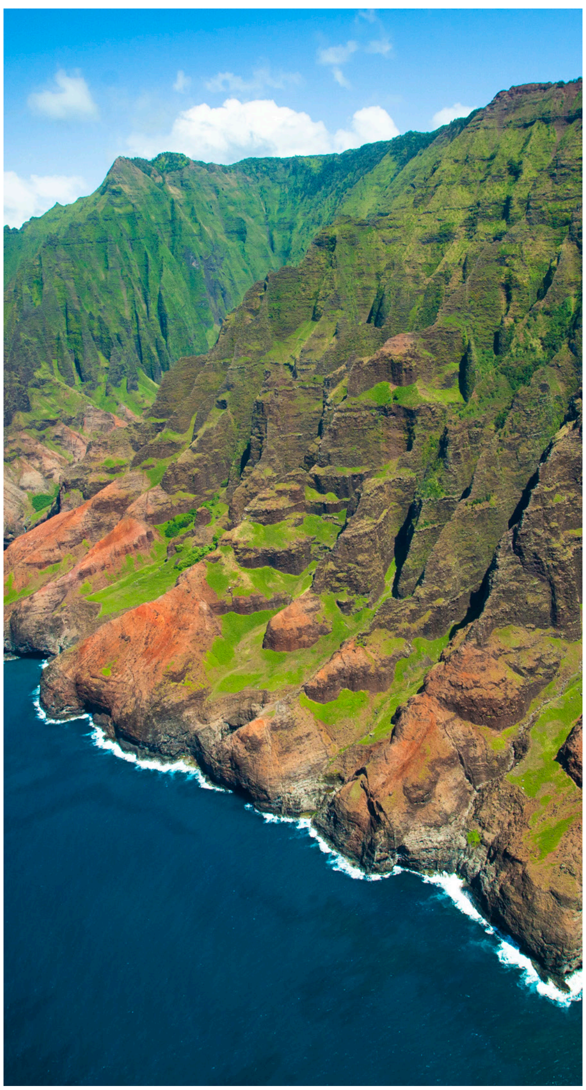
UHERO
THE ECONOMIC RESEARCH ORGANIZATION
AT THE UNIVERSITY OF HAWAIʻI

UHERO FORECAST FOR THE STATE OF HAWAII

US recession will weigh on Hawaii's recovery

SEPTEMBER 23, 2022



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Carl S. Bonham, Ph.D.
Executive Director

Byron Gangnes, Ph.D.
Senior Research Fellow

Steven Bond-Smith, Ph.D.
Economist

Peter Fuleky, Ph.D.
Economist

Justin Tyndall, Ph.D.
Economist

Rachel Inafuku, Ph.D.
UHERO Research Economist

Adib Rahman
Graduate Research Assistant

Victoria Rhinebolt
Graphic Design and Layout

2424 Maile Way, Room 540 • Honolulu, Hawaii 96822 • (808) 956-2325 • uhero@hawaii.edu

Executive Summary

The economic horizon has darkened since our last forecast. The global economy has slowed sharply, and the US is headed for a mild recession in the first half of next year. Hawaii may well escape overall net job losses, thanks to the recovery of Japanese travel that is now finally underway. But high inflation, higher travel costs, and the Fed's interest rate hikes will still adversely impact Hawaii households and businesses.

- The global outlook has worsened significantly since our last report. Persistently-high inflation is causing central banks to raise interest rates more sharply than expected. Russia's war with Ukraine has inflicted an energy crisis on Europe, which is now clearly headed for recession. China's economy continues to suffer from its *Zero Covid* policy. Global growth has slowed to about 3% this year and will soften further in 2023.

- The US is not yet in a recession, but one is coming in 2023. In the face of 8%-plus inflation, the Fed will make additional large interest rate hikes, sharply reducing spending. High mortgage rates have already caused a downturn in the national housing market, and high inflation is eating into household budgets. While labor markets remain tight for now, we expect US growth to manage just 0.3% next year.

- COVID-19 has receded as a critical economic risk. The US population has largely returned to business as usual. Barring an unexpectedly virulent resurgence, the biggest remaining concerns are the labor force impacts of *long COVID* and ongoing shutdowns in China.

