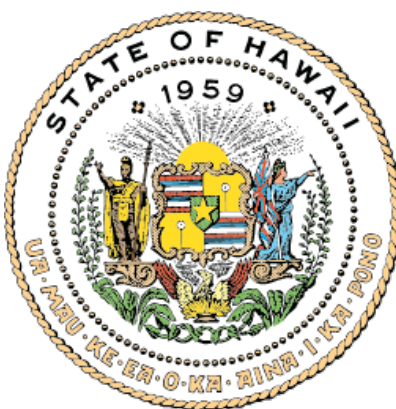

Defining and Measuring Housing Affordability in the State of Hawai‘i



research
economic
analysis
division

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This report was produced by the Research and Economic Analysis Division (READ) of the Department of Business, Economic Development & Tourism (DBEDT). This report was prepared by Paul Migliorato, Karl Ekroth, and Binsheng Li, Ph.D. under the direction of the Economic Research Administrator Eugene Tian, Ph.D., and Economic Research Program Manager Joseph Roos, Ph.D.

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ABBREVIATIONS AND ACRONYMS

Abbreviation	Definition (unless otherwise stated in footnotes or sources)
ACS PUMS	The Census Bureau's American Community Survey Public Use Microdata Sample
ACS Tables	The Census Bureau's American Community Survey Data Tables
BOR	Board of Realtors, Hawaii Branch
CHAI	California Housing Affordability Index
Condo	Condominium and Co-op
FHFA	The Federal Housing Finance Agency
FMR	Fair Market Rent as defined by HUD
HAI	Housing Affordability Index
HAIFT	Housing Affordability Index for First-time Buyers, using HAINAR
HAIHPS	Housing Affordability Index derived by the Hawai'i Housing Policy Study
HAINAR/NAR HAI	Housing Affordability Index provided by the National Association of Realtors
HUD	U.S. Department of Housing and Urban Development
JCHS	Joint Center for Housing Studies of Harvard University
MF	Multi-family, types included are dependent on measure
MTI	Mortgage to income
MTI Ratio	Ratio of PITI to income
NAR	National Association of Realtors
NLIHC	National Low Income Housing Coalition
PITI	Mortgage principal, interest, real property tax, and insurance payments
SF	Single-family, types included are dependent on measure
Terms used in Tables and Figures	
Gross Income/ Median Income	Income before taxes and adjustments; this report uses medium income unless otherwise stated.
Gross Rent/ Median Rent	Rent, including utilities, not including telephone/internet; this report uses only gross rent and is synonymous with rent and median rent unless otherwise stated.
Family	A family has two or more members who live in the same home and are related by birth, marriage or adoption. All families are also households, but not all households are families. In the buyer sections, household is synonymous with family, even if there is only one person. Family is the preferred term involved in buying property, but household is also used when Family is not available.
Household	A household consists of one or more persons living in the same housing unit and they may or may not be related. Households are the usual term involved in renting property.
All occupied households	For rent-to-income ratios, households that include renters, owners, or rent-free occupants. Excludes vacant units and people living in group quarters.
30% and 0.30	30% is synonymous with 0.30 and is the golden rule for housing to income ratios.

For English search engine compatibility most special characters in the text, such as the okina, were removed.

Hawaii/State/ Hawaii state	The State of Hawai'i, Hawai'i State
Honolulu	Honolulu County (officially known as the City and County of Honolulu, formerly Oahu County) includes both the City of Honolulu and the rest of the island of O'ahu, as well as several minor outlying islands, including all of the Northwestern Hawaiian Islands (islands beyond Niihau) except Midway Atoll.
Maui	County of Maui. It consists of the islands of Maui, Lāna'i, Moloka'i, Kaho'olawe, and Molokini.
Kauai	Kaua'i County consists of the islands of Kaua'i, Ni'ihau, Lehua, and Ka'ula.
Hawai'i	County of Hawai'i. It is coextensive with the Island of Hawaii, often called the "Big Island".

EXECUTIVE SUMMARY

The objectives of this report are to (1) summarize the literature on the definition and measures of housing affordability, (2) quantify Hawaii housing affordability during the past decade using the measures found in the literature for which Hawaii data are available, and (3) identify and analyze the factors influencing housing affordability in Hawaii. In addition, it seeks to promote understanding of the issues affecting housing affordability in Hawaii.

This report addresses three aspects of affordability. The first is defining how residential “housing affordability” is measured and the factors affecting it. The second is determining how income, mortgage rates, and prices affect housing affordability. The third applies available data to those measures. Data comparisons are made between the State of Hawaii, individual Hawaii counties, and the United States to demonstrate how affordability in Hawaii has evolved over time for renters and homebuyers.

While there is not a standard definition of housing affordability, 30 percent of income for housing costs has become a generally accepted benchmark. The concept of affordability has taken on increased significance in Hawaii, where the number of households able to meet this criteria lags. Three recent proclamations by Governor Josh Green have served to emphasize the priority that addressing the issue has become.

Factors of affordability differ for renters and buyers. From its overwhelming reliance on rental housing a century ago, Hawaii has evolved to the point where roughly 60 percent of its housing stock is owner-occupied. The report examines five measures for estimating rental affordability. It finds broad variations in median gross rent ranges across the state, some of it the result of Hawaii’s inability to produce sufficient new rental unit supply. Median gross rent accounted for 33.5 percent of household income in 2022, the third highest level in the nation.

Three measures of affordability for buyers are examined as well. On a price to household income basis, Hawaii single-family homes are nearly twice national levels. Other measures point to similar disparities in affordability.

Beyond income, affordability is affected by interest rates, available housing inventory and forthcoming supply, the number of vacant homes serving to reduce actual availability, the demand for second or vacation homes, and construction, land, and labor costs. The combination of these has served to exacerbate affordability issues in Hawaii.

1. INTRODUCTION

Housing affordability is an issue impacting nearly all Hawaii households. In 2021, 41.3 percent of homeowners and 53.4 percent of renters were considered housing cost-burdened (DBEDT, 2022b). Furthermore, Hawaii had the second highest share of rent-burdened households in the nation, behind only Florida (Joint Center for Housing Studies of Harvard University, 2022).

The study of housing affordability in Hawaii dates back to work done by the Hawaii Housing Authority (HHA) in 1935, which was tasked with providing safe and sanitary housing for low-income residents. The organization now operates as the Hawaii Public Housing Authority (HPHA). As of January 2024, the Hawaii Housing Finance and Development Corporation (HHFDC) listed 26,199 affordable housing units in its inventory (State of Hawaii Affordable Housing Inventory as of January 2024).

The means to understand and increase affordability have increased since 1981, when a 30 percent housing cost-to-income benchmark was established by Congress for public housing (HUD, 2014). Access to improved data collection and analysis has helped stakeholders understand the dynamics of affordability. It has also served to underscore the severity of a growing problem in Hawaii and nationally. Housing costs as measured by the Case-Shiller National Home Price Index have appreciated at a far higher rate than the consumer price index (CPI) has, particularly in the last decade (S&P Dow Jones Indices, 2024).

Housing affordability is a measure of what one can buy or rent based on available resources. Psychologically and physically, housing is a basic human need, as are health care, food, education, and safety for parents and dependents. Economically, housing availability is key to reducing intergenerational poverty and increasing economic mobility.

As housing availability and the economy have evolved, our understanding of affordability has as well. The housing market has evolved remarkably rapidly in terms of supply, demand, and price. In 1920, less than 14 percent of the 65,700 housing units in Hawaii were owner-occupied. A century later, when the state's supply of housing exceeded 560,000 units, the share of owner-occupied housing approached 60 percent, its highest level ever (data extracted from the Statistical Abstract of Hawaii, published in 1962, and subsequent editions of the State of Hawaii Data Book).

As Governor Josh Green's July 17, 2023 Proclamation Related to Housing and four subsequent proclamations related to affordable housing make clear, housing affordability has become an issue of the highest priority in Hawaii. The proclamations highlight how precarious the housing landscape has become for many residents.

The initial proclamation emphasizes the degree to which home price appreciation has outstripped income over the last 45 years, the scarcity of housing necessary to retain the state's essential workers, the impact on demographics, including net declines in population, especially among the Native Hawaiian population, as more residents relocate to outside the state, and the severe cost burdens facing many families.

Some recent housing data about Hawaii underscore the concerns voiced in the proclamation:

- In the last quarter of 2021, Hawaii ranked 4th highest in consumer debt and mortgage loans and the per capita mortgage balance was more than 61 percent higher than a

typical mortgage in the U.S.; and the 2021 annual debt growth for Hawaii and the U.S. was the highest it had been since the 2008 Great Recession (DBEDT, 2022).

- Hawaii home ownership was the seventh lowest in the nation in 2022 at 62.6 percent, 2.6 percentage points below the national level. (U.S. Census Bureau, 2022).
- Renter-occupied housing units make up a bigger proportion of Hawaii's occupied housing supply (37.4 percent) than is the case nationally (34.8 percent). Renter share of the market varies sharply by county, ranging between 40.3 percent for Oahu and 26.1 percent for Hawai'i County (U.S. Census Bureau, 2023).

The objectives of this report are to (1) summarize the literature on the definition and measures of housing affordability, (2) quantify Hawaii housing affordability during the past decade using the measures found in the literature for which Hawaii data are available, and (3) identify and analyze the factors influencing housing affordability in Hawaii.

2. OVERVIEW OF HOUSING AFFORDABILITY MEASUREMENTS

Beyond “being able to pay without incurring financial difficulties,” the term “housing affordability” is difficult to define. The list of residential housing affordability measurements has grown over time (Ezennia & Hoskara, 2019). In this report we select and examine measurements addressed in housing economics literature that are instructive for understanding housing affordability in Hawaii and its individual counties.

2.1 Rental Housing Affordability

Most measurements of rental affordability are based on the relationship between rent-related payments and household income. The main considerations are gross rent (including utilities) and median household income. The approaches considered here are (1) the Rent-to-Income Ratio (2) the Residual Income, (3) the Supply-Demand Mismatch, (4) the Housing Wage, and (5) the Median Ratios Comparison.

2.1.1 Rent-to-Income Ratio

The most widely used means to measure rental market housing affordability is the Rent-to-Income (RTI) Ratio. It compares cost and income, dividing annual gross rent (including the cost of utilities) by household income. RTI ratios for non-subsidized households above 0.30 (or 30 percent) are considered housing cost-burdened; those above 0.50 (or 50 percent) are considered severely housing cost-burdened (Belsky et al., 2005). Historically, this ratio was first employed by Congress in 1981 to restrict rent increases in public housing. It continues to be used by landlords in the private rental market to determine renter eligibility.

The RTI ratio has limitations. It doesn’t consider that geographic areas with higher rent-to-income ratios can also have significantly lower transportation cost-to-income ratios. For example, most people in Manhattan, New York City’s smallest and most densely populated borough, pay high rents but do not own or drive a vehicle.

The Fair Market Rent (FMR) to median household income ratio is an example of RTI. Defined by the U.S. Department of Housing and Urban Development, FMRs are estimates of 40th percentile gross rents (rent and utilities) for standard quality units within a metropolitan area or nonmetropolitan county (2023). FMRs serve as an estimate of the amount of money necessary to cover gross rents on 40 percent of the rental housing units in an area.

2.1.2 Residual Income

This approach calculates the total income of a household less its essential expenses such as food and clothing to determine the amount applicable towards rent. It focuses on the absolute amount applicable to renting in order to identify affordability problems facing individuals or groups and serves to highlight other issues potentially facing households, including the cost of health care. Families with higher numbers of children spend more on essentials, on average.

2.1.3 Supply-Demand Mismatch

Belsky et al. (2005) in *Measuring the Nation's Rental Housing Affordability Housing Problems* compares supply (the number of rental units that are affordable at 30 percent of a threshold income) with demand (the number of households with incomes at or below that level). A ratio of 1.00 would imply no mismatch and a sufficient supply of affordable rental housing; any ratio value below it indicates a shortage. An increase in the supply of available units implies greater affordability; a lower number of units indicates decreased affordability.

While this more refined approach uses specific threshold measurements, it can also be affected by the accuracy and availability of available data.

2.1.4 Housing Wage for Modest Rentals

This approach uses HUD's fair market rent (FMR) for a modest unit with either 1 or 2 bedrooms and calculates how many full-time minimum wage jobs it would take to afford that unit, assuming rent accounted for up to 0.30 (or 30 percent) of income (National Low Income Housing Coalition, 2004, 2023).

2.1.5 Median Ratios Comparison

This establishes a ratio between the rent in a rent distribution and its corresponding point in an income distribution (Belsky et al., 2005). It also provides a means to track changes over time, across income groups, and between locations.

2.2 Buyer Affordability

Like rental market affordability metrics, measurements of for-sale housing affordability are based on the relationship between housing-related payments and household income. For example, a housing expenses-to-income ratio and a mortgage-to-income ratio are similar to the rent-to-income ratio in that all are cost-to-income ratios. They share like strengths and weaknesses.

In principle, in comparing affordability for renters and buyers, housing expenses should include all housing-related expenses, including interest payments on a mortgage, real property taxes, insurance payments, and housing maintenance costs (including all fees). Because it is difficult to break down monthly mortgage payments to separate principal and interest, housing expenses for homeowners typically include mortgage principal, interest, real property tax, and insurance payments (PITI). The ratio of PITI to income is called the mortgage-to-income (MTI) ratio.

The buyer affordability measures considered here all take monthly mortgage payments into consideration. In addition to the price of a house, payments are affected by factors which include term of the loan, down payment, and mortgage interest rate.

The MTI is not an ideal measurement for comparing affordability for buyers and renters since it includes mortgage principal but excludes maintenance costs. It is a measure of the ability to purchase rather than to own a home. It is mainly used by mortgage lenders to estimate the

repayment ability of a would-be buyer. Despite these limitations, the MTI allows comparisons between different regions and locales.

The measures reviewed here for buyers are: (1) the Price-to-Income Ratio, (2) the Housing Affordability Index provided by the National Association of Realtors, and (3) the California Housing Affordability Index.

Note that realtor boards in Hawaii's four counties use the term "condominium" to describe multi-family (MF) units. Both terms are used here.

2.2.1 Price-to-Income Ratio for Buyers

The Price-to-Income (PTI) ratio is a simple, direct measure of affordability and a basic component of lending decisions. It is generally the ratio of median unit price to median household income. The designation "family," which is a subgroup of household, is sometimes used instead of "household." A higher ratio equates to less affordability. Calculations are often compiled separately for first-time buyers.

The main factor not directly considered by the PTI ratio is prevailing interest rates. Since most house purchases involve a loan, the interest rate is an important factor in determining a buyer's ability to pay. In addition, individual bank lending practices are not considered in these calculations.

PTI ratios can be used to compare affordability over time and across locations. Demographia International Housing Affordability employs a PTI ratings scale based on 92 markets in eight nations (2022). The rating is as follows: 3.0 and under is Affordable; 3.1-4.0 is Moderately Unaffordable; 4.1-5.0 is Seriously Unaffordable; 5.1 and over is Severely Unaffordable.

2.2.2 The Housing Affordability Indexes by the National Association of Realtors

The Housing Affordability Index (HAI) is published monthly by the National Association of Realtors (NAR). It measures median family income relative to the income needed to obtain a mortgage to purchase a median-priced single-family (SF) unit. This provides a way to track over time whether housing is becoming increasingly or decreasingly affordable. The index incorporates changes in key variables affecting affordability: SF unit sale prices, mortgage interest rates, and income.

A higher HAI ratio indicates relatively more affordability. A ratio of 100 indicates that the median family income is just sufficient to obtain a mortgage to purchase the median-priced SF unit, assuming a 20 percent down payment. A ratio below 100 indicates the median family lacks income to obtain a mortgage to purchase the median SF unit. Ratios above 100 indicate that the median family has sufficient power to obtain a mortgage to purchase the median SF unit.

Due to data release changes made in May 2019 at the Federal Housing Finance Agency (National Association of Realtors, 2022) regarding mortgage types, this report uses only the 30-year fixed mortgage rate. NAR calculates the 30-year effective fixed rate based on the Federal Home Loan Mortgage Corporation (also known as Freddie Mac) 30-year fixed mortgage

contract rate, 30-year fixed mortgage points and fees, and a median loan value based on the NAR median price and a 20 percent down payment. The index can be calculated as follows:

$$\text{HAI} = (\text{Median Family Income} / \text{Qualifying Income}) \times 100$$

Qualifying income is derived from the monthly payment on a median-priced, existing SF unit sale at the 30-year fixed mortgage rate. The calculation assumes that the maximum mortgage payment is 25 percent of the median monthly family income.

The HAI was developed by NAR to track single-family home affordability. However, in this report it is employed to examine multi-family home affordability as well.

In calculating index values for condominiums, condo fees are not normally included. This tends to overstate the relative affordability of the units. To address this issue, an assumed fee is included in the monthly mortgage payment and the measure is named the Adjusted Condo HAI. One drawback to an adjustment is that the median condo fee changes over time even though the monthly payment of principal and interest of a fixed-rate mortgage loan are fixed. In this report the monthly fee is assumed to be 1.75 percent of the median price divided by 12.

In addition to the HAI, NAR also provides an affordability index for first-time homebuyers (HAI FT). It recognizes the special characteristics of first-time homebuyers and the homes they purchase. This group normally consists of younger households. Mortgage balance data point to the fact that these first-time buyers are purchasing homes which are lower in price than those purchased by repeat buyers (Liberty Street Economics, 2019).

The calculation of the index for first-time homebuyers in Hawaii resembles that of the HAI but includes a few alternative assumptions: 1) the median starter home price for first-time buyers is assumed to be 85 percent of the median price of all units in that category (single-family homes or condos); 2) the monthly condo fee remains at 1.75 percent of the median price divided by 12; 3) the assumed down payment requirement for first-time buyers is reduced to 10 percent; 4) the effective interest rate paid by the first-time buyers is assumed to be 0.25 percentage points higher than the 30-year fixed mortgage rate to account for the required private mortgage insurance since the down payment is below 20 percent; and 5) the assumed median income of first-time buyers is lower than the median income of all households (equal to about 65 percent of the median income).

