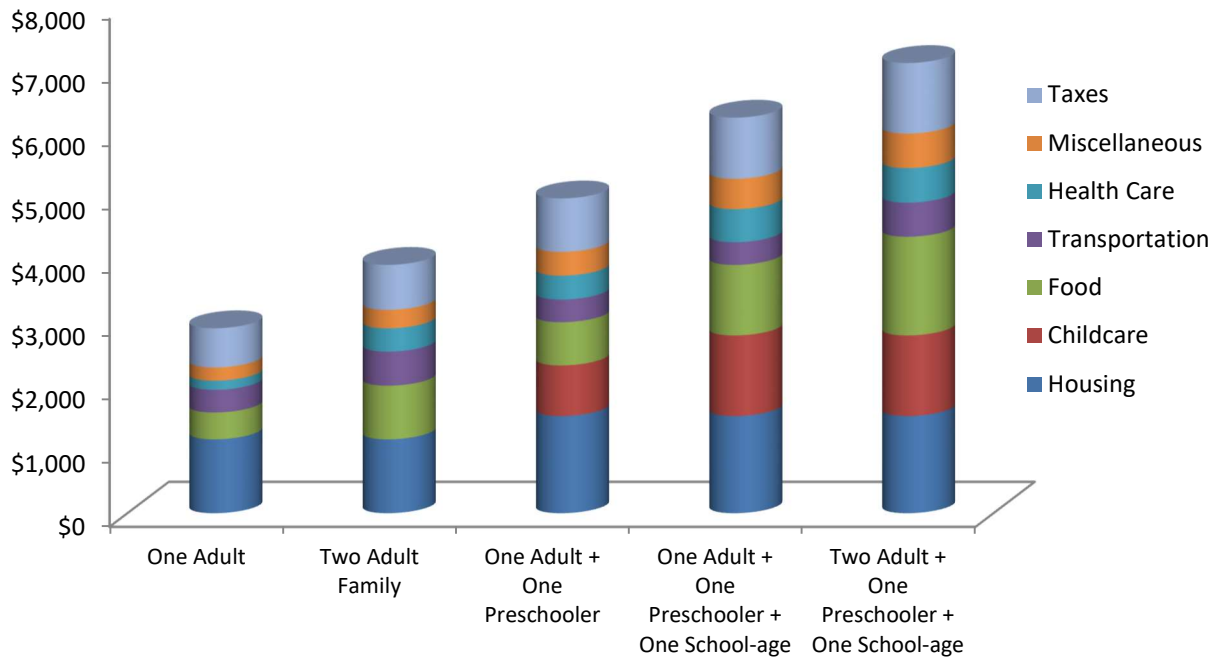
Hawai'i County had the lowest overall self-sufficiency income requirements among the counties across all family types in the study. Hawai'i County's self-sufficiency family budget levels were brought down by lower costs for housing, childcare, and food categories. Other notable observations regarding Hawai'i County's self-sufficiency levels were:

- A one-adult with no children needed to earn an hourly wage of \$16.56 to be able to meet basic needs and to be economically self-sufficient. That was 40.1 percent above state minimum wage level, and 123.7 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed combined hourly wages of \$22.23 (or \$11.12 each on average) to be economically self-sufficient. This was the only self-sufficiency budget that was 5.9 percent below the state minimum wage level.
- A one-adult with one preschooler needed to earn an hourly wage of \$28.18 to be economically self-sufficient. That budget was 138.5 percent above the state minimum wage level and 182.6 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschool and one school age child needed to earn an hourly wage of \$35.41 to be economically self-sufficient. That was 199.6 percent above the state minimum wage level and 182.3 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$40.30 (or \$20.15 each on average) to be economically self-sufficient. That was 70.5 percent above the state minimum wage level and 166.7 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required Self-Sufficiency family income and the poverty threshold and the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult family types.