- Hawaii's visitor industry continues to make recovery progress. The international visitor market has made significant strides, adding to strong domestic travel. Now Japanese visitors are finally returning to the Islands, even as a weak yen and high costs weigh on their vacation spending. The timing of Hawaii's international tourism recovery will provide needed lift as growth in other sectors slows in 2023.

- Although the Hawaii labor market is tight, with unemployment just over 4%, the number of payroll jobs remains below pre-pandemic levels. The ongoing visitor industry recovery will support job gains in tourism related areas next year, while many other sectors experience weakness. Aggregate job growth will slow from more than 5% this year to 1.7% in 2023.

- Inflation in Hawaii is running lower than on the mainland, but it is nevertheless inflicting pain on Hawaii households and businesses. Nominal wage gains are not keeping up with rising prices. Together with the ending of pandemic-era federal support programs, this is dragging down real (inflation-adjusted) income. Total real income from all sources will drop more than 5% for this year as a whole and manage just over 1% growth in 2023, before firming.

- Cost pressures will continue to challenge the construction sector in 2023. But despite a small pullback in employment this year, the industry will sustain a high level of activity, with key support from several very large public-sector projects that are currently in the engineering and design phase.

- While Hawaii will likely escape an outright contraction in economic activity, it will still be adversely affected by softer global conditions, further interest rate hikes, and temporarily high inflation. Significant downside risks exist, given the perilous path facing the US and global economies.

Forecast Summary

MAJOR ECONOMIC INDICATORS
STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
STATE OF HAWAII						
Nonfarm Payrolls (Thou)	559.7	581.4	612.9	623.1	630.3	638.4
% Change	-15.0	3.9	5.4	1.7	1.2	1.3
Unemployment Rate (%)	12.0	5.8	4.2	4.3	4.0	3.3
Real Personal Income (Mil 2021$)	85,647.3	86,591.1	81,901.4	82,870.1	84,453.5	86,015.1
% Change	3.5	1.1	-5.4	1.2	1.9	1.8
Real GDP (Mil 2021$)	86,028.7	90,018.4	93,938.2	95,678.2	97,072.8	98,903.1
% Change	-11.1	4.6	4.4	1.9	1.5	1.9
Total Visitor Arrivals by Air (Thou)	2,708.3	6,771.0	9,201.2	9,709.8	9,577.7	9,578.8
% Change	-73.9	150.0	35.9	5.5	-1.4	0.0
Visitor Days (Thou)	28,515.8	65,307.0	84,405.7	86,823.9	85,491.1	85,835.3
% Change	-68.2	129.0	29.2	2.9	-1.5	0.4
Real Visitor Expenditures (Mil 2021$)	5,248.4	12,995.7	18,470.7	18,548.2	17,656.6	17,290.5
% Change	-71.9	147.6	42.1	0.4	-4.8	-2.1
HONOLULU COUNTY						
Nonfarm Payrolls (Thou)	411.1	418.5	440.5	448.5	453.3	458.4
% Change	-13.2	1.8	5.3	1.8	1.1	1.1
Unemployment Rate (%)	10.5	5.4	4.0	4.1	3.9	3.3
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021$)	62,809.3	63,095.6	59,881.9	60,518.9	61,674.9	62,787.2
% Change	3.2	0.5	-5.1	1.1	1.9	1.8
Total Visitor Arrivals by Air (Thou)	1,506.2	3,319.0	4,961.1	5,628.6	5,581.2	5,621.6
% Change	-75.5	120.4	49.5	13.5	-0.8	0.7
HAWAII COUNTY						
Nonfarm Payrolls (Thou)	61.0	65.6	68.8	69.6	70.3	71.1
% Change	-13.9	7.5	5.0	1.1	1.0	1.0
Unemployment Rate (%)	11.8	5.5	4.1	4.3	3.8	3.3
Real Personal Income (Mil 2021$)	9,766.5	9,977.5	9,369.3	9,520.7	9,678.7	9,854.1
% Change	7.7	2.2	-6.1	1.6	1.7	1.8
Total Visitor Arrivals by Air (Thou)	482.0	1,184.1	1,660.7	1,730.5	1,728.8	1,746.5
% Change	-73.0	145.6	40.3	4.2	-0.1	1.0
MAUI COUNTY						
Nonfarm Payrolls (Thou)	61.2	69.5	73.2	74.0	75.1	76.8
% Change	-23.9	13.5	5.4	1.0	1.5	2.3
Unemployment Rate (%)	18.4	7.4	4.7	4.9	4.3	3.0
Real Personal Income (Mil 2021$)	9,037.4	9,439.7	8,805.1	8,923.0	9,128.2	9,324.2
% Change	1.1	4.5	-6.7	1.3	2.3	2.1
Total Visitor Arrivals by Air (Thou)	844.8	2,336.1	2,931.0	2,964.2	2,944.1	2,965.2
% Change	-72.9	176.5	25.5	1.1	-0.7	0.7
KAUAI COUNTY						
Nonfarm Payrolls (Thou)	26.4	27.8	30.4	31.0	31.5	32.1
% Change	-20.9	5.5	9.0	2.0	1.8	1.8
Unemployment Rate (%)	16.6	7.8	5.0	5.2	4.3	3.3
Real Personal Income (Mil 2021$)	4,033.3	4,078.3	3,845.1	3,907.5	3,971.6	4,049.6
% Change	4.0	1.1	-5.7	1.6	1.6	2.0
Total Visitor Arrivals by Air (Thou)	339.0	812.6	1,344.3	1,342.6	1,334.0	1,340.0
% Change	-75.4	139.7	65.4	-0.1	-0.6	0.5