Although the HAI and HAI FT are widely used housing affordability indexes, both have limitations. First, it is difficult to estimate the relative size of the population that may have difficulty buying a home due to difficulties in obtaining a down payment and other issues. Secondly, the HAI does not fully reflect the overall financial burden created by owning a home.

For existing homeowners, particularly owners who purchased their homes with fixed-rate mortgage loans, monthly payments were determined by the mortgage rates and housing prices at the time the property was purchased. Those payments don't reflect current prices and mortgage rates. Further, insurance and taxes are not included in calculations. It should be noted that only a small portion of the existing housing stock is bought and sold each year.

Thirdly, the HAI does not reflect the effects of inflation over time. Typically, both home prices and incomes increase with inflation. High inflation rates are often associated with high nominal income growth. With a fixed mortgage rate, the monthly payment will come to be a much smaller share of income over time in a high-inflation period. Since the index only examines the

ratio of the fixed monthly mortgage payment to current income, it cannot offer information about how affordable a house will be over the life of a mortgage.

Within the limitations mentioned above, the HAI and HAI FT can offer useful measures for determining affordability for new homebuyers facing lenders unwilling to approve mortgage loans which require payments beyond a fixed percentage of borrower income.

2.2.3 The California Housing Affordability Index

The California Association of Realtors employs a housing affordability index (Housing Affordability Index, 2023) which is similar to NAR's HAI. It is referred to here as the California Housing Affordability Index (CHAI) and employs household income distributions to analyze the percentage of median-income households which can afford to purchase a median-priced single-family home.

Given the lack of tools to quickly calculate the percentage of households with incomes greater than or equal to the minimum required income to qualify for a loan on a median-priced home, this study compares median household income to the minimum required income instead. The CHAI calculation includes property tax and insurance; it also uses a 30 percent PITI to income ratio, 5 percentage points higher than what HAI uses. CHAI calculations are as follows:

$$\text{CHAI} = (\text{Median Household Annual Income} / \text{Minimum Required Income}) \times 100$$

$$\text{The Minimum Required Annual Income for Loan} = \text{Monthly PITI} \div 0.30 \times 12$$

PITI: principal, interest, property tax, and insurance

The principal and interest are the monthly mortgage payment assuming the purchase is financed by a 30-year mortgage loan with a 20 percent down payment (10 percent for first-time buyers). It is assumed that the monthly PITI can be no more than 30 percent of a household's income. The monthly property tax and insurance total is assumed to be 1.38% of the median price divided by 12. If applied to condos, the monthly condo fee is assumed to be one percent of the median price divided by 12. The strength of CHAI is that it takes into account property tax and insurance costs.

For Hawaii, CHAI can measure how close median income is to the income necessary for median SF or condo units. A CHAI value of 100 implies that the median income is exactly equal to the necessary income to qualify for a mortgage for the median priced unit, given all the variables inputted. A value above 100 implies the median income is more than enough. A value of 40 implies the median income is only at 40 percent of the necessary income to qualify for a mortgage for the median SF-priced unit given all the variables inputted.

3. HAWAII HOUSING AFFORDABILITY TRENDS

While considerations of housing affordability in Hawaii aren't new, their frequency and importance have increased greatly in recent years. Housing affordability has become an economic issue, a political issue, and an existential issue for a state seeing population declines that threaten both its present and its future. Affordability concerns were at the heart of Governor Josh Green's Proclamation Relating to Housing.

Two types of housing affordability are examined here, in combination or separately: renters and buyers. Two types of residential housing units are considered here: single-family (SF) and multi-family (MF).

Data availability determines which and how measures can be used. For example, condominiums/co-ops (hereafter called "condos") are often the only subtype source shown in MF datasets, so the measure will use the term condo instead of MF to avoid confusion. Some data sources combine counties, while in others median incomes, prices, and mortgage rates might be sourced from two different sources to ensure higher quality or to fit other data.

To analyze the trends faced by renters, measures examined include: (1) Rent-to-Income Ratios and (2) Housing and Wages. In analyzing the market faced by buyers, measures examined here include: (1) the Price-to-Income Ratio, (2) the Housing Affordability Index provided by the National Association of Realtors, and (3) the California Housing Affordability Index.

The main data sources for our application of these measures are: (1) the U.S. Census Bureau's American Community Survey Tables (ACS Tables), (2) the Census Bureau's American Community Survey Public Use Microdata Sample (ACS PUMS), (3) the U.S. Department of Housing and Urban Development (HUD), (4) the State of Hawaii Data Book, and (5) the National Association of REALTORS.

3.1 Renter Housing Affordability Background

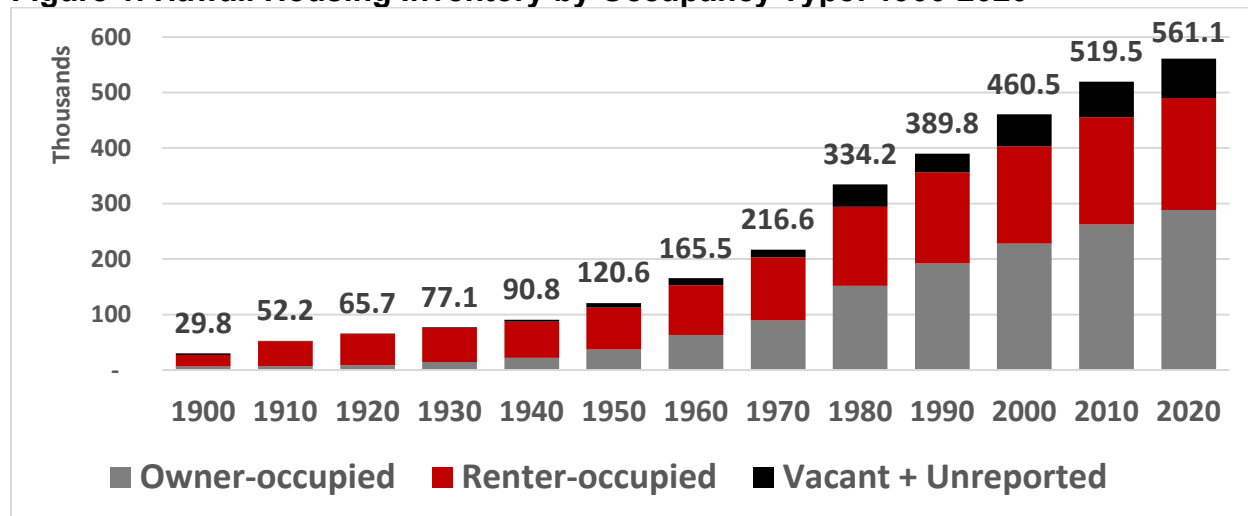
The twentieth century brought major changes to Hawaii. As Hawaii's population grew, so did its need for housing. Between 1900 and 2000, the U.S. population grew by 3.7 times, reaching 281 million. Hawaii's rate of growth was more than double that, with population expanding from 154 thousand to 1.21 million.

With this expansion came even greater growth in the number of housing units in the state, as the following figure shows. The growth was accompanied by a gradual yet profound shift in the ownership of housing. For more than half a century, Hawaii residents were largely reliant on rental housing. It wasn't until 1980 that the inventory of owner-occupied units surpassed that of renter-occupied units. In the forty years between 1980 and 2020, the number of owner-occupied units grew by 90 percent. Renter-occupied units, whose availability did much to support economic growth before and even after statehood, increased by only 42 percent in the same period.

The shift toward owner-occupied housing is an important factor in understanding the situation Hawaii faces currently. Renter-occupied housing inventory failed to keep up with growth in the number of Hawaii households, which increased by 67 percent in the 1980-2020 period. If incomes are insufficient to support home ownership, an adequate supply of rental housing is necessary for an economy to grow.

It can be argued that because Hawaii had trailed national home ownership levels the growth in owner-occupied homes reflected that gap narrowing. Yet it is also true that the lack of new inventory for renters has affected its affordability.

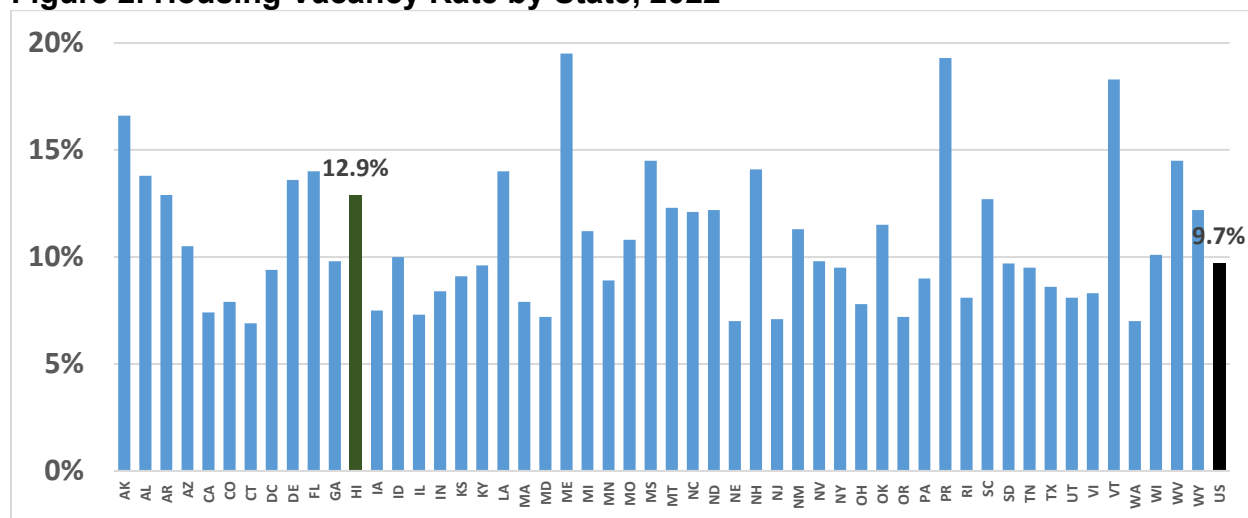
Figure 1. Hawaii Housing Inventory by Occupancy Type: 1900-2020



Sources: Statistical Abstract of Hawaii (1962); State of Hawaii Data Book (1972, 1980, 1981, 1985, 2000, 2010, 2022).

It is worth noting the significant rise in units classified as vacant. Housing vacancies reflect not only units available for rent or for sale but also units held vacant for other reasons including but not limited to seasonal, recreational, or occasional use (second or vacation homes). Demand for such units has served to further limit affordable housing supply and creates upward pressure on prices for both for-rent and for-sale units. Since 2000, vacant units have accounted for over 12 percent of total housing unit inventory. The national vacancy rate in 2022, according to U.S. Census Bureau data, stood at 9.7 percent.

Figure 2. Housing Vacancy Rate by State, 2022



Source: U.S. Census Bureau American Community Survey (ACS), 1-Year Estimates Comparison Profiles, Table CP04, 2022.

Unit availability is a complicated concept, as one size doesn't fit all tenants. A studio apartment isn't designed to accommodate a family of four, and a three-bedroom unit is likely well beyond the needs and budgets of most individual renters. For a rental market in equilibrium, what the rental market offers will reflect what renters require.

It can be argued that this isn't always the case in Hawaii, where supply and demand often diverge. Waikiki is a prime example. The Honolulu zip code 96815, which encompasses the Waikiki and Kapahulu areas, had a population of 25,860 and total employment of 30,718 in 2022 (Lightcast, 2023). Of the 22,962 housing units the zip code contained that year, 35.2 percent were vacant (U.S. Census Bureau, 2023).

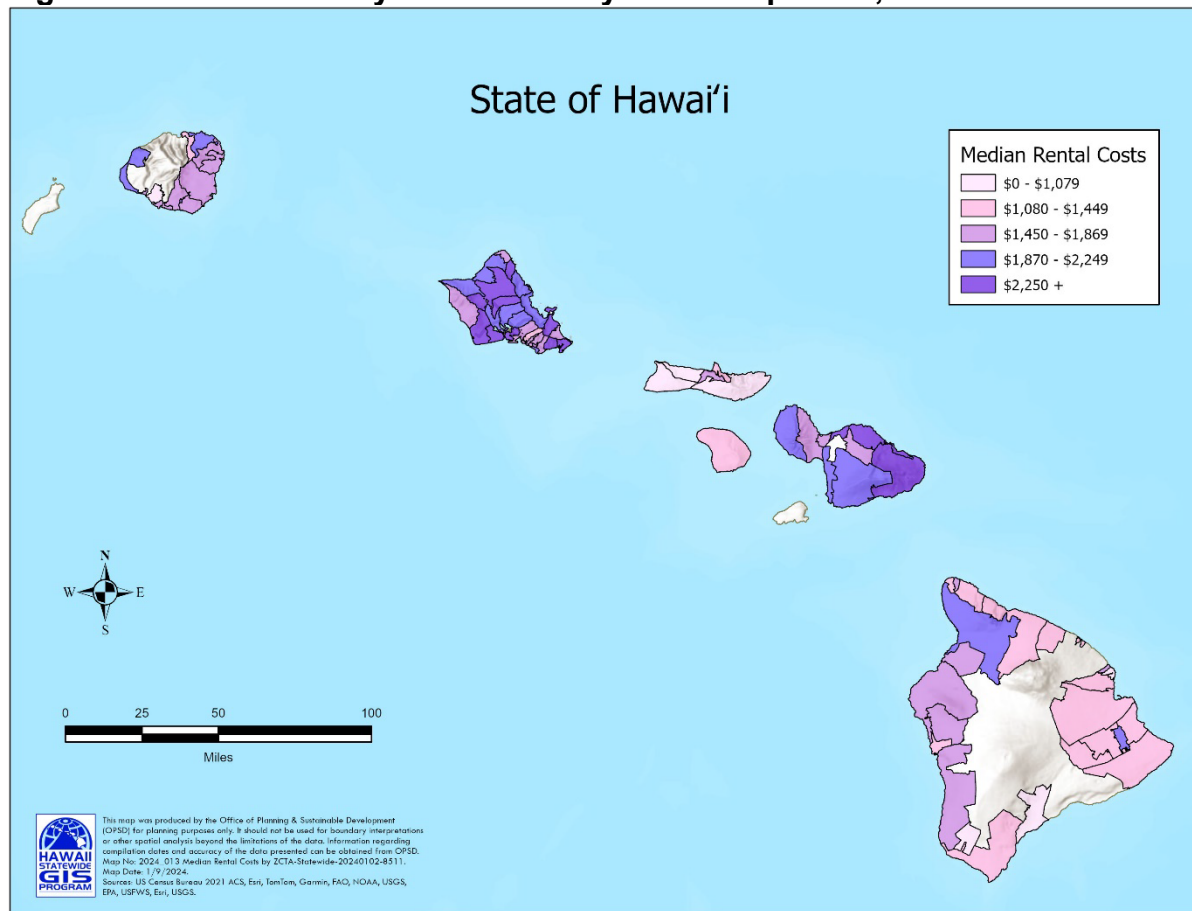
3.1.1 Rent-to-Income Ratios

Before examining rent trends in more detail, it is worth noting the broad variation in rent levels in Hawaii. Figures 5 through 8, presented further down in this section, illustrate individual county levels. Figure 4 compares median rent levels across the state by zip code. Gross median rents as reported in the 2022 American Community Survey data vary greatly both statewide and within individual counties.

It should be noted that zip codes are determined by geography, not population. We've chosen to use them here because of the detailed picture they present; Hawaii contains more zip codes than it does State House districts, which are commonly employed to profile income ranges. Because some districts are sparsely populated, the margin of error can be large, but a clear picture evolves. Gross median rents range from \$548 to over \$3,500 per month.

The widely different levels point to how difficult it is to assess what is affordable in Hawaii. Put differently, trying to impose a single, convenient definition of affordability, even for an individual county, has limited application.

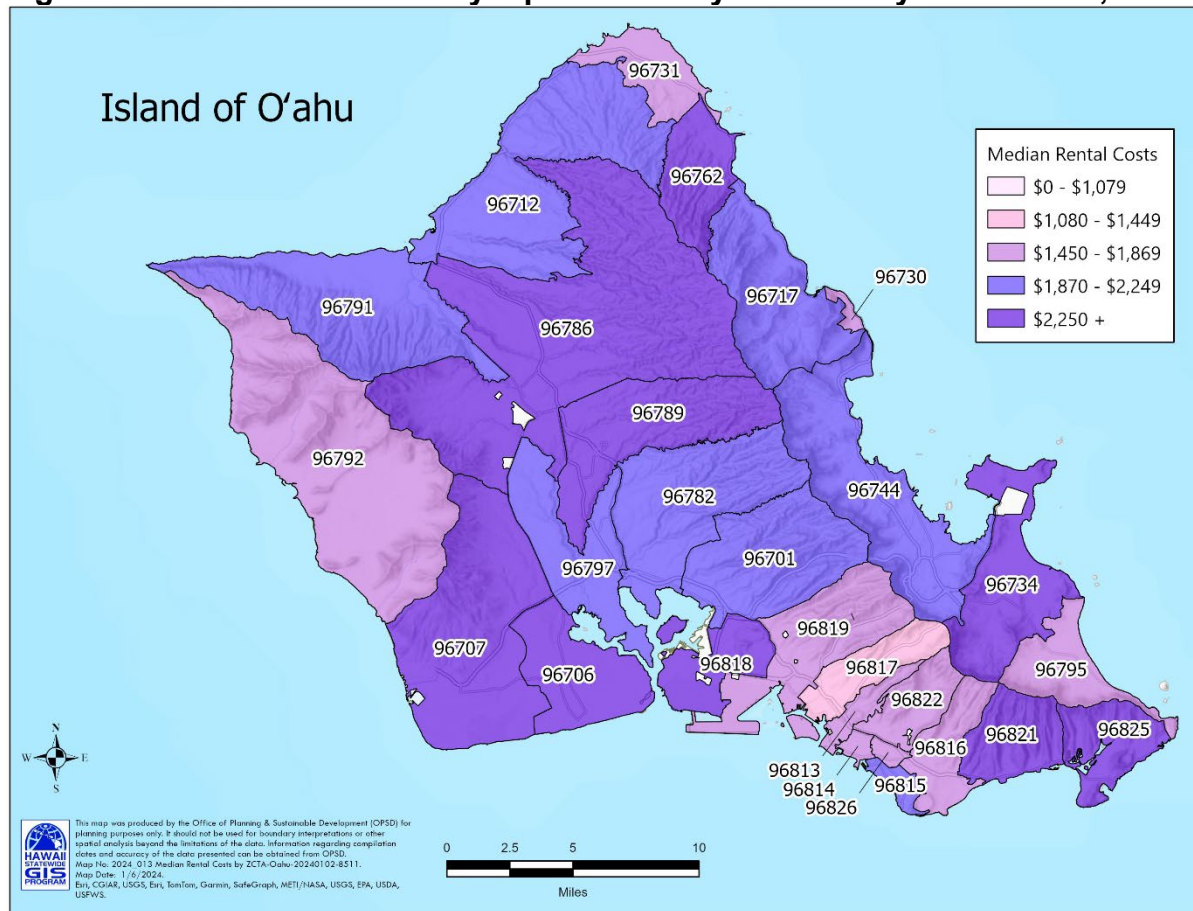
Figure 3. Median Monthly Gross Rent by Hawaii Zip Code, 2022



Source: Hawaii Statewide GIS Program, Office of Planning and Sustainable Development, 2024

The following figures show gross rents for individual zip codes by county. Honolulu is the state's most populous county and has the largest housing inventory. While it has some of the most expensive rents, including nine zip codes in the most expensive (\$2,250+) quintile, it also has the most diverse housing options, with 29.6 percent of its housing units in buildings with at least ten units, more than double the national rate. The greater availability of units in multi-family buildings is responsible for some of the cheaper median rents in urban Honolulu.