Table IV.C: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Hawai'i County, 2022

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,164	\$1,164	\$1,531	\$1,531	\$1,531
Childcare	\$0	\$0	\$798	\$1,270	\$1,270
Food	\$423	\$845	\$680	\$1,111	\$1,555
Transportation	\$358	\$537	\$358	\$358	\$537
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$209	\$291	\$374	\$479	\$544
Taxes	\$617	\$708	\$843	\$963	\$1,111
Total	\$2,914	\$3,913	\$4,960	\$6,233	\$7,093
Self-Sufficiency Income Requirement					
Hourly	\$16.56	\$11.12	\$28.18	\$35.41	\$20.15
Monthly	\$2,914	\$3,913	\$4,960	\$6,233	\$7,093
Annual	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	123.7%	123.0%	182.6%	182.3%	166.7%
Minimum Wage	40.1%	-5.9%	138.5%	199.6%	70.5%

Figure IV.C: Monthly Self-Sufficiency Family Budgets for Hawai'i County, 2022



D. Maui County

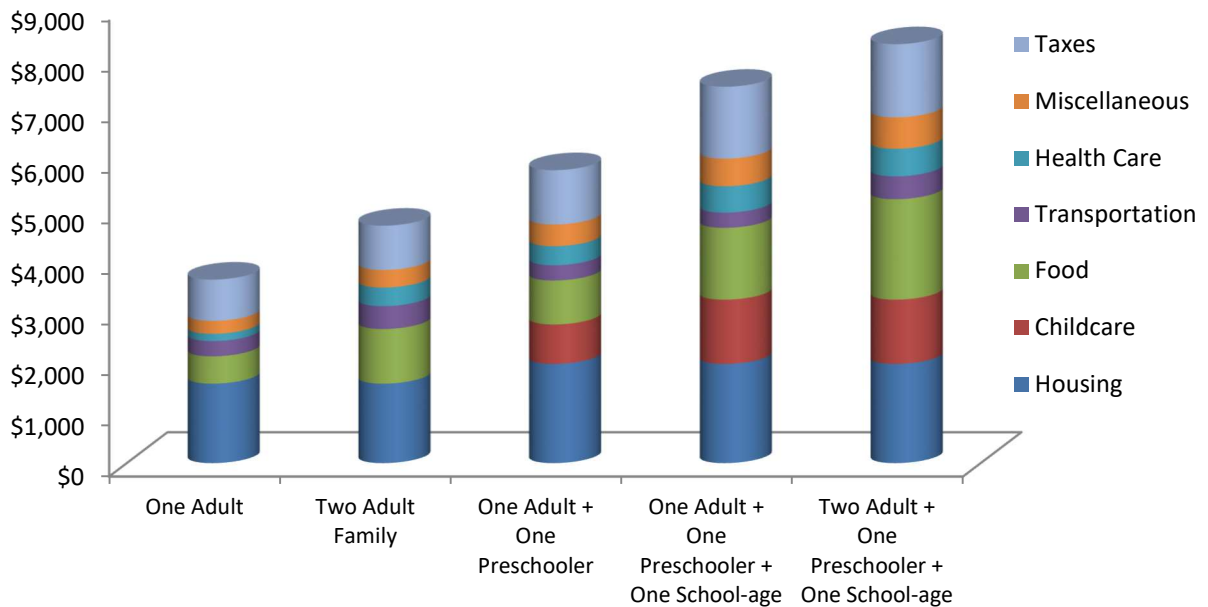
Maui County's self-sufficiency family budgets were impacted by relatively higher costs in food, housing, and childcare. Other notable observations regarding Maui County's self-sufficiency levels were:

- One-adult with no children needed to earn an hourly wage of \$20.57 to be able to meet its basic needs and to be economically self-sufficient. That was 74.1 percent above the state minimum wage level and 178.0 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed combined hourly wages of \$26.62 (or \$13.31 each on average) to be economically self-sufficient. That was 12.6 percent above the state minimum wage level and 166.9 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschooler needed to earn an hourly wage of \$32.85 to be economically self-sufficient. That was 178.0 percent above the state minimum wage level and 229.4 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschool and one school age child needed to earn an hourly wage of \$42.21 to be economically self-sufficient on Maui. That was 257.2 percent above the state minimum wage level and 236.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$46.99 (or \$23.49 each on average) to be economically self-sufficient. That was 98.8 percent above the state minimum wage level and 210.9 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required Self-Sufficiency family income and the poverty threshold and the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

Table IV.D: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Maui County, 2022

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,568	\$1,568	\$1,957	\$1,957	\$1,957
Childcare	\$0	\$0	\$779	\$1,268	\$1,268
Food	\$539	\$1,077	\$867	\$1,417	\$1,983
Transportation	\$301	\$452	\$301	\$301	\$452
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$255	\$346	\$428	\$546	\$620
Taxes	\$814	\$874	\$1,073	\$1,419	\$1,445
Total	\$3,621	\$4,685	\$5,781	\$7,429	\$8,270
Self-Sufficiency Income Requirement					
Hourly	\$20.57	\$13.31	\$32.85	\$42.21	\$23.49
Monthly	\$3,621	\$4,685	\$5,781	\$7,429	\$8,270
Annual	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	178.0%	166.9%	229.4%	236.5%	210.9%
Minimum Wage	74.1%	12.6%	178.0%	257.2%	98.8%