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Figures for county income for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts.

Third Quarter Hawaii Forecast

Hawaii's economic prospects have worsened over the past several months. Surging inflation and interest rates are already impacting local families, as they have elsewhere. And the Fed's necessary policy medicine—additional interest rate hikes—will bring further challenges before this is over. A Hawaii economy that has already downshifted over the course of the year will slow further as the US economy enters recession. The long-awaited return of Japanese visitors and robust public sector construction will offset US weakness, which we think will keep Hawaii job growth in positive territory. But there are troubling risks as well, including the impact of a very weak yen, potentially larger Fed interest rate hikes, and a deeper US fall. In any event, a return to satisfactory economic progress here will not begin until 2024.

The global outlook worsens

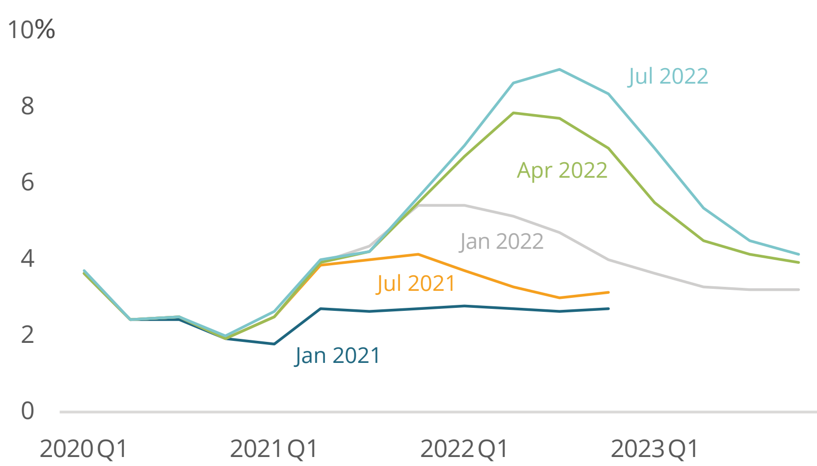
There has been a marked decline in the outlook for the world economy since the time of our last report. Inflation has proven more persistent than expected, leading to substantial hikes in interest rates by the US Federal Reserve and other central banks. The higher rates, surging labor costs, and falling confidence have led to worrisome slowing in major economies.

Inflationary pressures are widespread. What began as supply-constrained cost pressures from pandemic-related shutdowns—particularly in China—has been sustained by strong spending as consumers and businesses have emerged from the pandemic with pent-up demand and money to spare. For Europe in particular, Russia's war on Ukraine has already driven up fuel prices dramatically and is casting a long shadow over the coming winter. Russia's withholding of pipeline flows to Western Europe has driven natural gas prices to roughly ten times their pre-war average. While the countries have made progress reducing their dependence on Russian gas, rationing may still be necessary this winter. And the damage from soaring inflation is already done.