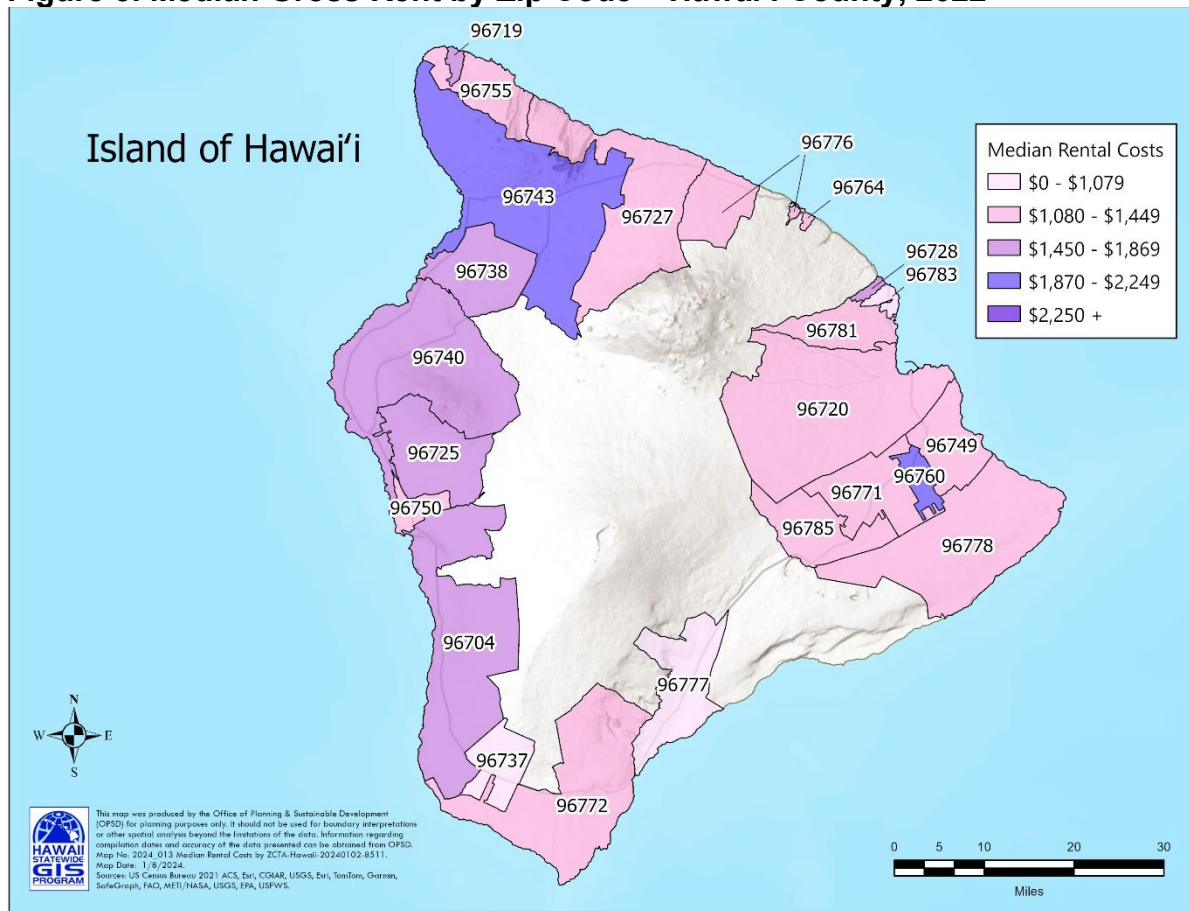
Figure 4. Median Gross Rent by Zip Code – City and County of Honolulu, 2022



Source: Hawaii Statewide GIS Program, Office of Planning and Sustainable Development, 2024

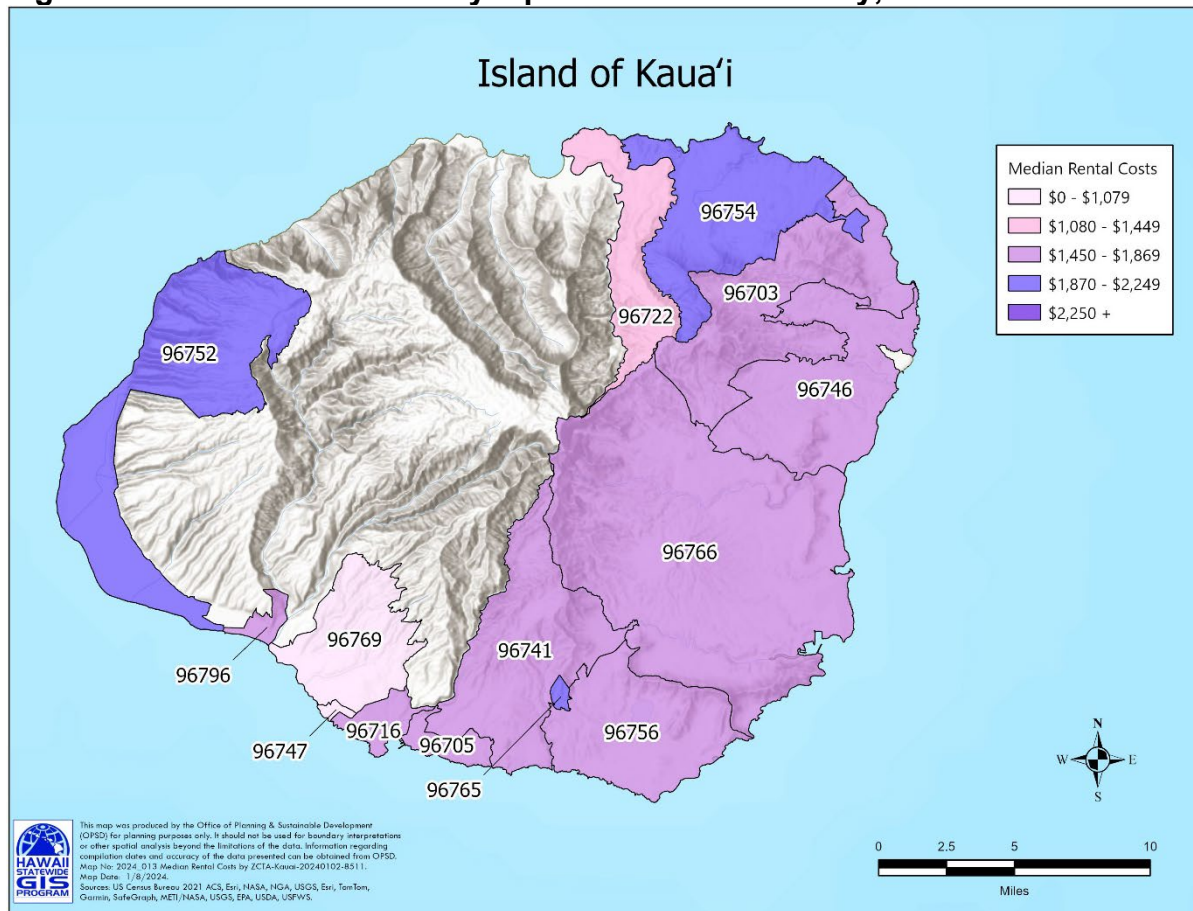
Hawai'i County is an outlier in terms of gross rental levels, in part because median household income levels are generally lower there.

Figure 5. Median Gross Rent by Zip Code – Hawai‘i County, 2022



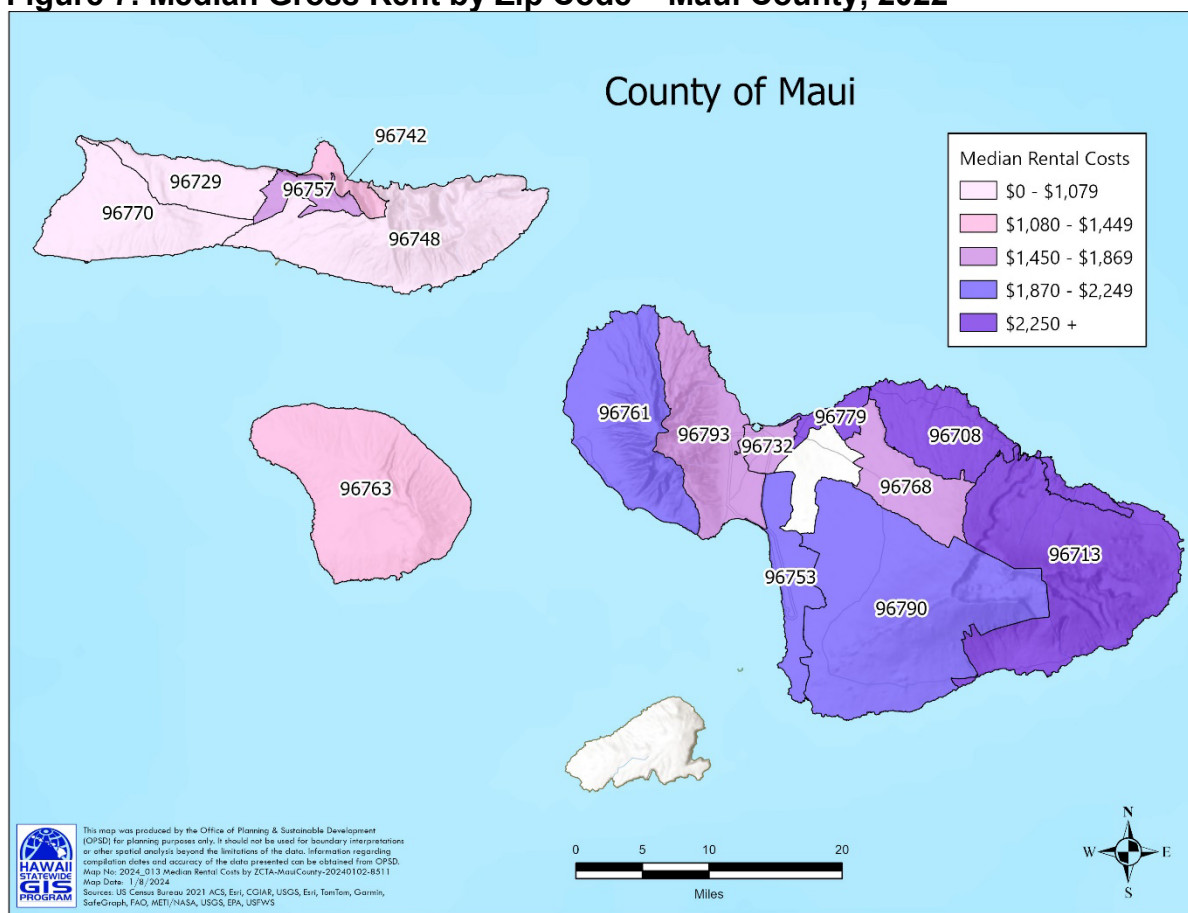
Source: Hawaii Statewide GIS Program, Office of Planning and Sustainable Development, 2024

Figure 6. Median Gross Rent by Zip Code – Kauai County, 2022



Source: Hawaii Statewide GIS Program, Office of Planning and Sustainable Development, 2024

Figure 7. Median Gross Rent by Zip Code – Maui County, 2022



Source: Hawaii Statewide GIS Program, Office of Planning and Sustainable Development, 2024

Tables 1 through 3 show thirteen years of median rent data for rented units and the median household income for the State of Hawaii and individual counties. SF and MF renter data are shown separately. Maui and Kauai are combined because ACS PUMS combines those locations. The term “rented units” indicates the units were not vacant.

Median rent levels reflect what people pay each year. They do not reflect prices of vacant, unrented units. In addition, the pricing of identical units can differ due to length of tenancy or other factors. Since Honolulu accounts for 65.8 percent of state housing units and nearly 70 percent of Hawaii’s population, Oahu rental costs levels influence state levels most directly.

Median gross rent (which includes monthly utilities costs) and median incomes were collected from 2010-2022 American Community Survey Public Use Microdata Sample (ACS PUMS) for the state and individual counties. It should be noted that the combination of limited data samples and the COVID-19 pandemic both affected the consistency of the income data, especially in counties with limited populations.

That inconsistency is seen in the margin of error estimates for median gross rents. Nationally, the disparity is small; in both 2021 and 2022 the margin of error was equivalent to just 0.2% of median gross rent. For Honolulu, the disparity was 2.4% both years ($\pm\$46$ against an estimated median gross rent of \$1,914 in 2022).

The 2022 disparities for other counties were more striking: 9.4 percent for Hawaii, 10.8 percent for Kauai, and 6.9 percent for Maui. These large variations complicate definitive conclusions about gross rent trends.

As shown in Table 1, income and rent increased, on average, across all locations over time. Median SF rent increased most in Honolulu, median MF rent increased most in Hawaii County, and median SF rent was higher than median MF rent across all years and locations, except in 2020 Maui/Kauai.

Median SF income growth resembled that of median SF median rent growth statewide during the period. In the multi-family unit rental market, median MF rent growth outpaced median MF income growth.

Table 1: ACS PUMS Median Rent and Median Income

Monthly Median Rent for Rented SF Units					Annual Median Income for SF Renters				
	State	Honolulu	Maui/Kauai	Hawai'i		State	Honolulu	Maui/Kauai	Hawai'i
2010	\$1,620	\$1,911	\$1,360	\$1,080	2010	\$56,225	\$63,480	\$47,358	\$36,577
2011	\$1,700	\$2,000	\$1,254	\$1,003	2011	\$52,948	\$61,094	\$35,435	\$33,704
2012	\$1,700	\$2,000	\$1,230	\$1,034	2012	\$59,602	\$65,663	\$49,500	\$30,306
2013	\$1,810	\$2,117	\$1,340	\$1,210	2013	\$63,476	\$69,017	\$60,453	\$36,272
2014	\$1,825	\$2,220	\$1,530	\$1,220	2014	\$69,581	\$75,632	\$67,161	\$43,362
2015	\$1,950	\$2,320	\$1,500	\$1,245	2015	\$70,088	\$73,192	\$68,086	\$54,569
2016	\$1,900	\$2,380	\$1,480	\$1,250	2016	\$66,501	\$74,783	\$53,402	\$51,387
2017	\$2,008	\$2,600	\$1,550	\$1,200	2017	\$68,761	\$75,334	\$65,727	\$44,593
2018	\$2,100	\$2,500	\$1,650	\$1,330	2018	\$73,044	\$80,035	\$69,195	\$49,135
2019	\$2,013	\$2,510	\$1,660	\$1,450	2019	\$71,720	\$80,812	\$69,700	\$59,801
2020	\$2,143	\$2,500	\$1,640	\$1,370	2020	\$75,461	\$80,331	\$71,155	\$61,375
2021	\$2,200	\$2,640	\$1,550	\$1,453	2021	\$76,318	\$80,334	\$61,796	\$75,391
2022	\$2,310	\$2,800	\$1,803	\$1,450	2022	\$83,385	\$93,808	\$71,919	\$60,454
Net Change	42.6%	46.5%	32.6%	34.3%	Net Change	48.3%	47.8%	51.9%	65.3%

Monthly Median Rent for Rented MF Units					Annual Median Income for MF Renters				
	State	Honolulu	Maui/Kauai	Hawai'i		State	Honolulu	Maui/Kauai	Hawai'i
2010	\$1,100	\$1,160	\$1,045	\$750	2010	\$41,111	\$42,119	\$41,111	\$21,765
2011	\$1,110	\$1,200	\$1,080	\$700	2011	\$38,693	\$40,729	\$36,657	\$25,772
2012	\$1,200	\$1,250	\$1,200	\$870	2012	\$43,439	\$45,459	\$42,328	\$26,872
2013	\$1,210	\$1,290	\$1,200	\$900	2013	\$41,310	\$43,325	\$45,340	\$19,113
2014	\$1,300	\$1,380	\$950	\$750	2014	\$43,362	\$48,404	\$31,564	\$27,227
2015	\$1,340	\$1,370	\$1,230	\$1,030	2015	\$44,056	\$43,655	\$50,163	\$33,042
2016	\$1,300	\$1,330	\$1,120	\$1,050	2016	\$48,868	\$49,382	\$50,379	\$40,304
2017	\$1,360	\$1,380	\$1,330	\$1,060	2017	\$47,223	\$48,537	\$43,481	\$48,537
2018	\$1,390	\$1,420	\$1,310	\$960	2018	\$50,351	\$50,655	\$46,906	\$28,367
2019	\$1,480	\$1,500	\$1,250	\$1,010	2019	\$51,517	\$53,235	\$46,871	\$30,304
2020	\$1,540	\$1,560	\$1,700	\$1,035	2020	\$50,307	\$49,804	\$60,369	\$31,191
2021	\$1,530	\$1,560	\$1,550	\$940	2021	\$56,028	\$58,706	\$43,875	\$30,568
2022	\$1,550	\$1,570	\$1,400	\$1,100	2022	\$51,073	\$50,031	\$62,539	\$46,904
Net Change	40.9%	35.3%	34.0%	46.7%	Net Change	24.2%	18.8%	52.1%	115.5%

Source: DBEDT calculations using U.S. Census Bureau 2010-2022 ACS PUMS 1-Year Estimates.