Figure IV.D: Monthly Self-Sufficiency Family Budgets for Maui County, 2022



E. Kaua'i County

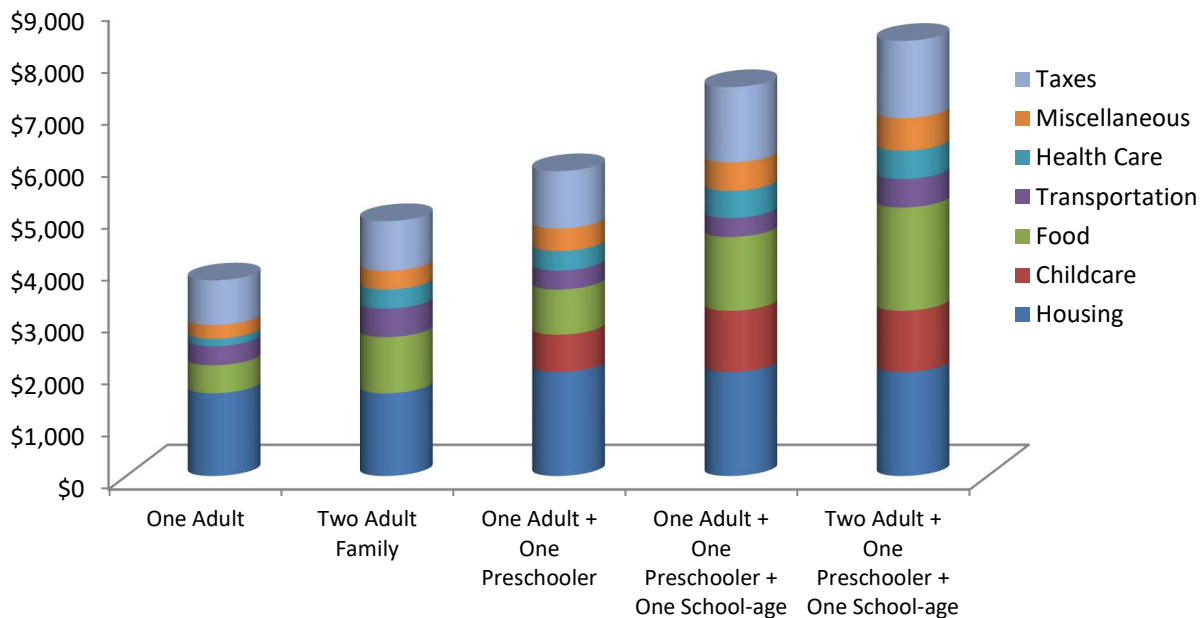
Kaua'i County had the highest self-sufficiency income requirements among the counties for one-adult without children, two-adult couples without children, and for two-adult couples with two children family types. For one-adults with one child and one-adults with two children family types, Kaua'i had the second highest self-sufficiency income requirements. Kaua'i County's self-sufficiency family budgets were impacted by relatively high costs in transportation and food. Other notable observations regarding Kaua'i County's self-sufficiency levels were:

- One-adult with no children needed to earn an hourly wage of \$21.35 to be economically self-sufficient. That was 80.7 percent above the state minimum wage level and 188.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed a combined hourly wage of \$27.82 (or \$13.91 each on average) to be economically self-sufficient. That was 17.7 percent above the state minimum wage level and 179.0 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschooler needed an hourly wage of \$33.27 to be economically self-sufficient. That was 181.5 percent above the state minimum wage level and 233.7 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschool and one school age child needed to earn an hourly wage of \$42.45 to be economically self-sufficient. That was 259.2 percent above the state minimum wage level and 238.4 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$47.50 (or \$23.75 each on average) to be able to be economically self-sufficient. That was 100.9 percent above the state minimum wage level and 214.3 percent above federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required self-sufficiency family income and the poverty threshold or the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

Table IV.E: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Kaua'i County, 2022