Limits on Ukrainian wheat exports have threatened the developing world with high food prices, although there has been some relief recently. China, long a world growth pole, has suffered from persistent shutdowns under its *Zero COVID* policy and deteriorating credit conditions. This year China's economy will average just over 3% growth, the second-slowest recorded since the country's emergence onto the global scene in the 1970s. Japan has

IMF GLOBAL INFLATION FORECASTS MADE AT VARIOUS DATES
High inflation has continued to surprise.

Source: IMF World Economic Outlook reports.



fared somewhat better, with the labor market showing modest growth. The weak yen will support exports, and inflation concerns remain negligible so far.

All told, this year is shaping up to be a very poor one for the global economy. The International Monetary Fund, for example, has marked down their global forecast by nearly a half-percent since their April outlook, to 3.2% this year, with an even weaker performance expected in 2023.

Engineered US slowing. But by how much?

In the US, a combination of factors has caused the economy to begin to slow. Higher mortgage interest rates and sky-high home prices have turned the US housing market downward. Surging gasoline prices have hammered consumer confidence, and businesses are struggling with higher labor costs and worker shortages.

A clear turn in the real estate sector is now evident. The Home Builders/ Wells Fargo Housing Index fell below 50% in July, signaling a contraction. The measure has declined for eight straight months. Sales of existing homes have been falling since February and are at their lowest level since May 2020. Meanwhile the number of new homes at some stage of the building process is at record highs, suggesting even more downward pressure on new and resale prices. US Home prices fell in July for the first time in three years, although they remain exceptionally high.

Households continue to spend, but at a much more moderate pace. Real consumer spending is expanding at a roughly 2% rate, much slower than at the start of the year. Consumer confidence plunged this summer in tandem with the surge in gasoline prices, but has bumped up a bit recently as fuel prices have made a partial retreat. At the same time, the US labor market remains exceptionally tight. The ratio of job openings to hires remains far higher than before the pandemic began, and the unemployment rate stands at a very low 3.5%.

While some commentators are asking whether the US has already entered a recession, the answer is no. But a recession now looms on the horizon. When it comes, this recession is likely to be very different from recent ones. See the box, *Recession: What can we expect?*

30-YEAR MORTGAGE RATES

Higher mortgage rates burden the US housing market.

Recession: What can we expect?

US GDP declined in the first two quarters of the year. While such a decline is often used as a recession benchmark, further evidence of a broad economic contraction is needed to draw that conclusion. The National Bureau of Economic Research defines a recession as, “a significant decline in economic activity that is spread across the economy and lasts more than a few months.” This definition requires the contraction to be clear across many economic indicators. The data simply do not support a recession call for 2022—yet.

The labor market remains exceptionally tight. There were more than 300,000 jobs created in August. The unemployment rate edged up slightly, but remains near historically low levels. Changes in labor market conditions tend to lag changes in economic activity, but this does suggest that the economy did not enter recession earlier this year.

The GDP numbers have also been affected by unusual characteristics of the pandemic period. Lockdowns and social distancing caused a temporary switch in demand from services to goods, contributing to shortages. Now, as people switch back to services—for example eating out more and traveling—businesses find themselves in the opposite position, with excess inventories that must be worked down. This weighs negatively on GDP. In addition, income measures of GDP have shown more strength than the headline figures based on production. This suggests that upward revisions to GDP data could be forthcoming.

And, as we noted, other measures of output continue to show high levels of activity. Industrial production ticked up in July and remains higher than before the COVID-19 contraction began. Manufacturers’ orders for durable goods are still expanding. So it is just too soon to conclude that a recession has started.

Might a recession be coming? We think that it is. The Federal Reserve is raising interest rates to combat the surge in inflation. Rising rates make it more expensive to borrow, slowing demand. The Fed is aiming for a “soft landing,” where demand falls just enough to bring inflation back to its 2% target but not enough to cause a contraction. But threading that needle is very tricky in practice. When the Fed has raised rates in the past, it has usually resulted in a recession. Models that rely on financial data to predict recessions are beginning to flash warning signs. These models look for reversal of the yield curve, that is, the difference between interest rates on long-term and short-term government bonds), sometimes augmented with other indicators of overall financial conditions. In our view, such models are now giving 40% odds of recession within the next twelve months. This probability will rise as the Fed continues to raise short-term borrowing costs.