Table 2 contains median (gross) rent to median income ratios using the data from Table 1. Ratios in Tables B-D were computed using annual rent and income.

Table 2: Household Median Rent to Median Income Ratios

Ratio of Median Rent for Rented SF Units to Median Income (SF Renters)					Ratio of Median Rent for Rented MF Units to Median Income (MF Renters)				
	State	Honolulu	Maui/Kauai	Hawai'i		State	Honolulu	Maui/Kauai	Hawai'i
2010	0.35	0.36	0.34	0.35	2010	0.32	0.33	0.31	0.41
2011	0.39	0.39	0.42	0.36	2011	0.34	0.35	0.35	0.33
2012	0.34	0.37	0.30	0.41	2012	0.33	0.33	0.34	0.39
2013	0.34	0.37	0.27	0.40	2013	0.35	0.36	0.32	0.57
2014	0.31	0.35	0.27	0.34	2014	0.36	0.34	0.36	0.33
2015	0.33	0.38	0.26	0.27	2015	0.36	0.38	0.29	0.37
2016	0.34	0.38	0.33	0.29	2016	0.32	0.32	0.27	0.31
2017	0.35	0.41	0.28	0.32	2017	0.35	0.34	0.37	0.26
2018	0.34	0.37	0.29	0.32	2018	0.33	0.34	0.34	0.41
2019	0.34	0.37	0.29	0.29	2019	0.34	0.34	0.32	0.40
2020	0.34	0.37	0.28	0.27	2020	0.37	0.38	0.34	0.40
2021	0.35	0.39	0.30	0.23	2021	0.33	0.32	0.42	0.37
2022	0.33	0.36	0.30	0.29	2022	0.36	0.38	0.27	0.28
Average	0.34	0.38	0.30	0.32	Average	0.34	0.35	0.33	0.37

Source: DBEDT calculations using Table A data.

As the left side of Table 2 shows, ratios for the median rent for rented SF units to median income (SF renters) have, on average, remained above 0.30 for both the state and Honolulu, implying renters are cost-burdened but not severely cost-burdened. Maui/Kauai is at the affordability benchmark of 0.30, while Hawai'i County averaged 0.32 during the 13-year period but has qualified as affordable since 2019.

As the right side of Table 2 shows, ratios for the median rent for rented MF units to median income (MF renters) are above 0.30, implying as with single-family homes, renters are cost-burdened but not severely cost-burdened.

Table 3 below estimates the percentage increase in median wage necessary to meet a 0.30 RTI ratio for 2022. Except for SF renters in Hawai'i County, all SF renters required higher wages, assuming rent prices remained unchanged. Renters of MF units in Honolulu also require higher wages, but MF renters in Maui/Kauai and Hawai'i counties do not.

Table 3: 2022 Median Income Increases (As a Percent) Necessary to Meet a 0.30 Median RTI Ratio

Median SF Income Raise Necessary				Median MF Income Raise Necessary			
	Honolulu	Maui/Kauai	Hawai'i		Honolulu	Maui/Kauai	Hawai'i
2022	19.4%	0.3%	-4.1%	2022	25.5%	-10.5%	-6.2%

Source: DBEDT calculations using Table A data.

Table 4 provides a national comparison of median gross rent as a percentage of renter household income in 2022. It shows that Hawaii's housing affordability ranks third worst at 33.5 percent, 2.5 percentage points higher than the national level. Also notable, Hawaii's median gross rent was the third highest in the nation, 39.0 percent above the national level.

Table 4. Median Gross Rent as a Percentage of Household Income by State in 2022

State	Gross rent	Percentage of household income In past 12 months		State	Gross rent	Percentage of household income In past 12 months	
		Level	Rank			Level	Rank
United States	\$1,300	31.0%	(X)				
Florida	\$1,525	35.3%	1	Alabama	\$913	29.7%	26
Nevada	\$1,461	33.8%	2	Indiana	\$972	29.5%	27
Hawaii	\$1,813	33.5%	3	New Hampshire	\$1,396	29.5%	27
California	\$1,870	33.2%	4	Tennessee	\$1,096	29.5%	27
Louisiana	\$984	32.8%	5	Pennsylvania	\$1,116	29.4%	30
Puerto Rico	\$535	32.1%	(X)	Delaware	\$1,274	29.3%	31
Connecticut	\$1,360	32.0%	6	North Carolina	\$1,131	29.3%	31
New Mexico	\$955	31.9%	7	Rhode Island	\$1,254	29.1%	33
Massachusetts	\$1,634	31.7%	8	District of Columbia	\$1,843	29.0%	34
Oregon	\$1,370	31.7%	8	Kentucky	\$891	29.0%	34
Colorado	\$1,646	31.6%	10	Utah	\$1,372	29.0%	34
Texas	\$1,290	31.5%	11	Idaho	\$1,138	28.9%	37
Arizona	\$1,450	31.4%	12	Maine	\$1,033	28.9%	37
New York	\$1,499	31.4%	12	Oklahoma	\$937	28.9%	39
New Jersey	\$1,555	31.3%	14	Ohio	\$949	28.6%	40
South Carolina	\$1,084	31.2%	15	Nebraska	\$983	28.4%	41
Georgia	\$1,269	31.0%	16	Kansas	\$975	28.3%	42
Maryland	\$1,550	31.0%	16	Missouri	\$954	28.3%	42
Washington	\$1,630	30.7%	18	Arkansas	\$846	28.1%	44
Michigan	\$1,052	30.4%	19	Iowa	\$891	27.9%	45
Mississippi	\$873	30.4%	19	Wisconsin	\$992	27.9%	45
Vermont	\$1,141	30.4%	21	Montana	\$1,005	27.8%	47
West Virginia	\$795	30.3%	22	Wyoming	\$895	26.9%	48
Minnesota	\$1,200	30.0%	23	Alaska	\$1,329	26.8%	49
Virginia	\$1,441	29.9%	24	South Dakota	\$866	26.5%	50
Illinois	\$1,170	29.8%	25	North Dakota	\$863	25.4%	51

(X) Not applicable.

Rank of 1 indicates highest percentage. Areas sorted in order of highest rank in 2022.

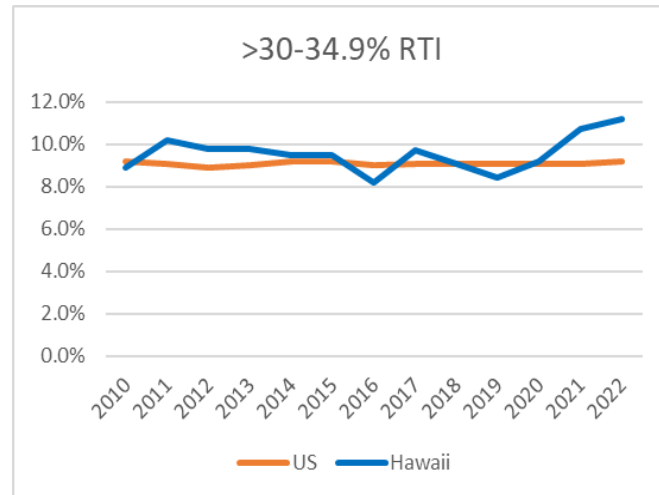
Source: U.S. Census Bureau, 2022 American Community Survey 1-Year Estimates for the United States and all states, B25064: "Median Gross Rent (Dollars) Universe: Renter-occupied housing units paying cash rent" and B25071: "Median Gross Median Gross Rent as a Percentage of Household Income in the Past 12 Months (Dollars) Universe: Renter-occupied housing units paying cash rent"; and DBEDT calculations.

Tables 5 and 6 use U.S. Census Bureau ACS data to show the percentage of households paying rent in occupied units, where the gross rent is between 30.0-34.9 percent and over 35.0 percent of household income. As shown, the percentage of Hawaii households in the 30-34.9

percent RTI segment has been increasing since 2019; Hawaii's percentage of households with 30-34.9 percent RTI exceeded the national percentage in 2022 by 2.0 percentage points. Hawaii's share of households with an RTI of greater than 35 percent has consistently hovered between 45 to 49 percent between 2010 and 2020 and has always exceeded the national share.

Table 5. Percentage of Households with 30.0-34.9% RTI

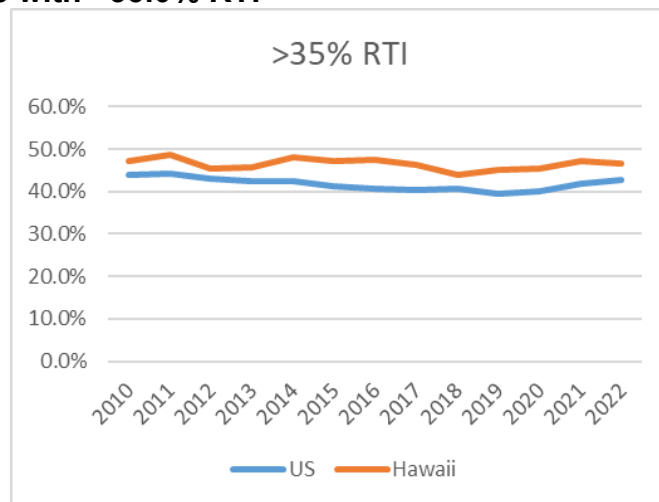
	U.S.%	Hawaii%
2010	9.2	8.9
2011	9.1	10.2
2012	8.9	9.8
2013	9.0	9.8
2014	9.2	9.5
2015	9.2	9.5
2016	9.0	8.2
2017	9.1	9.7
2018	9.1	9.1
2019	9.1	8.4
2020	9.1	9.2
2021	9.1	10.7
2022	9.2	11.2
Average	9.1	9.6



Source: U.S. Census Bureau 2010-2019 & 2021-2022 American Community Survey 1-Year Estimates Table DP04; 2020 American Community Survey 5-Year Estimates Table DP04 accessed January 5, 2024; DBEDT calculations.

Table 6. Percentage of Households with >35.0% RTI

	U.S. %	Hawaii %
2010	43.8	47.3
2011	44.3	48.7
2012	43.1	45.5
2013	42.5	45.8
2014	42.6	48.0
2015	41.4	47.1
2016	40.7	47.4
2017	40.4	46.4
2018	40.6	43.8
2019	39.4	45.0
2020	40.0	45.5
2021	41.9	47.3
2022	42.7	46.6
Average	41.8	46.5



Source: U.S. Census Bureau 2010-2019 & 2021-2022 American Community Survey 1-Year Estimates Table DP04; 2020 American Community Survey 5-Year Estimates Table, DBEDT calculations.

3.1.2 The Housing Wage

As outlined in section 2.1.4, fair market rent (FMR) is the standard commonly used for this approach. It is based on a concept developed by the U.S. Department of Housing and Urban Development (HUD).

HUD annually determines the payment standards used in its Housing Choice Voucher program. FMRs cover five different rental unit categories (ranging from efficiency units to four-bedroom units) in multiple individual markets, including each of Hawaii's four counties. The levels represent 40th percentile rent levels and are used to determine the appropriate payment for a renter using 30.0 percent of income on housing.

For federal fiscal year 2024, which began on October 1, 2023, the FMR for a one-bedroom unit ranged from \$1,548 (Hawaii County) to \$1,805 (Kauai County). The range for two-bedroom units was \$2,010-\$2,372. If a renter of a two-bedroom unit were to spend 30 percent of gross income on housing, it would require an annual income ranging between \$80,392 (Hawaii County) and \$94,871 (Kauai County).

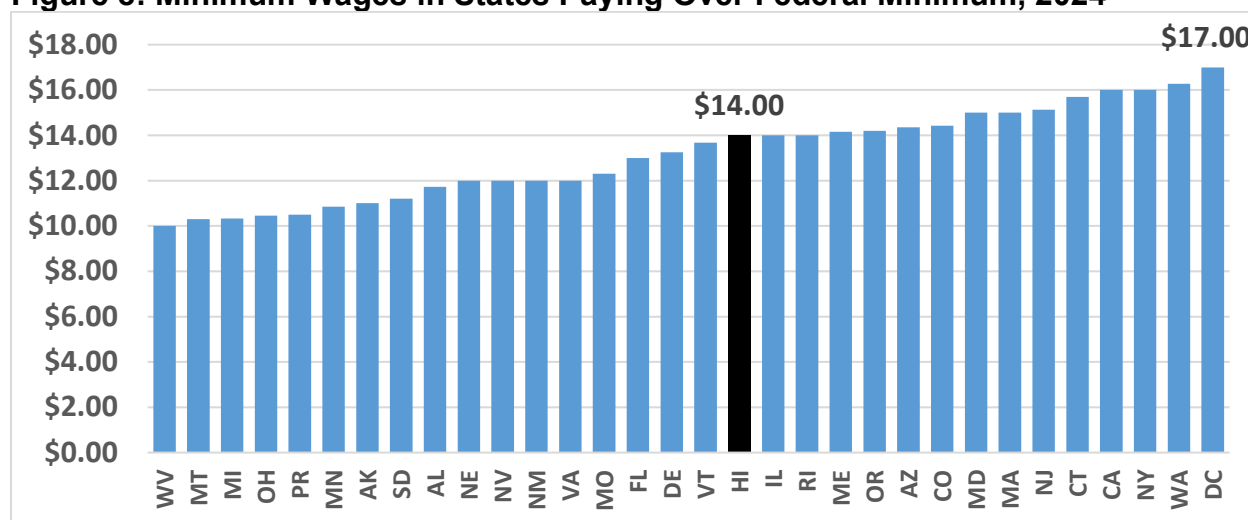
This approach estimates how many jobs paying minimum wage would be necessary to earn enough money to afford these units, assuming a renter works 40 hours per week 52 weeks a year.

Hawaii's minimum hourly wage was raised to \$10.10 in January of 2018 and subsequently to \$12.00 in October of 2022. In January of 2024 it was increased to \$14.00.

Although FMRs have increased during the period, the higher minimum wage has served to offset these increases. In 2022, when the minimum wage was still \$10.10, a two-bedroom rental in Honolulu would have cost the equivalent of 4.26 minimum wage jobs. In 2023, with the minimum wage level 20 percent higher, the number declined to 3.60 jobs. Using the same 2022 rental costs in the calculations, the \$14.00 wage level means a two-bedroom unit costs the equivalent of 3.09 jobs.

While the adequacy of Hawaii's minimum wage is worth considering in the context of affordability, it is also worth acknowledging that Hawaii has been progressive in terms of raising its minimum wage levels. Twenty U.S. states continue to use the U.S. minimum wage, which is \$7.25. Figure 8 illustrates how Hawaii currently compares to other states.

Figure 8: Minimum Wages in States Paying Over Federal Minimum, 2024



Source: U.S. Department of Labor. Consolidated Minimum Wage Table, 2024.

Assuming a worker earning the minimum wage continued working throughout the year, the total income would have been \$24,960 (2,080 hours x \$12.00) in 2023. Based on U.S. Census Bureau 2022 ACS 1-year Estimates Data Profiles (shown in Table DP03), 64,066 households (12.9 percent of 494,827 reported Hawaii households) made under \$25,000 annually. A subgroup of those households numbering 23,564 families (7.0 percent of 335,032 reported Hawaii families) made under \$25,000 per year.

3.2 Homebuyer Housing Affordability Trends

The measures examined in this section, first introduced in section 2, are: (1) the Price-to-Income Ratio, (2) the Housing Affordability Index provided by the National Association of Realtors, and (3) the California Housing Affordability Index. Condominiums were the only available data provided by Board of Realtors for multi-family units. Thus, we will use the term condo instead of multi-family (MF) in these measures.

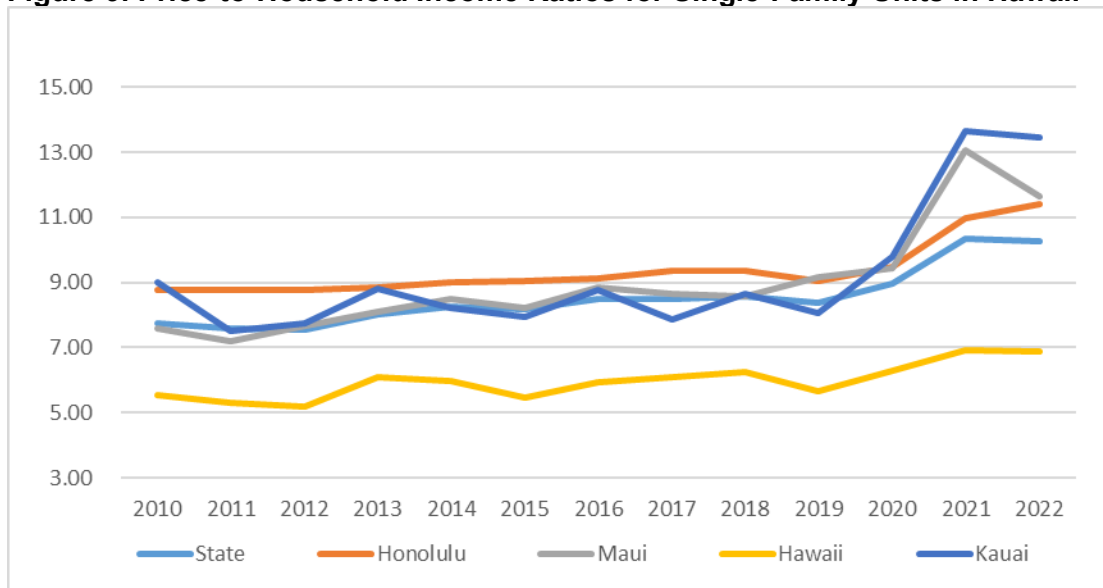
3.2.1 The Price-to-Income Ratios

As the following figures indicate, the ratios for both SF and condo unit types have increased, on average, from 2010 to 2022 for both households and families in Hawaii. This implies less affordability over time as rising median prices outpace growth in median household and family incomes. COVID-driven work-from-home demand served to push home prices higher, increasing the ratios for both SF and condo units.