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,590	\$1,590	\$1,997	\$1,997	\$1,997
Childcare	\$0	\$0	\$717	\$1,178	\$1,178
Food	\$539	\$1,077	\$867	\$1,417	\$1,983
Transportation	\$365	\$548	\$365	\$365	\$548
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$264	\$358	\$432	\$548	\$625
Taxes	\$856	\$956	\$1,101	\$1,446	\$1,484
Total	\$3,758	\$4,896	\$5,856	\$7,471	\$8,359
Self-Sufficiency Income Requirement					
Hourly	\$21.35	\$13.91	\$33.27	\$42.45	\$23.75
Monthly	\$3,758	\$4,896	\$5,856	\$7,471	\$8,359
Annual	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks					
Poverty Threshold	188.5%	179.0%	233.7%	238.4%	214.3%
Minimum Wage	80.7%	17.7%	181.5%	259.2%	100.9%

Figure IV.E: Monthly Self-Sufficiency Family Budgets for Kaua'i County, 2022



V. Conclusions

The basic findings of this study were as follows:

- Statewide, the self-sufficiency income standard for 2022 ranged from \$34,970 for one-adult family type in Hawai'i County to \$100,312 for a two-adult family with two children in Kaua'i. The second and third highest self-sufficiency income standards at the county level were for two-adult families with two children in Maui (\$99,241) and in Honolulu (\$98,407).
- The family type that had the most financial stability was the two adult families with no children; 80.8 percent of these families had incomes above the self-sufficiency income level. This group was followed by one-adult families with no children at 57.1 percent and two-adult families with two children at 55.0 percent that had incomes above the self-sufficiency level. The family types that were not able to meet the self-sufficiency budgets the most were 64.5 percent of one-adult with one child and 100.0 percent of one-adults with two children family types.
- Among all five family types, Hawai'i County had the lowest self-sufficiency income requirements among all counties. For the one-adult category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the two-adult couple category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the one-adult with one child and one-adult with two children categories, Honolulu had the highest self-sufficiency income requirements. Kaua'i had the highest self-sufficiency income requirements for two-adult couples with two children.
- Among all five family types, single parents were the most economically unstable. One adult with two children and one adult with one child had the largest gaps between the annual Self-Sufficiency Family Budgets and both the federal poverty threshold and Hawai'i's minimum wage level.
- Self-sufficiency budgets ranged from 150.2 percent to 236.5 percent above the federal poverty threshold in 2022.

VI. Cautions and Recommendations for Future Work

In addressing the requirements of Hawai'i Revised Statutes 201-3(b), this study has utilized generally accepted methodology similar to that employed in previous Hawai'i-focused studies to estimate the most recent (2022) self-sufficiency budget standards for five prototype family structures and for all four counties.

It is recommended that future studies adhere to the FESS methodology and data sources established in this study, incorporating suggestions by reviewers and stakeholders as warranted and practical. This methodology can be implemented without the need for consultant services to conduct specialized surveys. No federal funds were available to the department to assist in this study.