Therefore, we are forecasting a US recession for the first half of 2023.

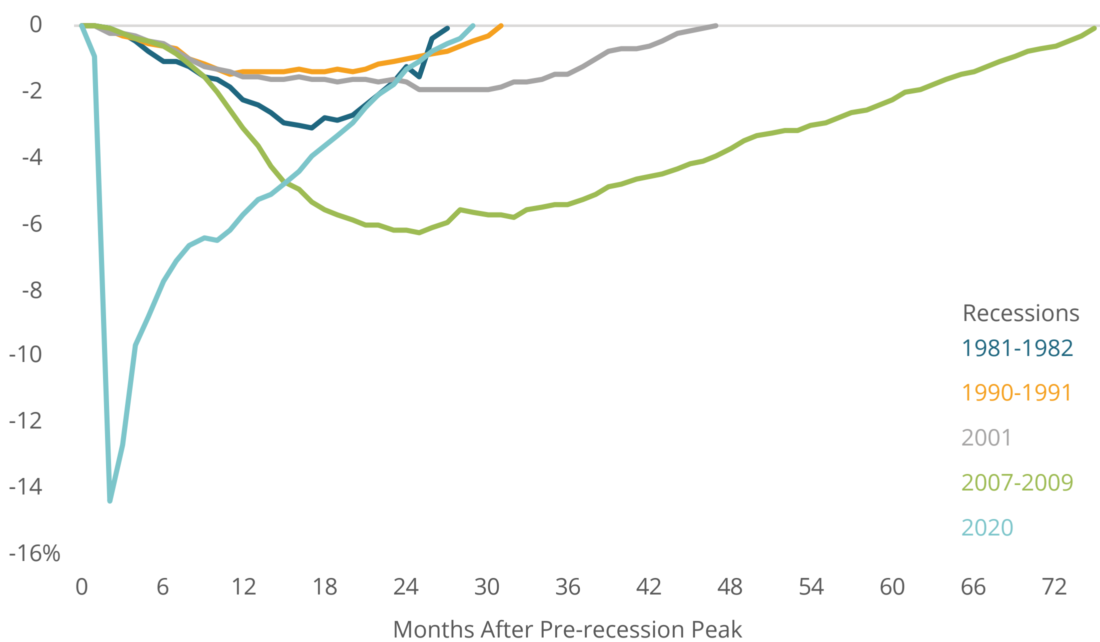
But there are reasons to expect that the coming recession will not be anywhere as severe as the past two. The COVID-19 recession was a deliberate contraction imposed to reduce the spread of the virus. The *Great Recession* of 2007-2009 followed an unprecedented boom-bust housing cycle. Lax mortgage lending pushed up household debt during the first half of the 2000s, but it proved unsustainable once home prices began to fall. Mortgage defaults contributed to further declines in home prices and widespread losses for financial institutions in a vicious downward spiral. Recovery from the *Great Recession* was slow, as people were forced to work down their debt and banks restructured.

This time, we expect a much more modest downturn, in line with many past recessions. In 1990, for example, Fed interest rate hikes and the lead-up to the Persian Gulf War triggered a recession. In 2001, Fed tightening to fight inflation again caused an economic contraction, which was reinforced by the collapse of the dot-com bubble and the 9/11 attacks. In both cases, the recessions were relatively mild, although they still inflicted considerable economic pain. Notably, the 1990-1991 recession saw real GDP fall by just 0.1% for the year overall, while in 2001 output actually expanded by 1% for the year as a whole.

The most worrisome comparison might be the 1981-1982 period, which saw the deepest post-War downturn prior to the Great Recession. But then high inflation expectations were well entrenched, and the Volcker Fed had to push rates to stratospheric levels to tame them. That is very unlikely to be necessary this time around.

US PAYROLL JOB DECLINE RELATIVE TO THE PRE-RECESSION PEAK

Most recessions have been much milder than the past two.