By way of comparison, the U.S. ratios are much lower than the Hawaii state ratios, implying Hawaii is considerably less affordable for those earning an income in Hawaii.

On average, SF ratios show a lower level of affordability than condos due to their higher prices. As well, maintenance fees are not included in the purchase price of condos, an effect which will be discussed later in the Adjusted Condo CHAI and Adjusted Condo HAI FT measures.

Figure 9. Price-to-Household Income Ratios for Single-Family Units in Hawaii



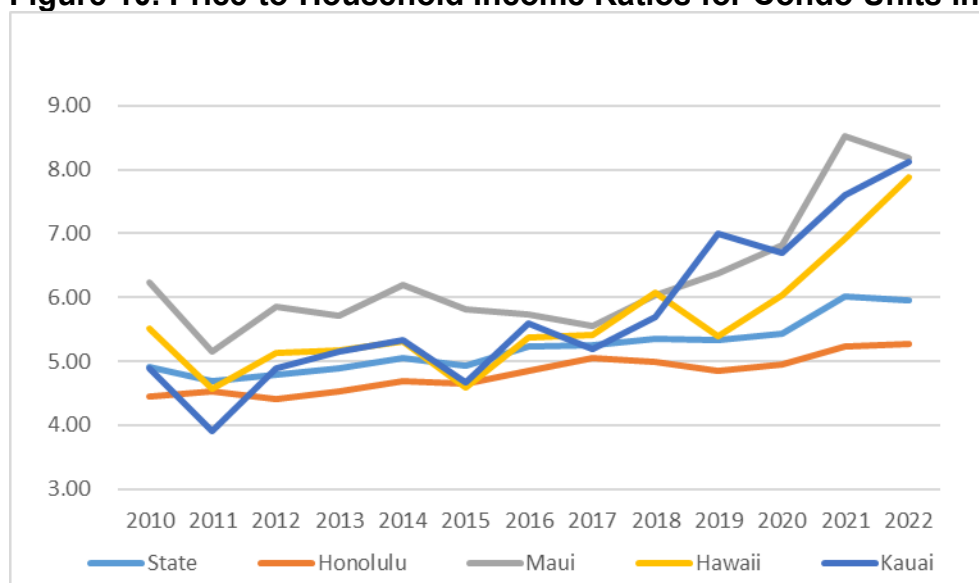
	State	Honolulu	Maui	Hawai'i	Kauai
2010	7.73	8.75	7.59	5.52	9.01
2011	7.60	8.76	7.18	5.30	7.49
2012	7.55	8.75	7.68	5.17	7.74
2013	8.01	8.86	8.08	6.10	8.79
2014	8.26	9.02	8.51	5.97	8.22
2015	8.16	9.06	8.23	5.48	7.95
2016	8.49	9.13	8.84	5.92	8.77
2017	8.49	9.35	8.66	6.08	7.87
2018	8.59	9.36	8.57	6.25	8.64
2019	8.36	9.03	9.18	5.65	8.05
2020	8.98	9.46	9.43	6.28	9.78
2021	10.36	10.97	13.05	6.91	13.65
2022	10.27	11.39	11.66	6.89	13.45
Average	8.53	9.38	8.97	5.96	9.19
U.S.					
2020	4.62				
2021	5.12				
2022	5.25				

Demographics of Housing Affordability Ratings

3.0 & Under	Affordable
3.1 to 4.0	Moderately Unaffordable
4.1 to 5.0	Seriously Unaffordable
5.1 & Over	Severely Unaffordable

Source: State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Table S1901 1-Year Estimates 2010-2019 and 2021-2022 median household income; ACS Table S1901 2020 5-Year Estimate 2020 median household income; NAR Existing Home Sales 2020-2022 for U.S. SF/Condo unit prices; and DBEDT calculation.

Figure 10. Price-to-Household Income Ratios for Condo Units in Hawaii



	State	Honolulu	Maui	Hawai'i	Kauai
2010	4.92	4.45	6.23	5.52	4.89
2011	4.69	4.54	5.15	4.57	3.90
2012	4.79	4.41	5.85	5.13	4.90
2013	4.90	4.52	5.70	5.17	5.15
2014	5.04	4.69	6.19	5.30	5.34
2015	4.94	4.66	5.82	4.58	4.67
2016	5.23	4.84	5.74	5.38	5.59
2017	5.26	5.04	5.55	5.42	5.19
2018	5.36	5.00	6.03	6.08	5.70
2019	5.33	4.86	6.38	5.40	7.00
2020	5.43	4.96	6.82	6.04	6.70
2021	6.01	5.24	8.52	6.91	7.59
2022	5.95	5.28	8.18	7.89	8.12
Average	5.22	4.81	6.32	5.65	5.75

U.S.	
2020	4.10
2021	4.33
2022	4.47

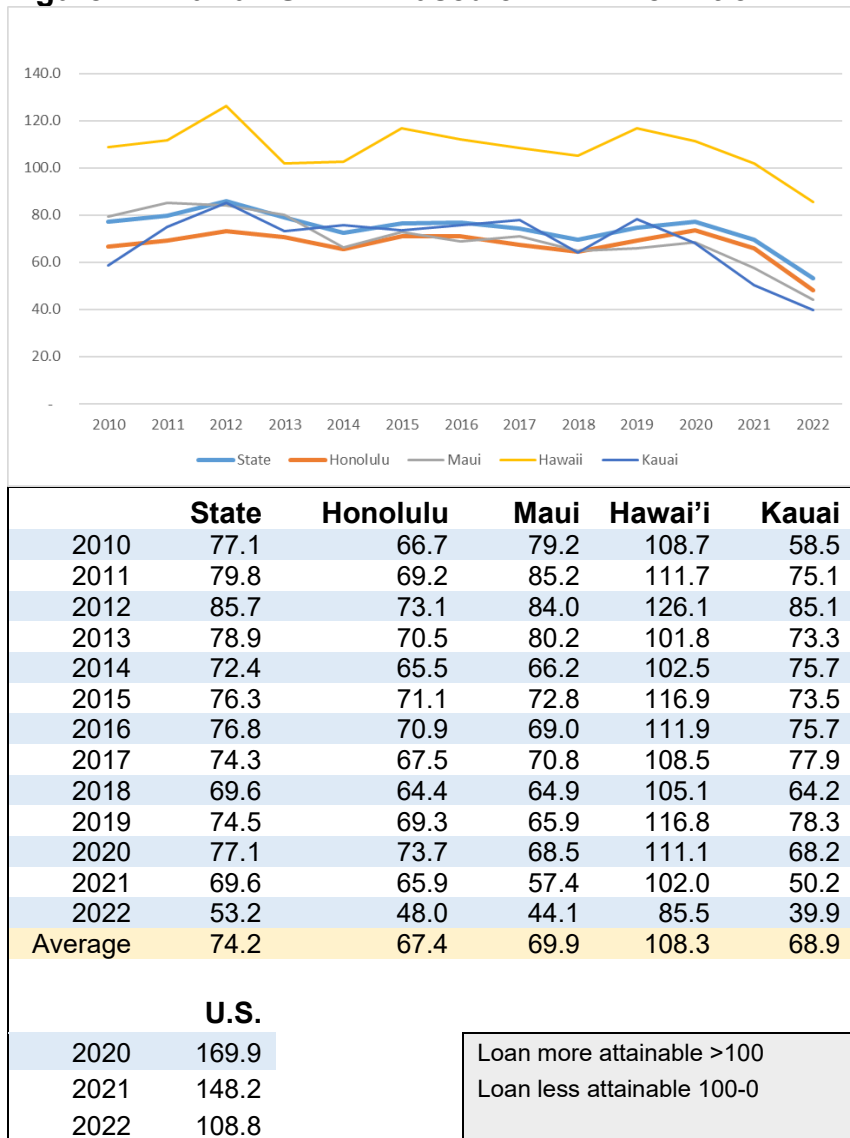
Demographia Housing Affordability Ratings	
3.0 & Under	Affordable
3.1 to 4.0	Moderately Unaffordable
4.1 to 5.0	Seriously Unaffordable
5.1 & Over	Severely Unaffordable

Source: State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Table S1901 1-Year Estimates 2010-2019 and 2021-2022 median household income; ACS Table S1901 2020 5-Year Estimate 2020 median household income; NAR Existing Home Sales 2020-2022 for U.S. SF/Condo unit prices; and DBEDT calculation.

3.2.2 The Housing Affordability Index by the National Association of Realtors

The historical trends of HAI for SF units in the state and counties are provided in Figure 11. The contrast with national levels is striking. With the exception of Hawai'i County, median SF unit loans have never qualified as easily attainable for the median income households in Hawaii. Since 2020, loans for SF units have been becoming less attainable in all counties.

Figure 11. Hawaii SF HAI Based on NAR Definition

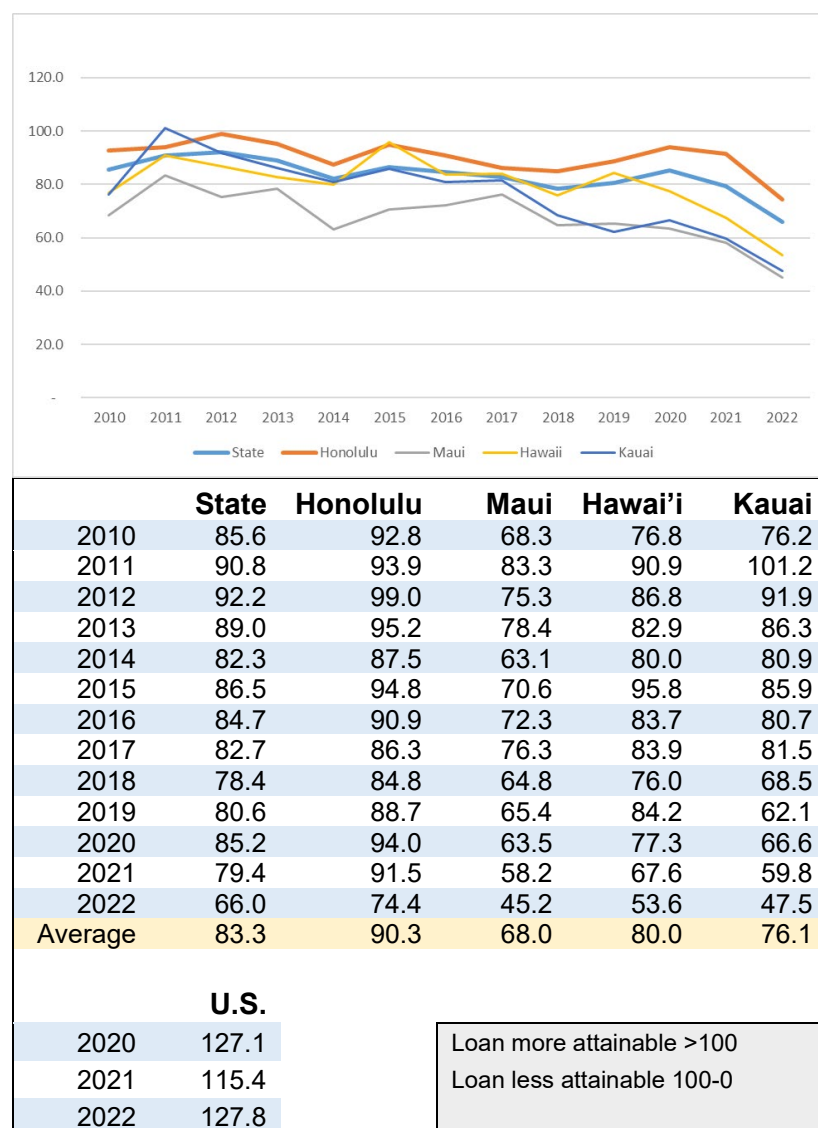


Source: BankRate 2010-2022 mortgage rates; State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Tables 1-Year Estimates 2010-2019 and 2021-2022 median family incomes; ACS Tables 2020 5-Year Estimate 2020 median family incomes; NAR 2020-2022 for U.S. median family incomes, mortgage rates and SF/Condo unit prices; and DBEDT calculation.

Historical Adjusted Condo HAI trends for condo units in Hawaii are provided in Figure 12. It can be seen that median condo unit loans have never been easily attainable for median income

households in any Hawai'i county. Median condo unit loans have been becoming less affordable since 2020 across all counties.

Figure 12. Hawaii Adjusted Condo HAI Based on NAR Definition



Source: BankRate 2010-2022 mortgage rates; State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Tables 1-Year Estimates 2010-2019 and 2021-2022 median family incomes; ACS Tables 2020 5-Year Estimate 2020 median family incomes; NAR 2020-2022 for U.S. median family incomes, mortgage rates and SF/Condo unit prices; and DBEDT calculation.

Table 7 shows the SF and Adjusted Condo HAI for first-time buyers based on the NAR definition for years 2010 through 2022, using the assumptions outlined earlier. For first-time buyers, both SF and condo units were significantly unaffordable (under 100) in all counties across all years. The U.S. calculations were close to or above 100 and significantly higher than anywhere in Hawaii.

**Table 7. Hawaii Housing Affordability Index for First-Time Buyers
Based on NAR Definition, SF HAI FT and Adjusted Condo HA IFT**

Based on NAR Definition, SF HAIFT and Adjusted Condo HAIFT

	SF HAIFT					Adjusted Condo HAIFT					
	State	Honolulu	Maui	Hawai'i	Kauai	State	Honolulu	Maui	Hawai'i	Kauai	
2010	50.9	44.1	52.3	71.8	38.6	58.9	63.8	47.0	52.9	52.4	
2011	52.7	45.7	56.2	73.8	49.6	62.5	64.6	57.4	62.6	69.7	
2012	56.5	48.2	55.4	83.2	56.1	63.6	68.3	51.9	59.9	63.4	
2013	52.0	46.5	52.9	67.2	48.3	61.4	65.6	54.0	57.1	59.4	
2014	47.8	43.2	43.7	67.6	50.0	56.7	60.3	43.5	55.1	55.8	
2015	50.3	46.9	48.0	77.1	48.5	59.6	65.3	48.6	66.0	59.2	
2016	50.6	46.8	45.5	73.8	49.9	58.4	62.7	49.9	57.8	55.7	
2017	49.0	44.6	46.7	71.6	51.4	57.0	59.5	52.6	57.8	56.1	
2018	45.9	42.6	42.8	69.4	42.4	54.0	58.4	44.6	52.3	47.1	
2019	49.2	45.7	43.5	77.0	51.7	55.5	61.2	45.1	58.1	42.8	
2020	50.8	48.5	45.2	73.2	45.0	58.9	64.9	43.8	53.4	46.0	
2021	45.8	43.4	37.8	67.2	33.1	54.9	63.2	40.2	46.7	41.3	
2022	35.2	31.7	29.2	56.5	26.4	45.4	51.1	31.1	36.9	32.6	
Average	49.0	44.5	46.1	71.5	45.5	57.4	62.2	46.9	55.1	52.4	
	U.S.					U.S.					
2020	111.9					126.2					Loan more attainable >100 Loan less attainable 100-0
2021	97.6					115.3					
2022	72.0					84.5					

Source: BankRate 2010-2022 mortgage rates; State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Tables 1-Year Estimates 2010-2019 and 2021-2022 median family income; ACS Tables 2020 5-Year Estimate 2020 median family income; 1st Time Buyer NAR 2020-2022 for U.S. SF median family incomes, mortgage rates and unit prices; 1st Time Buyer NAR 2020-2022 for U.S. Condo median family incomes, mortgage rates; and DBEDT calculation.

For its U.S. calculations NAR provides first-time buyer information on SF median income, SF mortgage rate, and SF prices. Condo median income and mortgage rate were assumed to be the same as SF, given they mimic this approach in the non-first-time buyer information. First-time condo prices were taken from the non-first-time buyer prices and reduced using the same method employed for Hawaii condos. Condo fees were calculated using the Hawaii rate assumptions described previously.

3.2.3 The California Housing Affordability Index

Table 8 shows the SF and Adjusted Condo HAI based on the California definition. Values represent the median household income to necessary median income ratio, shown as a percentage. None of the values are above 100, implying an affordability issue during this period using this measure for median income owners trying to buy median income housing. The U.S. values are all over 100 and significantly higher than the values in Hawaii.

Table 8. Hawaii Housing Affordability Index Based on California Definition

	SF CHAI					Adjusted Condo CHAI				
	State	Honolulu	Maui	Hawai'i	Kauai	State	Honolulu	Maui	Hawai'i	Kauai
2010	60.2	53.1	61.3	84.2	51.6	79.7	88.1	63.0	71.0	80.2
2011	62.3	54.1	66.0	89.4	63.3	84.9	87.8	77.3	87.1	102.1
2012	67.4	58.1	66.3	98.4	65.7	88.2	95.8	72.3	82.5	86.3
2013	61.9	56.0	61.3	81.3	56.4	84.5	91.4	72.5	80.1	80.3
2014	59.2	54.2	57.5	81.9	59.5	81.1	87.2	66.0	77.1	76.6
2015	61.7	55.6	61.2	92.0	63.3	84.8	90.0	72.1	91.5	89.8
2016	60.4	56.2	58.0	86.7	58.5	81.3	87.9	74.1	79.1	76.1
2017	58.5	53.1	57.3	81.6	63.1	78.8	82.1	74.7	76.4	79.9
2018	54.9	50.4	55.1	75.4	54.6	74.0	79.4	65.8	65.3	69.7
2019	59.4	55.0	54.2	88.0	61.7	77.8	85.3	65.0	76.8	59.2
2020	59.4	56.3	56.5	84.9	54.5	80.9	88.6	64.5	72.8	65.6
2021	52.6	49.7	41.8	78.9	39.9	74.4	85.4	52.5	64.8	58.9
2022	43.4	39.1	38.2	64.7	33.1	63.6	71.6	46.2	47.9	46.6
Average	58.6	53.2	56.5	83.6	55.8	79.5	86.2	66.6	74.8	74.7
U.S.						U.S.				
2020	111.9					103.6				
2021	102.4					99.1				
2022	80.1					79.9				

Values represent median income x 100 divided by necessary median income.