Appendix A: Data Sources

Data Type	AFSC Hawai'i 2000	Pearce, Brooks 2003	AUW/UH 2005	DBEDT 2022
Housing	U.S. Dept. of Housing and Urban Develop.: Fair Market Rents	U.S. Department of Housing and Urban Development: Fair Market Rents	Newspaper advertisement rates compiled by Hawai'i Information Service and Prudential Locations, LLC.	U.S. Department of Housing and Urban Development: Fair Market Rents
Food	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan
Transportation	Private auto insurance agency quotes; \$100 per year for maintenance and repairs; no public transportation.	HI State Dept. of Consumer Affairs. Sample auto rates from Nov. 1, 2001. National HH Transportation Survey, 2001. Add-on Program for Honolulu and the neighboring islands. State Averages Expenditures; & Premiums for Personal Auto Insurance in 1998. National Assoc. of Insurance Commissioners. www.naic.org; O'ahu Transit Services, Inc. for bus pass price	American Automobile Association (AAA) for gas price; HI State Dept. of Commerce and Consumer Affairs for auto insurance rates; DBEDT State of HI Data Book for bus pass price, average miles, maintenance, and repair costs; U.S. Dept. of Transportation Highway Statistics for auto registration fees and taxes	DBEDT Monthly Energy Trend (MET) for gas price; HI State Department of Commerce and Consumer Affairs for auto insurance rates; DBEDT State of HI Data Book for bus pass price, average mileage, maintenance and repair costs; U.S. Dept. of Transportation Highway Statistics for auto registration fees and taxes.
Childcare	Childcare Mkt Rate Study, conducted by Dept. of Human Services, State of HI & SMS, 2000.	Childcare Market Rate Study Survey, conducted by Department of Human Services, State of Hawai'i & SMS, 2000. It was updated to 2003 with the Consumer Price Index	Hawai'i State Department of Education for after-school A+; PATCH-Hawai'i Provider Statistics for private childcare costs	Hawai'i State Department of Education for after-school A+; PATCH-Hawai'i Provider Statistics for private childcare costs
Health Insurance	Assume \$28/month per person for health insurance premiums, and \$50/year per person for out-of-pocket medical expenses.	Kaiser Foundation, State Health Facts Online, Hawai'i: Employment-Based Premiums 2000 for health insurance premiums; Medical Expenditure Panel Survey for out-of-pocket expenses.	U.S. Medical Expenditure Panel Survey (MEPS) for out-of-pocket expenses and ave. private sector rates; U.S. Office of Personnel Management for fed. employee rates; HI State Employer-Union Health Benefits Trust Fund (EUTF) for local govt. employee rates	National Medical Expenditure Panel Survey (MEPS) for out-of-pocket expenses and average private sector rates; U.S. Office of Personnel Management for federal employee rates; Hawai'i State EUTF for state and local government employee rates
Misc.	10 percent of all other costs.	10 percent of all other costs.	10 percent of all other costs.	10 percent of all other costs.
Taxes	38 percent of all other costs.	U.S. Department of Treasury - IRS 1040 Form and Instructions; Hawai'i State Department of Taxation - State Income Tax Form and Instructions; other items include Social Security tax, Medicare tax, State Excise tax.	U.S. Department of Treasury - IRS 1040 Form and Instructions for federal tax, childcare tax, child tax; Hawai'i State Department of Taxation - State Income Tax Form and Instructions for state tax and state child tax; other items include Social Security tax, Medicare tax, State Excise tax.	U.S. Department of Treasury - IRS 1040 Form and Instructions for federal tax, childcare tax, child tax; Hawai'i State Department of Taxation - State Income Tax Form and Instructions for state tax and state child tax; other items include Social Security tax, Medicare tax, State Excise tax.

Appendix B: County Estimate of Different Studies

Study	One Adult	Married Couple	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Honolulu					
DBEDT 2022	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
DBEDT 2020	\$38,762	\$49,348	\$67,646	\$82,526	\$87,731
DBEDT 2007	\$25,605	\$33,906	\$42,189	\$50,731	\$55,688
AUW/UH 2005	NA	NA	NA	\$54,161	\$57,893
Pearce 2003	\$22,615	\$27,821	\$35,930	\$41,978	\$45,977
AFSC Hawai'i 2000	\$19,369	\$24,041	\$31,780	\$37,010	\$41,683
Hawai'i County					
DBEDT 2022	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
DBEDT 2020	\$31,206	\$42,724	\$54,483	\$66,502	\$74,030
DBEDT 2007	\$23,885	\$33,498	\$36,355	\$43,314	\$49,667
AUW/UH 2005	NA	NA	NA	\$46,658	\$53,909
Pearce 2003	\$21,619	\$31,460	\$32,576	\$37,961	\$46,898
AFSC Hawai'i 2000	\$16,672	\$20,430	\$27,968	\$32,534	\$36,292
Maui County					
DBEDT 2022	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
DBEDT 2020	\$37,676	\$50,467	\$62,124	\$76,760	\$84,794
DBEDT 2007	\$31,457	\$42,619	\$45,195	\$51,429	\$60,527
AUW/UH 2005	NA	NA	NA	\$54,644	\$63,257
Pearce 2003	\$28,873	\$39,265	\$42,217	\$48,937	\$58,112
AFSC Hawai'i 2000	\$24,181	\$29,446	\$38,259	\$43,897	\$49,162
Kaua'i County					
DBEDT 2022	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
DBEDT 2020	\$40,830	\$54,031	\$64,535	\$79,012	\$87,171
DBEDT 2007	\$28,278	\$39,586	\$42,750	\$51,634	\$59,159
AUW/UH 2005	NA	NA	NA	\$50,920	\$58,635
Pearce 2003	\$27,726	\$37,805	\$40,274	\$47,478	\$56,304
AFSC Hawai'i 2000	\$23,141	\$28,315	\$37,129	\$42,887	\$48,062

Note: due to differences in data sources and assumptions, only the two DBEDT studies are directly comparable.

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