In the wake of the pandemic, households and businesses have accumulated significant cash reserves. This means that defaults would be less likely in a downturn and recovery more rapid. While some job losses would be inevitable, it is unlikely to generate the deep and persistently slow recovery we experienced beginning in 2009.

Is there a case to be made that the US may avoid a recession entirely? Oil and energy prices have already fallen significantly. Inflationary pressures from commodity and goods shortages are easing, and a slackening in housing inflation will soon follow. Medium-term Inflation expectations have dropped back below 3%. If core inflation declines rapidly, the Fed will need fewer and less aggressive rate hikes to achieve its inflation goals. A soft landing with slowing but not declining economic activity is still a possibility.

What about Hawaii? If the US enters a modest recession as we expect, Hawaii could still avoid one. While the US is the main source of Hawaii tourists, international visitors are just beginning to return in larger numbers. Returning visitors from Japan and other international markets may partially insulate Hawaii from a US downturn. That is not to say it would be clear sledding. Higher interest rates will weigh on demand here, as will weaker US visitor numbers, and inflation is taking a damaging bite out of household income.

The extent of the US downturn will depend crucially on how rapidly inflation recedes. Year-over-year US inflation reached 9% in June, the highest rate in more than four decades. It remained above 8% in July and August. The Federal Reserve has made it clear that it will not allow high inflation to become embedded in the economy. It has made historically large hikes in the federal funds interest rate to slow demand. At the recent annual Fed retreat in Jackson Hole, Wyoming, Fed Chair Jerome Powell signaled the central banks's resolve, acknowledging that the policy will "bring some pain to households and businesses," an "unfortunate cost of bringing down inflation."

To be sure, recent high inflation has been driven in part by transitory factors related to the pandemic and its aftermath. Supply bottlenecks, particularly in China, have pushed up component prices and shipping costs. Pandemic-delayed spending and funds from federal largesse have strengthened demand. Together with war-related shortfalls, this has also raised commodity prices.

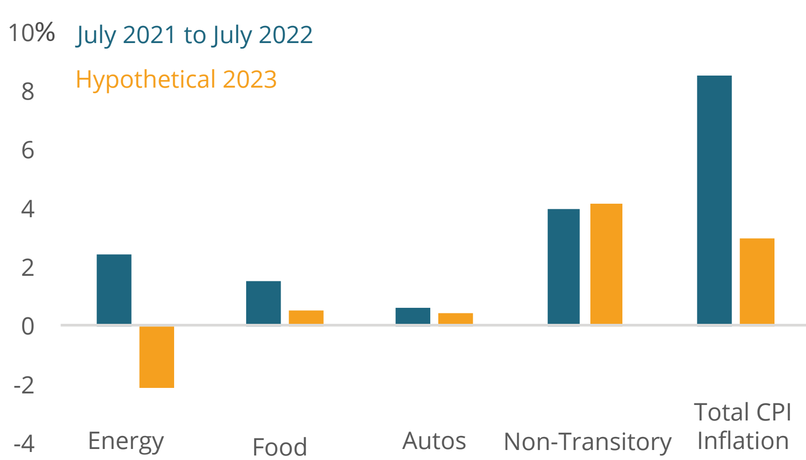
Luckily there have been promising developments recently for some of these factors. Oil prices have fallen more than 25% from their June peak. As a result, US average gasoline prices have retreated below $4 per gallon, after peaking at $5.02 on June 14. Transportation bottlenecks have also eased. The cost of shipping a container from Asia to the US West Coast has dropped from about $20,000 in fall 2021 to $7,500 in July. Still, this remains five times the pre-pandemic average.

An unwinding of these transitory factors will bring headline inflation down sharply. For example, a swing from last year's 45% rise in gasoline and fuel oil prices to a 30% drop would cut more than four percentage points off inflation. Together with a cooling of other "transitory" factors (in particular, unusually high prices for vehicles and food), this would reduce headline inflation by about six percentage points. But unless price gains in other categories also decelerate significantly, "non-transitory" inflation might still be running at more than 4%. Some important factors, like rapidly rising rents, are not yet fully reflected in consumer price inflation.