Source: BankRate 2010-2022 mortgage rates; State of Hawaii Data Book 2022 Table 21.36 SF and Condo prices; U.S. Census Bureau ACS Tables 1-Year Estimates 2010-2019 and 2021-2022 median household income; ACS Tables 2020 5-Year Estimate 2020 median household income; NAR 2020-2022 for U.S. mortgage rates and SF/Condo unit prices; and DBEDT calculation.

4. FACTORS AFFECTING HOUSING AFFORDABILITY

While it is broadly recognized that the shortage of affordable housing has grown both more crucial and severe in Hawaii and nationally, there is no single normative definition of “housing affordability.” Common definitions in housing literature involve adequate accommodation with access to nearby healthcare, schools, jobs, amenities, and safety options which can be paid for without incurring financial difficulties.

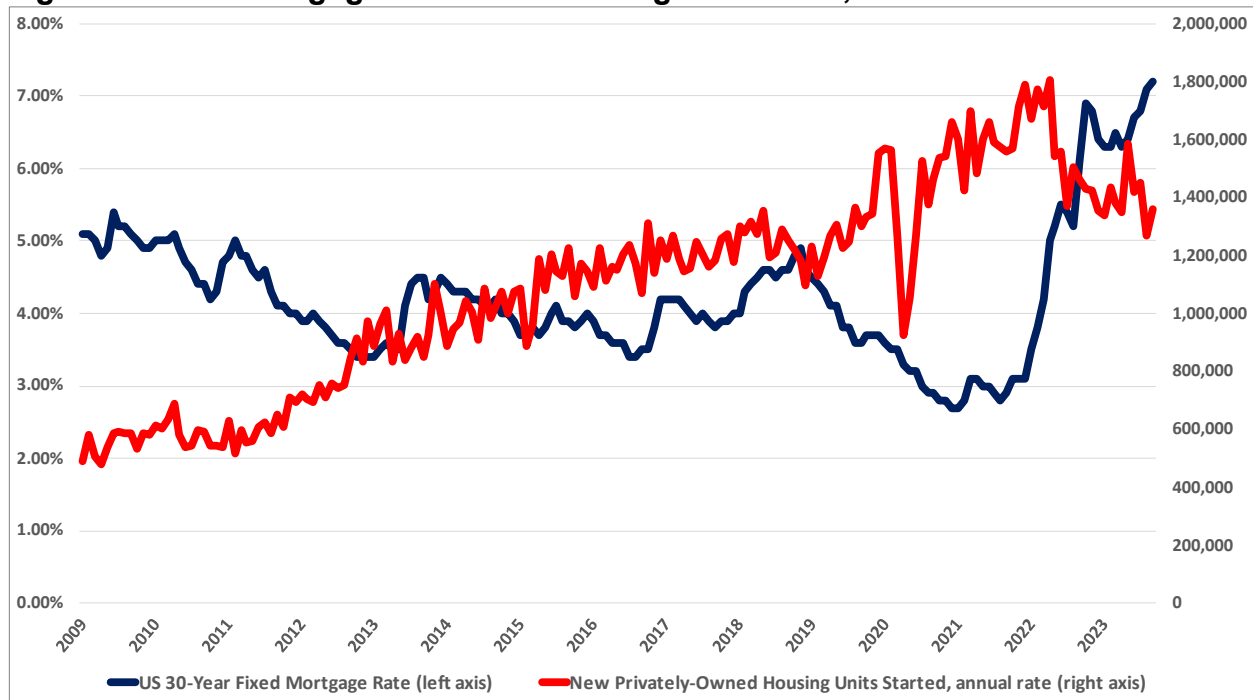
Factors affecting housing affordability include price, mortgage rate, location/county, first-time buyer status, and supply and demand constraints. Supply and demand constraints include construction costs, inventory, and percentage of non-local buyers. Many other factors are excluded or unknown, such as physical condition of units, amenities, taxes, size of structure, and specific location within counties.

4.1 Interest Rates

Interest rates play an integral role in influencing housing costs and affordability. For starters, they affect the supply of new housing by directly impacting the costs faced by developers, including those for construction materials.

While newly built housing units represent a small fraction of both the housing stock and overall transaction activity, they are key to growing the supply of housing. Figure 13 shows monthly U.S. housing starts on an annualized basis. A decline in mortgage rates led to a steady increase in U.S. housing unit starts through 2018 and helped boost them again from 2019 through late 2021. The Fed’s subsequent move to raise rates quite sharply sent mortgage rates to levels not seen since 2001 and helped to cause housing start levels to plummet.

Figure 13. U.S. Mortgage Rates Vs. Housing Unit Starts, 2009-2023



Source: U.S. Federal Bank of St. Louis, UHERO, 2023.

The most obvious impact of changing interest rates is on mortgage rates and how they affect demand for housing.

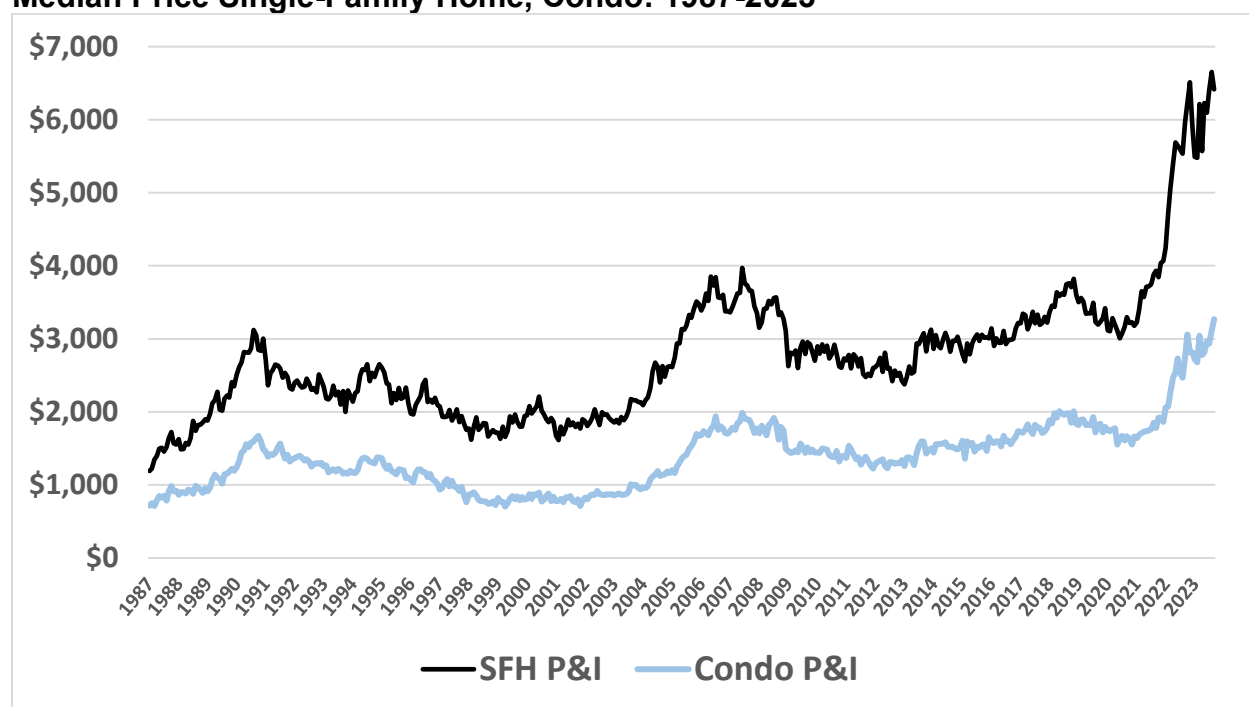
The Federal Reserve Bank of Atlanta's Home Ownership Affordability Monitor (HOAM) is a vital tool for tracking and comparing the costs of home ownership by region. It reports monthly affordability levels for U.S. metropolitan areas with populations of more than 500,000 residents, using the HUD 30 percent share of income threshold as a measure of affordability.

To calculate monthly principal and interest costs it uses this formula, one based on a buyer putting down 10 percent of the purchase price as a down payment.

$$\text{Monthly principal and interest payment (P\&I)} = \text{median home price} \times 0.9 \times (\text{interest rate}/12) / (1 - (1 / (1 + \text{interest rate}/12)^{360}))$$

Figure 14 illustrates what a Honolulu buyer of a median price home would pay in monthly principal and interest at prevailing interest rates. The costs for both single-family homes and condos are shown.

Figure 14. Honolulu Monthly Principal and Interest Payments
Median Price Single-Family Home, Condo: 1987-2023



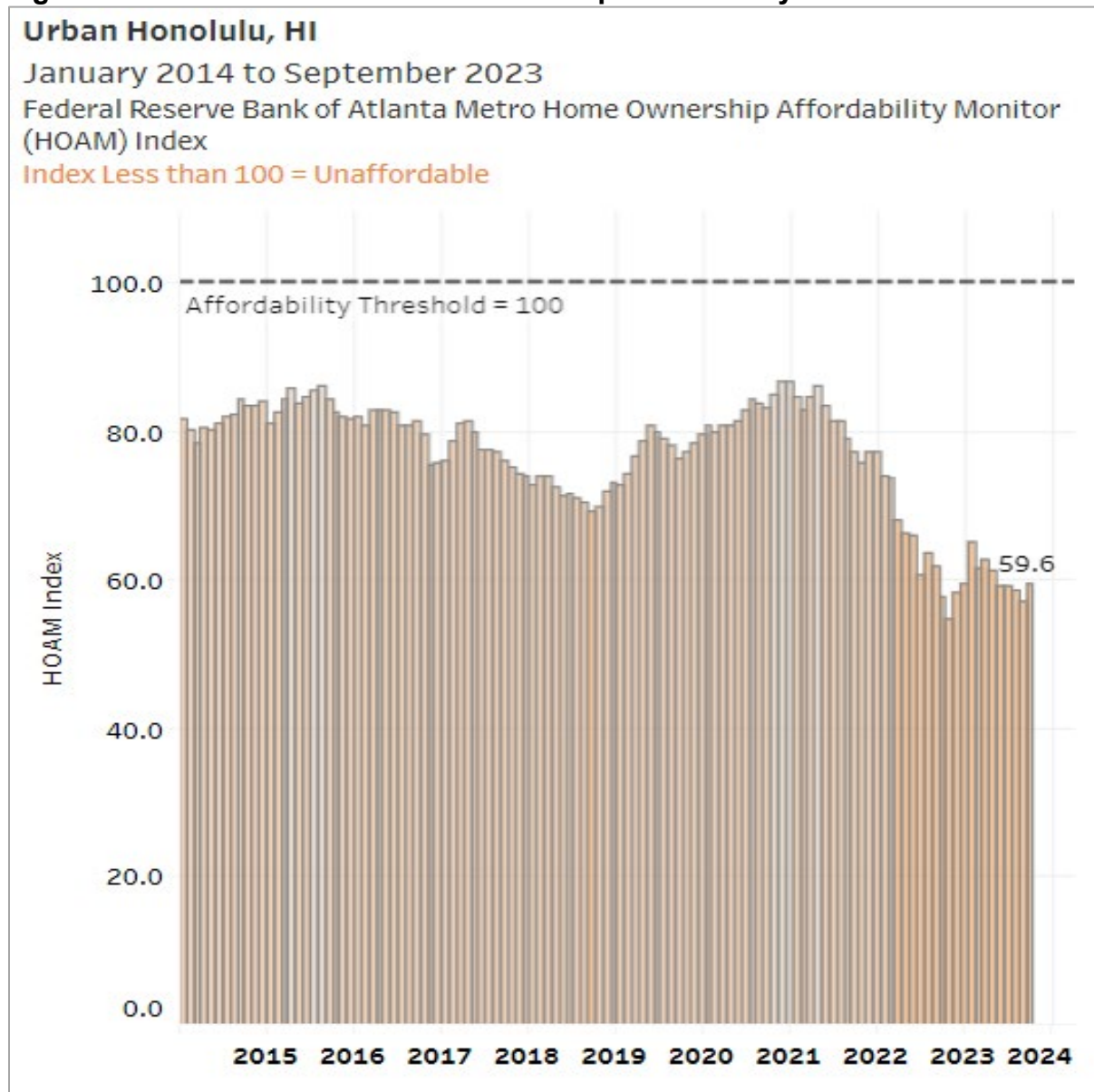
Source: Federal Reserve Bank of St. Louis, UHERO (data); Federal Reserve Bank of Atlanta (methodology), 2023.

As the graph makes clear, P&I costs are at their highest levels ever, with the bulk of the appreciation coinciding with the Federal Reserve Bank's steady hike in interest rates. At the September 2023 median SFH price (\$1,050,000 for Honolulu), an increase of 0.1 percentage points in the 30-year mortgage rate increased monthly P&I costs more than did a \$10,000 rise in the median home price.

The Atlanta Fed's HOAM index is structured such that a score of 100 or above indicates that the median household income is sufficient to cover the costs of owning a median-priced home. A score below 100 indicates that the median income is insufficient.

As the following figure indicates, Honolulu has not been affordable since the creation of the index in 2014. The index indicates its current level makes the county nearly as unaffordable as it has ever been.

Figure 15. Urban Honolulu Home Ownership Affordability Monitor



Source: Home Ownership Affordability Monitor - Federal Reserve Bank of Atlanta (atlantafed.org), 2023.

The measures surveyed earlier in this report generate a similar conclusion. As shown in Table 9 below, the combined impacts of a lower mortgage rate and higher median household income led to improved housing affordability in Hawaii from 1990 to 2022 even as median unit prices

increased. The median household income for the state of Hawaii increased from \$40,978 in 1990 to \$92,458 in 2022, a growth of 125.6 percent. Increased median household income tends to improve housing affordability. Income is affected by the labor market and financial market conditions.

The median single-family (SF) price for the state increased from \$287,617 in 1990 to \$950,000 in 2022, an increase of 230.3 percent; the median condo price for the state increased from \$180,621 in 1990 to \$550,000 in 2022, an increase of 204.5 percent. An increase in median housing price negatively impacts housing affordability.

The Housing Affordability Index (HAI) used by the National Association of Realtors for SF units in Hawaii increased from 41.8 in 1990 to 45.4 in 2022, an increase of 8.6 percent; the HAI for condo units (excluding condo fees) in Hawaii increased from 66.6 in 1990 to 78.5 in 2022, an increase of 17.9 percent. These increases imply an increase in affordability since 1990 for both SF and condo units.

Table 9. Main Factors Affecting Housing Affordability in the State of Hawaii

	Mortgage Rate	Median HH Income	Median SF Price	Median Condo Price	HAI SF	HAI Condo
1990	10.13%	40,978	287,617	180,621	41.8	66.6
1991	9.25%	42,288	286,026	182,913	46.8	73.2
1992	8.40%	44,493	281,220	186,323	54.1	81.6
1993	7.33%	45,354	292,359	186,148	58.8	92.3
1994	8.35%	45,764	305,000	185,500	51.5	84.7
1995	7.95%	46,183	286,000	175,000	57.6	94.1
1996	7.80%	46,220	270,000	165,000	61.9	101.3
1997	7.60%	47,260	257,000	145,000	67.8	120.2
1998	6.94%	48,267	250,000	138,000	76.0	137.7
1999	7.43%	49,820	250,000	137,700	74.7	135.7
2000	8.08%	50,624	260,000	140,000	68.6	127.4
2001	7.01%	51,205	268,950	145,000	74.4	138.1
2002	6.57%	52,480	310,000	165,000	69.2	130.1
2003	5.89%	53,944	360,000	185,000	65.9	128.2
2004	5.88%	58,112	440,000	230,000	58.1	111.2
2005	5.93%	61,393	560,000	299,000	48.0	89.9
2006	6.47%	61,160	599,133	339,000	42.2	74.6
2007	6.40%	63,746	595,000	350,000	44.6	75.8
2008	6.23%	67,214	560,000	347,750	50.9	81.9
2009	5.38%	64,098	497,750	319,000	59.9	93.4
2010	4.86%	63,030	487,000	310,000	63.8	100.2
2011	4.65%	61,821	470,000	290,000	66.4	107.7
2012	3.88%	66,259	500,000	317,750	73.3	115.5
2013	4.16%	67,798	545,000	333,000	66.8	109.3
2014	4.31%	69,549	575,000	351,000	63.6	104.2
2015	3.99%	73,097	600,000	363,000	66.9	110.6
2016	3.79%	74,659	632,000	390,000	65.9	106.9
2017	4.14%	76,340	660,000	409,000	63.2	102.0
2018	4.70%	80,527	689,000	430,000	58.5	93.7
2019	4.13%	83,102	695,000	443,500	64.2	100.7
2020	3.38%	83,173	747,000	452,000	65.5	108.3
2021	3.15%	84,857	880,000	510,000	58.5	100.8
2022	5.34%	92,458	950,000	550,000	45.4	78.5
Net Change '90-'22	-47.3%	125.6%	230.3%	204.5%	8.7%	17.9%

Source: BankRate.com for 2010-2022 mortgage rates; State of Hawaii Data Book 2022 Table 21.36 for SF and Condo prices; U.S. Census Bureau ACS Tables 1-Year Estimates for 2010-2019 and 2021-2022 median household income; ACS Tables 2020 5-Year Estimate for 2020 median household income; and DBEDT calculations.

For renters, housing affordability is similarly affected by higher mortgage rates and housing prices. By driving up property prices, higher borrowing costs confine more people to the rental market. Those higher housing prices mean owners are more likely to seek higher rents. If housing prices are stable and median income for renters rises, the more affordable it will be to rent or possibly buy; market instability and higher interest rates make buying more costly and difficult.