It is this underlying inflation that occupies Federal Reserve thinking. Getting it down to the 2% range will be necessary if the Fed is to hit its long-run inflation targets. Here, wage inflation is a primary concern. Nominal wages have been rising at a better than 5% rate over the past year. Higher wages, while welcome to workers, are pushing up production costs, which will

CONTRIBUTIONS TO US INFLATION, PAST YEAR AND HYPOTHETICAL 2023

Even if transitory factors reverse, core inflation could remain too high.



inevitably feed through to consumer prices. If this becomes ingrained in business and worker expectations, a damaging wage-price spiral could emerge. For now, expectations of future inflation remain muted, and have eased somewhat recently along with the economy's prospects. Still, there may be a long way to go—and several more damaging rate hikes—before cost-push inflationary pressures are brought to heel.

What about COVID-19? It is now clear that in the US at least people are "done with" the pandemic. Despite case counts that remain relatively high, the population has largely returned to business as usual. This may reflect in part medical advances that have reduced the risk of severe complications and deaths. But it surely also reflects pandemic fatigue. Barring some major development, we do not expect COVID-19 to have much effect on the US economy. The bigger risks remain abroad, particularly China's ongoing shutdowns. In the US, the prevalence of *long* COVID threatens lower labor force participation and increased absenteeism.

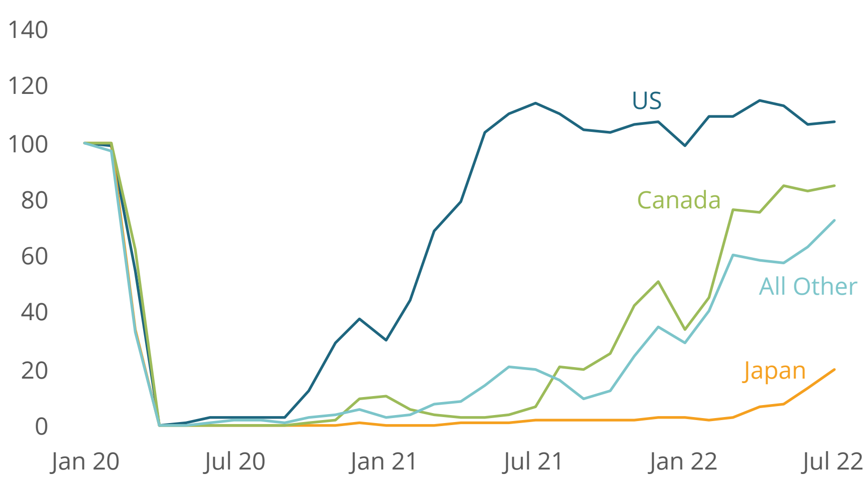
The end to pandemic-related federal income support continues to drag on the economy. Spending will slow as households exhaust savings accumulated during the pandemic. And the historically tight labor market will loosen in the face of slowing demand. Lower confidence, while not a particularly good spending indicator, is nevertheless also a concern. We expect the US economy to end this year with just 1.6% annual growth. A first-half recession in 2023 will limit next year's growth to just 0.2%, with a return to 2.2% growth in 2024.

Finally, a more diverse visitor mix

In the spring, seasonally adjusted visitor arrivals rebounded from their Omicron-induced January lull. Strong arrivals have been driven largely by domestic visitors. A host of factors have constrained international visitor numbers including COVID-19 protocols, a slowdown in the global economy, rising travel costs, and a surging US dollar. In July, total visitor arrivals came in 4% above the prior year level but 9% below the 2019 record. Bolstered by a longer length of stay, visitor days and census came within 4% of their July 2019 peaks.

During the past four quarters, US visitor arrivals fluctuated about 8-12% above the pre-pandemic peak, and this summer continued at a similarly

HAWAII VISITOR ARRIVALS BY MARKET (INDEX, JAN 2020 = 100))
A Japanese visitor recovery has finally begun.



robust level. Canadian arrivals have continued to post solid gains, and they are running at more than three-quarters of their pre-pandemic level. Visitors from other international markets only began to show up in significant numbers in late spring. The Japanese market is finally showing some signs of life. In June, Japanese passenger counts sat at just 10% of their pre-pandemic level, but that number had doubled by August. Overall, between June and August passenger counts on international flights climbed from about a quarter to more than a third of their level before the COVID-19 pandemic began.