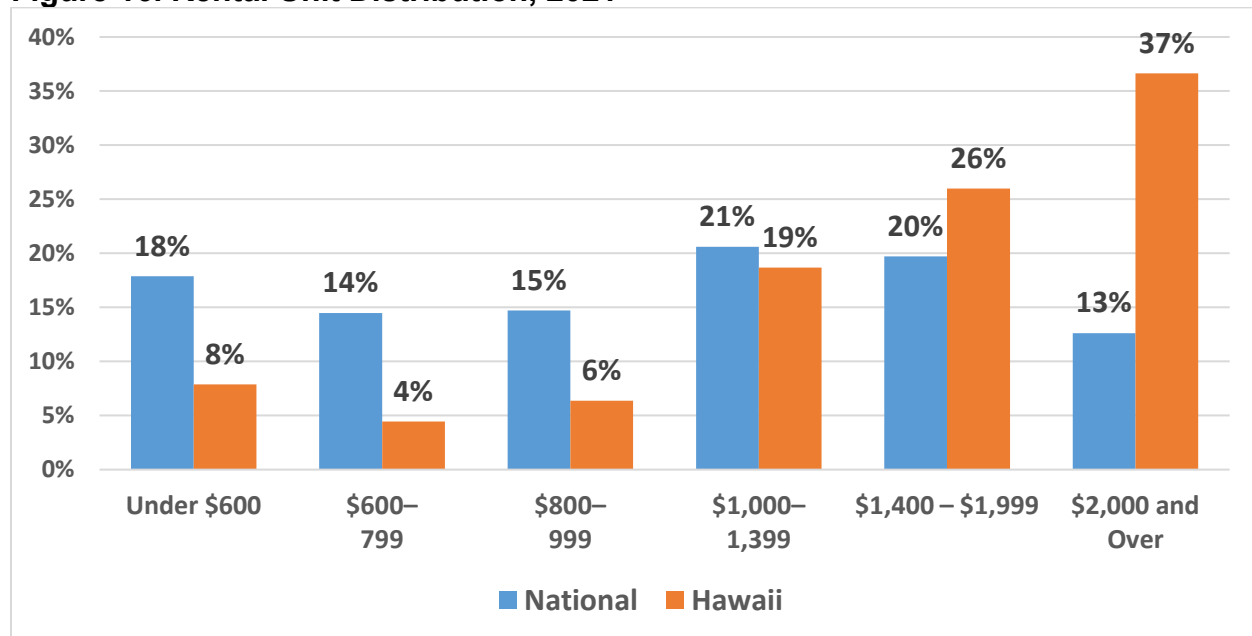
4.2 Rental Market Inventory, Availability

Rental housing availability is central to the health and prosperity of any community, particularly those where property prices put ownership beyond the means of many. Low-cost rentals are defined as units costing under \$600 per month, the maximum amount affordable to households with incomes not above \$24,000. These and those costing slightly more are a particularly important component of that market; the availability of affordable housing can be shown to have supported Hawaii's economic development, especially before statehood.

The following two graphs, both derived from data compiled by Harvard University's Joint Center for Housing Studies, illustrate the changing distribution and availability of rental units in Hawaii (2023).

In 2021, nearly two-thirds of rental units in Hawaii were priced above \$1,400 per month, versus just one-third of national supply. Only 18 percent of low-cost rental supply was priced below \$1,000, far below the 47 percent share of supply this price category accounted for nationally.

Figure 16. Rental Unit Distribution, 2021

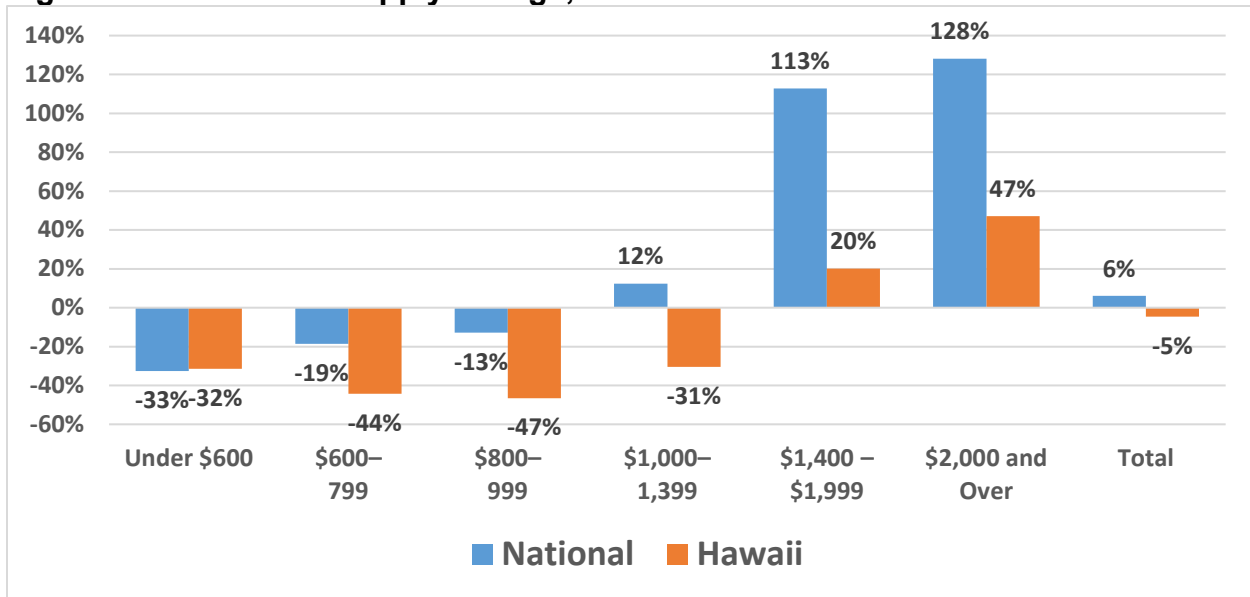


Source: Low-Cost Rentals Have Decreased in Every State | Joint Center for Housing Studies (harvard.edu), 2023.

Unlike national trends, Hawaii experienced drastic declines in the supply of units priced below \$1,400 in the decade through 2021. As Figure 17 illustrates, what growth there was occurred in

units priced above \$1,400 per month. Overall, rental unit supply decreased by 5 percent in Hawaii as it grew by 6 percent nationally.

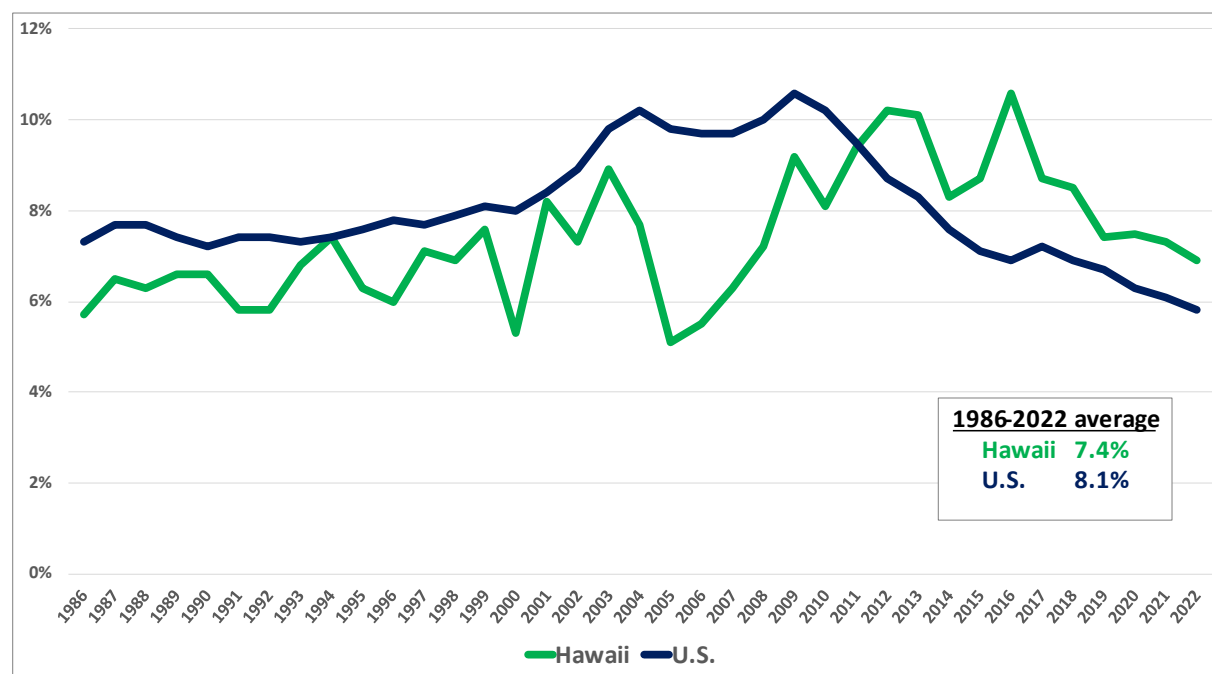
Figure 17. Rental unit supply change, 2011-2021



Source: Low-Cost Rentals Have Decreased in Every State | Joint Center for Housing Studies (harvard.edu), 2023.

Historically, Hawaii has had slightly lower vacancy rates for rental properties than is the case nationally. Comparisons with national levels, however, are complicated by factors which differentiate Hawaii's real estate market, including the growing prominence, especially in the last decade, of short-term rental options including Airbnb and VRBO.

Figure 18. Rental Vacancy Rates, Hawaii vs. U.S.



Source: Federal Reserve Bank of St. Louis, 2023.

4.2.1 Housing Supply

U.S. Census Bureau Housing Vacancy Survey data show the decline in vacancy in Hawaii has trailed the rate of decline nationally. In 2022, Hawaii's vacancy rate was the 9th highest in the nation. The homeowner vacancy rates below reflect the proportion of vacant year-round units for sale; they differ from the gross vacancy rates shown in Figure 1.

Table 10. HVS Homeowner Vacancy Rates: 2010 to 2022 (%)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Hawaii	1.9	2.2	2.3	1.8	1.6	1.5	1.4	1.3	1.7	1.6	1.3	0.7	1.0	1.6
U.S.	2.6	2.5	2.0	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.0	0.9	0.8	1.7

Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey. Table 4, Homeowner Vacancy Rates by State; DBEDT Calculations.

A similar trend can be seen in data reported in the Census Bureau's American Community Survey (Table DP04). While Hawaii's average vacancy rate for the 2020-2022 period is below the national rate, it has declined at a slower pace and is now above the national level.

Table 11. ACS Homeowner Vacancy Rates: 2010 to 2022 (%)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Hawaii	2.2	2.2	1.4	1.1	1.1	1.7	1.1	1.3	1.7	1.4	1.2	1.1	1.0	1.4
U.S.	2.5	2.4	2.0	1.9	1.9	1.8	1.8	1.6	1.5	1.5	1.4	0.9	0.8	1.7

Source: ACS Table DP04 1-Year for 2010-2019 and 2021-2022; ACS Table DP04 2020 5-Year for 2020; and DBEDT calculations.

As shown in Table 12, the number of housing units listed for sale in Honolulu County accounted for only 3.5 percent of total housing units on average from 2010 to 2022. The number of units

sold in Honolulu County accounted for only 2.5 percent of total housing units. It should be noted that Multiple Listing Service (MLS) does not include homes offered for sale by owners and that the listing and subsequent sale of homes can take place in different years.

Table 12. Percentages of Existing Housing Units Listed and Sold in Honolulu

Year	Housing Units	Number Listed	Number Sold	Percent of Listed	Percent of Sold
2010	337,111	13,165	7,187	3.9%	2.1%
2011	338,800	12,070	7,192	3.6%	2.1%
2012	340,338	10,746	7,760	3.2%	2.3%
2013	341,879	11,277	8,231	3.3%	2.4%
2014	344,310	12,134	8,379	3.5%	2.4%
2015	345,695	12,511	8,644	3.6%	2.5%
2016	349,263	11,762	9,127	3.4%	2.6%
2017	350,726	12,647	9,732	3.6%	2.8%
2018	352,493	13,145	9,288	3.7%	2.6%
2019	354,699	13,705	9,158	3.9%	2.6%
2020	371,179	11,556	8,544	3.1%	2.3%
2021	372,612	12,993	11,729	3.5%	3.1%
2022	373,875	11,636	9,827	3.1%	2.6%
Average 2010-22	351,768	12,257	8,831	3.5%	2.5%

Source: 2022 State of Hawaii Data Book Tables 21.20 and 21.31, Calculations by DBEDT

As shown in Table 13, Hawaii added 47,987 housing units between 2010 and 2022, equivalent to 3,998 units per year. It is important to note that 2011-2019 counts have yet to be adjusted to reflect 2020 Decennial census data.

Table 13. Housing Units by County

Year	State	Honolulu	Hawai'i	Kauai	Maui
2010	520,088	337,111	82,476	29,917	70,584
2011	523,213	338,800	83,515	30,072	70,826
2012	525,678	340,338	84,158	30,178	71,004
2013	528,391	341,879	84,748	30,292	71,472
2014	531,962	344,310	85,428	30,435	71,789
2015	534,723	345,695	86,328	30,610	72,090
2016	539,758	349,263	87,151	30,796	72,548
2017	542,814	350,726	88,071	30,945	73,072
2018	545,951	352,493	88,339	31,234	73,885
2019	550,287	354,699	89,328	31,583	74,677
2020	562,004	371,179	88,921	30,198	71,706
2021	564,882	372,612	89,743	30,331	72,196
2022	568,075	373,875	90,672	30,487	73,041

Source: 2022 State of Hawaii Data Book Tables 21.07 and 21.20, and DBEDT Calculations.

4.3 Construction Costs

The supply of new housing units is affected by market prices, the costs and time necessary to develop a project, interest rates, and total potential revenue. Developers don't seek to build unprofitable projects. If sufficient profit can be generated, a developer is more likely to consider undertaking a new project.

Construction costs in Hawaii are complicated to estimate. Many variables affect costs. No two projects are the same. Variables include transportation, land, utility connection, construction materials, labor, and more. Much of Hawaii's land is not available for development. Land development costs can range widely for the property which is available. The wide range of land prices reflects how location affects prices.

The cost of construction in Hawaii has increased faster than the general inflation rate. As shown in Table 14, from 2010 to 2022 the CPI-U of Urban Hawaii increased by 34.6 percent, 15.4 percentage points below the growth of the Honolulu construction cost index for SF and 13.4 percentage points below the growth of the Honolulu construction cost index for high-rise units. The high construction costs are a primary factor limiting the construction of new housing units in Hawaii.

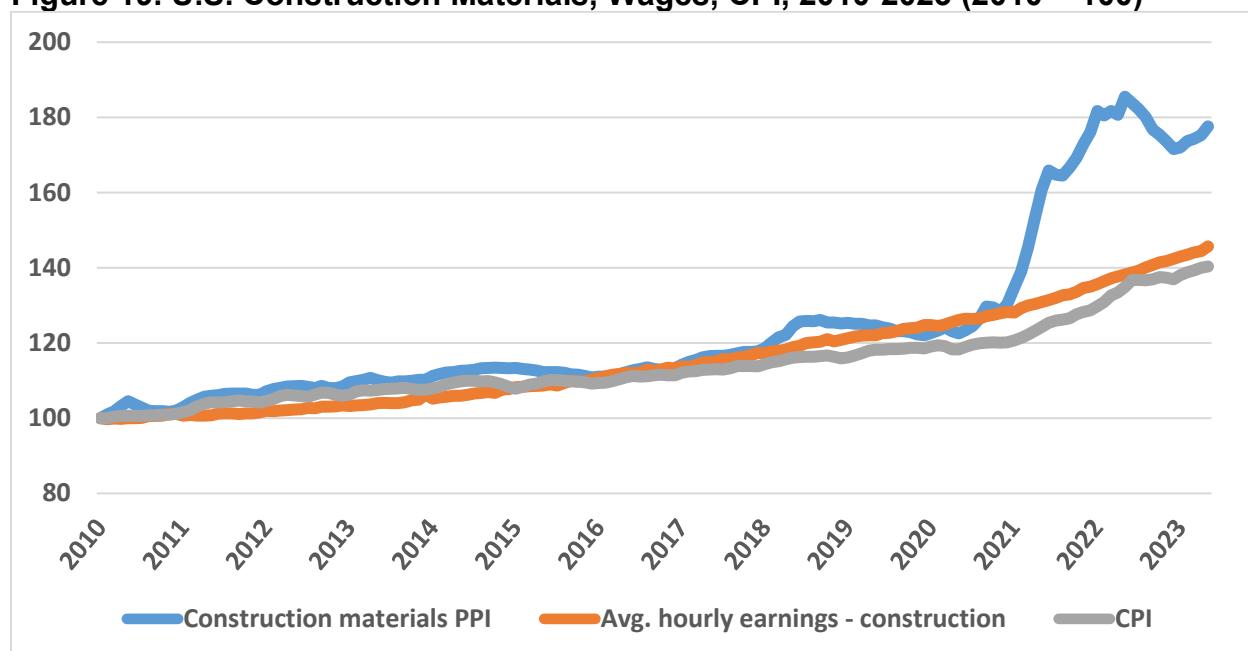
Table 14. Comparison of Honolulu Construction Cost Growth with CPI-U Growth

	CPI-U Urban Hawaii (1982-84 avg. = 100)	Honolulu Construction Cost Index Single-Family (Jan. 1992 = 100)	High-Rise (Jan. 1992 = 100)
2010	234.9	221.6	201.9
2011	243.6	226.2	206.7
2012	249.5	232.2	213.1
2013	253.9	243.9	224.0
2014	257.6	260.3	239.3
2015	260.2	273.6	250.8
2016	265.3	278.6	254.4
2017	272.0	281.0	255.8
2018	277.1	282.1	257.1
2019	281.6	290.7	264.2
2020	286.0	297.8	268.7
2021	296.8	313.0	281.4
2022	316.1	332.3	298.7
Net Growth 2010-2022	34.6%	50.0%	48.0%

Source: 2022 State of Hawaii Data Book Table 21.09 and Table 14.04.

This trend mirrors one seen nationally, where growth in construction materials prices and hourly wages have exceeded the CPI. As Figure 19 shows, the cost of construction materials surged during the pandemic.

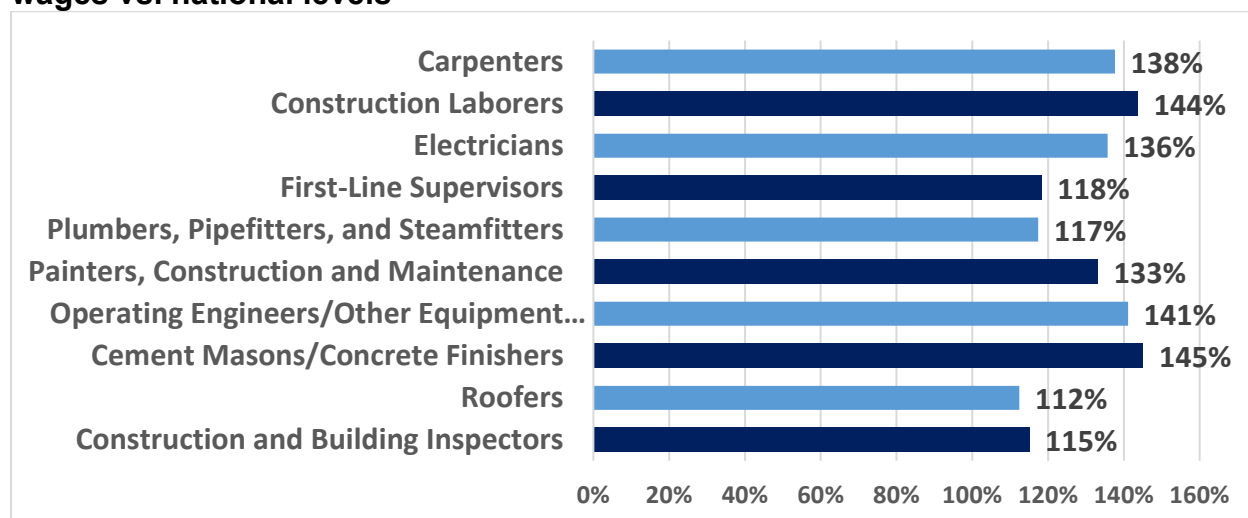
Figure 19. U.S. Construction Materials, Wages, CPI, 2010-2023 (2010 = 100)



Source: Federal Reserve Bank of St. Louis, 2023.

Wages contribute significantly to Hawaii's higher construction costs. Overall, construction industry wages are 33 percent higher in Hawaii than they are nationally. As Figure 20 illustrates, the wages of the three largest trades in terms of industry employment in Hawaii – carpenters, construction laborers, and electricians – exceed the premium over national construction industry wages by an even greater degree.

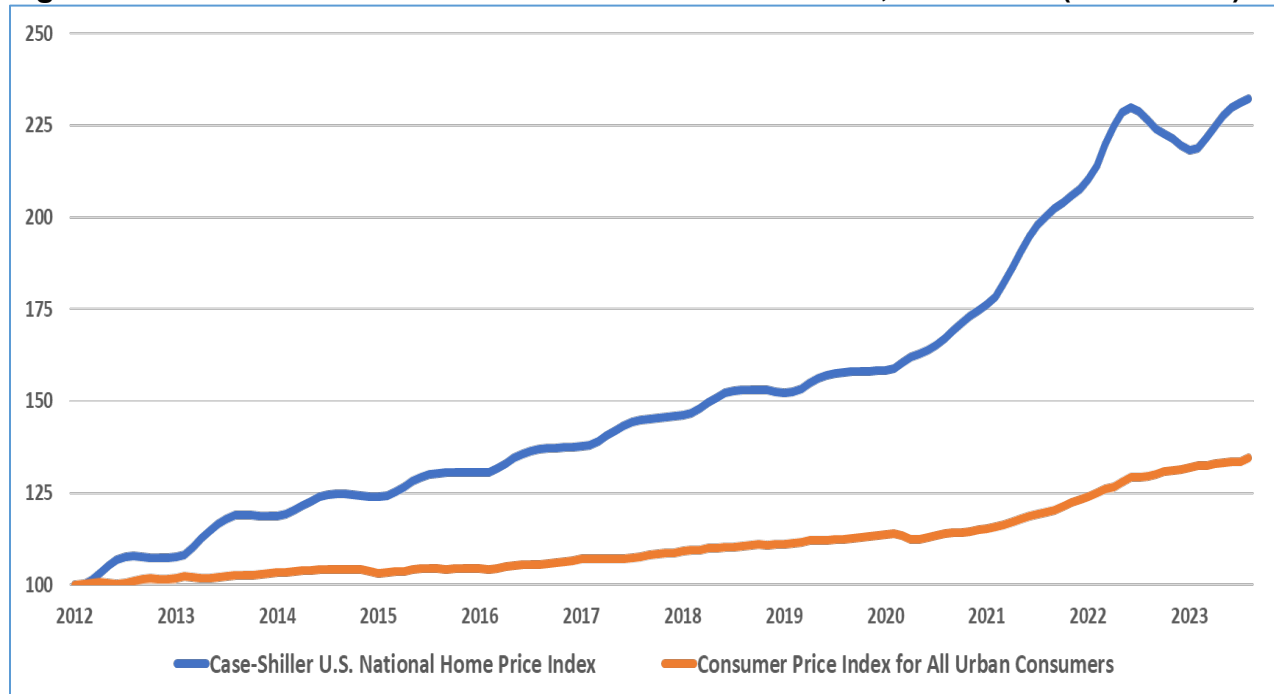
Figure 20. Ten Largest Construction Industry Occupations: Hawaii mean hourly wages vs. national levels



Source: U.S. Bureau of Labor Statistics May 2022 OCC codes, 2023.

Together, these factors have pushed housing prices up nationally. Hawaii has not been spared. While it doesn't include Honolulu prices, the sharp rise in the Case-Shiller Home Price Index since 2012 illustrates this trend, as the following figure comparing it and the CPI illustrates.

Figure 21. Case-Shiller National Home Price Index vs. CPI, 2000-2023 (2012 = 100)



Source: Federal Reserve Bank of St. Louis (CSUSHPINSA, CPIAUCSL), 2023.

4.4 Market Participation

The supply of new housing units accounts for a relatively small share of the total housing offered for sale. Newly built housing units accounted for 11 percent of the total listed units in Honolulu in 2022. Most of the housing listed for sale are existing (or previously-owned) units.

The supply of existing housing units is affected by the expectation of future housing prices. Given the absence of unforeseen circumstances like death or divorce, when homeowners expect that housing prices will increase in the future, they will be less likely to sell their houses now. The costs to keep a unit vacant, such as maintenance fees and property taxes, may also affect the supply of existing units. Raising taxes on vacant units is a means to prod their owners to sell them, creating new supply.

The demand for housing units is affected by the number of households in Hawaii, the number of non-Hawaii buyers involved in the market, expectations of future housing prices, the preference for homeownership, and housing affordability.

As shown in Table 15, in Hawaii, from 2010 to 2022, the relationship between the number of housing units (HU) and the number of households (HH) was relatively stable. The number of housing units ranged above the number of households by between 15 and 20 percent. Note that 2011-2019 counts have yet to be adjusted to reflect 2020 Decennial census data.

Table 15. Households and Housing Units in Hawaii

Year	Households	Housing Units	HU above HH	HU/HH Ratio
2010	455,338	520,088	74,276	1.14
2011	448,536	523,213	74,677	1.17
2012	447,748	525,678	77,930	1.17
2013	450,120	528,391	78,271	1.17
2014	450,769	531,962	81,193	1.18
2015	445,936	534,723	88,787	1.20
2016	455,868	539,758	83,890	1.18
2017	458,078	542,814	84,736	1.18
2018	455,309	545,951	90,642	1.20
2019	465,299	550,287	84,988	1.18
2020	490,267	562,004	94,072	1.15
2021	490,080	564,882	74,802	1.15
2022	494,827	568,075	73,248	1.15

Source: 2022 State of Hawaii Data Book Table 21.20 and Table 1.49; U.S. Census Bureau ACS Tables 2020 5-Year Estimate and ACS Tables 2021-2022 1-Year Estimates.

The demand for housing is impacted by the demand from non-resident buyers. As shown in Table 16, from 2010 to 2022 the annual share of home sales by local buyers increased from 66 percent to 75 percent. The decline in the number of non-Hawaii buyers in 2020 can be attributed to the impact of the COVID-19 pandemic. Although the share of home sales to local buyers increased slightly between 2010 and 2022, the influence of non-local buyers was significant. From 2010 to 2022, a total of 62,779 housing units were purchased by out-state buyers. During the same period, the number of housing units increased by 47,987 units.

Table 16. Home Sales by Origin of Buyer in Hawaii

	Total	Local Buyers	Mainland Buyers	Foreign Buyers	% of Local Buyers	% of Mainland Buyers	% of Foreign Buyers
2010	21,167	14,069	6,207	891	66%	29%	4%
2011	17,092	11,889	4,349	854	70%	25%	5%
2012	16,220	12,017	3,406	797	74%	21%	5%
2013	17,834	13,378	3,775	681	75%	21%	4%
2014	17,713	13,455	3,655	603	76%	21%	3%
2015	19,355	15,077	3,698	580	78%	19%	3%
2016	19,834	15,311	3,702	821	77%	19%	4%
2017	20,474	15,835	3,917	722	77%	19%	4%
2018	20,409	15,525	3,956	928	76%	19%	5%
2019	20,110	15,823	3,747	540	79%	19%	3%
2020	18,549	15,081	3,225	243	81%	17%	1%
2021	25,970	19,696	5,806	468	76%	22%	2%
2022	21,131	15,923	4,735	473	75%	22%	2%

Source: 2022 State of Hawaii Data Book Table 21.38 and QSER Table E10.

The demand for housing is also influenced by the prices paid by out-of-state buyers. As shown in Table 17, the average price of home sales was highest for foreign buyers, followed by mainland buyers. Local buyers paid the least. From 2010 to 2022, the average price paid by mainland buyers increased by 116 percent. It increased by 74 percent for foreign buyers and by 75 percent for local buyers. A rising market serves to elevate the price of lower-priced homes, affecting local buyers directly. Higher home prices also exert upward pressure on rental rates. Much of the supply of new construction is built and priced to meet the needs of mainland and foreign buyers.

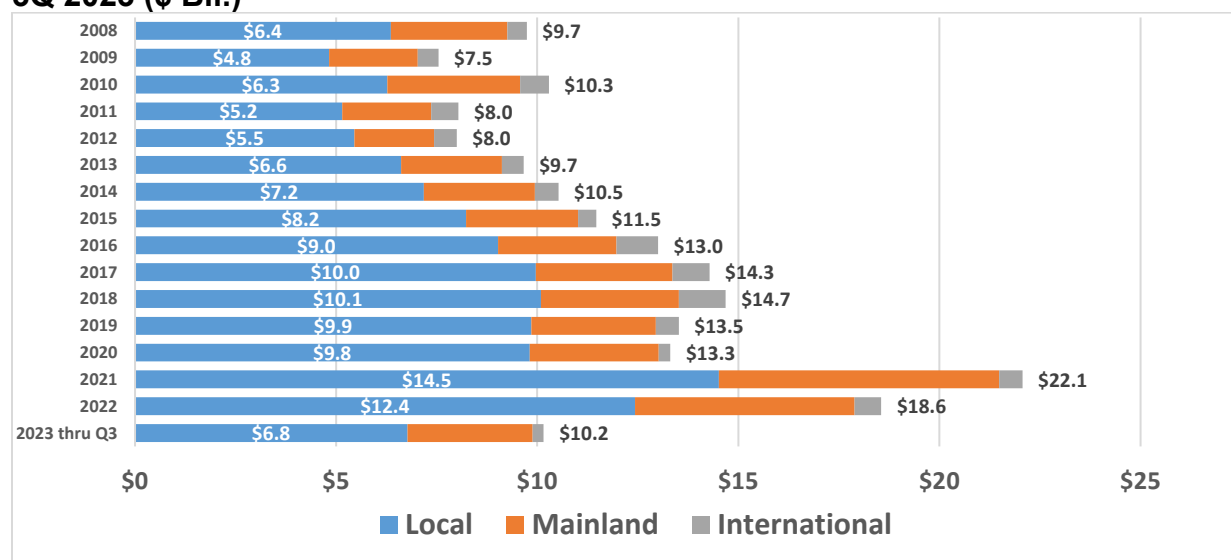
Table 17. Average Home Sales Price by Origin of Buyer in Hawaii

	Local Buyers	Mainland Buyers	Foreign Buyers
2010	\$445,632	\$532,752	\$800,285
2011	\$433,611	\$507,601	\$793,250
2012	\$454,075	\$581,827	\$702,552
2013	\$494,544	\$663,508	\$797,359
2014	\$533,470	\$757,000	\$969,551
2015	\$546,146	\$751,210	\$783,774
2016	\$589,614	\$795,652	\$1,258,892
2017	\$629,455	\$866,514	\$1,276,758
2018	\$650,139	\$867,190	\$1,250,040
2019	\$622,960	\$824,451	\$1,059,771
2020	\$650,808	\$994,524	\$1,175,499
2021	\$737,197	\$1,199,098	\$1,241,943
2022	\$780,848	\$1,152,955	\$1,396,278
Net Growth 2010-2022	75%	116%	74%

Source: 2022 State of Hawaii Data Book Table 21.38.

The impact of the Covid-19 pandemic in Hawaii was broad. Its impact on real estate transaction activity was particularly notable in 2021, as Figure 22 shows, with total transaction value reaching an all-time high. The heightened transaction activity continued through 2022 before returning to a level more in keeping with past trends in 2023.

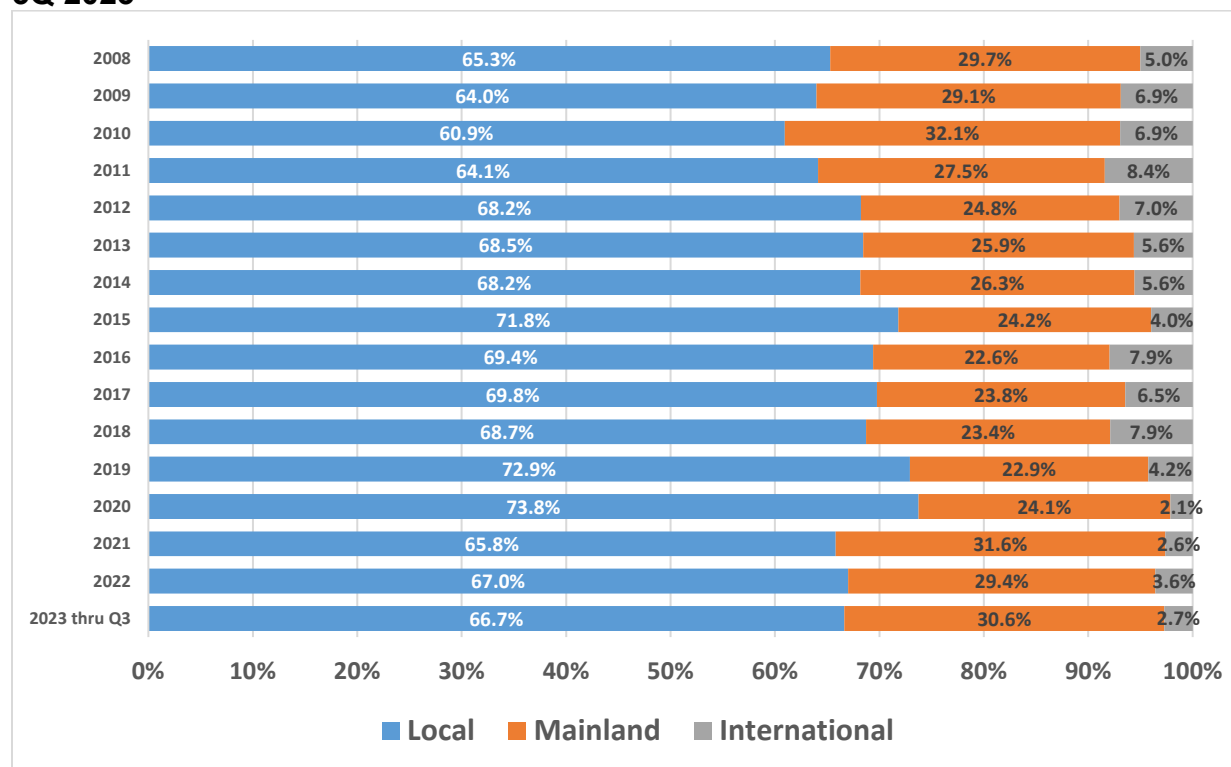
Figure 22. Residential Real Estate Transaction Value by Buyer Residence, 2008 – 3Q 2023 (\$ Bil.)



Sources: DBEDT; Title Guaranty of Hawaii, Inc. based on DLNR, Bureau of Conveyances data, 2023.

As illustrated in Figure 23, mainland buyers' share of transaction value jumped to 31.6 percent in 2021, a level last seen in 2010.

Figure 23. Residential Real Estate Transaction Share by Buyer Residence, 2008 – 3Q 2023



Sources: DBEDT; Title Guaranty of Hawaii, Inc. based on DLNR, Bureau of Conveyances data, 2023.

5. CONCLUSION

This report reflects the growing level of concern for the issue of housing affordability in Hawaii. The metrics used to measure and understand affordability are numerous but underscore that housing affordability remains a vital and ongoing issue, impacting both renters and potential buyers. When compared with the nation, Hawaii lags in housing affordability under several measures. This has implications for the state's economic future and well-being.

The determinants of affordability relate to both housing availability and demand. On the supply side, Hawaii has shifted away from the production of and reliance on rental housing units. Land is scarce and expensive. Vacant home rates are high, spurred by demand for vacation and second homes. Limited inventory issues are exacerbated by a lack of supply of new units aimed at the needs of many buyers. Demand is affected by income levels and the state's heightened cost of living. Interest rates affect demand, as they do construction costs. Hawaii's high labor costs contribute to elevated construction costs as well.

In identifying how housing affordability has evolved over time, the factors affecting it, and how Hawaii compares with the U.S., this report provides context and a foundation for further discussions regarding the affordable housing issues faced by Hawaii. Affordable housing metrics can also serve to help policymakers assess where the state stands and where it may need to be to meet the housing needs of current and future residents.

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