Room rates are through the roof

Occupancy rates have climbed within a few percentage points of their 2019 levels. Strong demand over the past year, along with an almost 30% drop in the stock of transient vacation rentals (TVRs), has led to a surge in room rates. In July, the statewide average daily room rate for hotels was $384, more than a third higher than before the pandemic. The average rate for TVRs has surged further; in July it was 45% above the same month in 2019. Revenue per available room (RevPAR), which is often used within the industry as a good overall indicator of performance, has also grown at a faster pace for TVRs than for hotels. Our forecasts reported below do not envision the TVR stock recovering to its pre-pandemic level, because of enhanced enforcement and recently-tightened regulations.

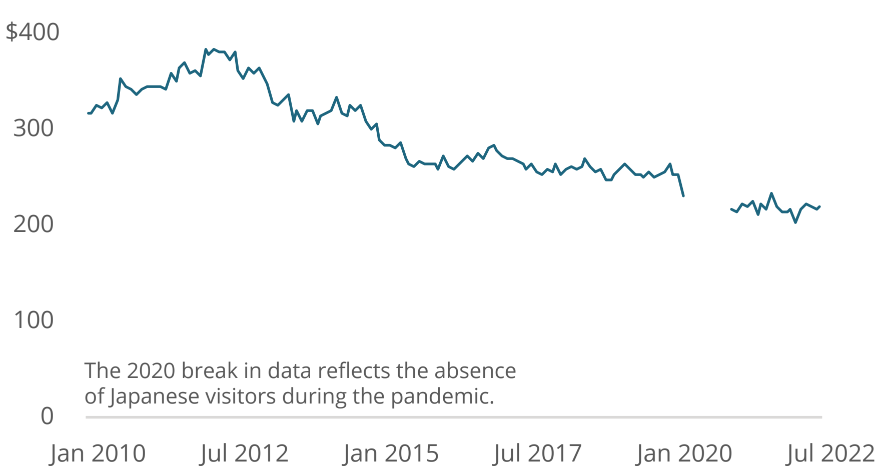
The strong dollar weighs on international budgets

The pattern in visitor arrivals is also reflected in spending. Real (inflation-adjusted) visitor expenditures in July came within 5% of the summer 2019 level. Robust spending by North-American visitors has partly offset the near-absence of traditionally high-spending Japanese visitors. Real per-person daily spending in July was 5% above the 2019 levels and more than 9% above the summer of last year, primarily because real daily spending by US visitors has surged 10% over the past twelve months. In contrast, daily spending by Japanese visitors still lags its pre-COVID-19 level. Of course Japanese visitor numbers remain low, so some caution is warranted in interpreting spending measures.

COVID-19 case counts in Japan have now come off their late-August highs, which bodes well for further easing of travel restrictions and continued growth of international visitor numbers. Japan has required negative PCR

REAL PER-PERSON DAILY SPENDING BY JAPANESE VISITORS

Real spending by Japanese visitors has fallen steadily over the past decade.



test results within 72 hours of entry or reentry, but those travelers who have received at least one booster shot were able to skip the pre-entry test beginning September 7. The country also raised the daily arrivals entry cap from 20,000 to 50,000. Japan Airlines resumed its thrice-weekly nonstop flights between Tokyo and Kona this summer, although it has no flights scheduled for October. The airline will raise its fuel surcharge on flights connecting Japan and North America by 22% (including flights to Hawaii) to compensate for a weaker yen and higher crude oil prices.

While the number of Japanese visitors will continue to rise, their prolific spending patterns may have changed. Prior to the pandemic, the average Japanese visitor not only led their US and Canadian counterparts in daily expenditure, but they also spent four times as much on shopping. But inflation-adjusted spending by Japanese visitors has trended down throughout the past decade, and there are new pressures depressing it further, at least in the near term. The rise in hotel room rates and transportation costs crowds out discretionary spending such as shopping and activities. For Japanese tourists, the cost of a Hawaii vacation is increased further by a plummeting yen, whose value in real terms has depreciated by nearly 25% against the US dollar since the onset of the pandemic. On a positive note, the recent partial retreat of fuel prices will eventually lower transportation costs for all visitors, making the expense of a trip somewhat less prohibitive.

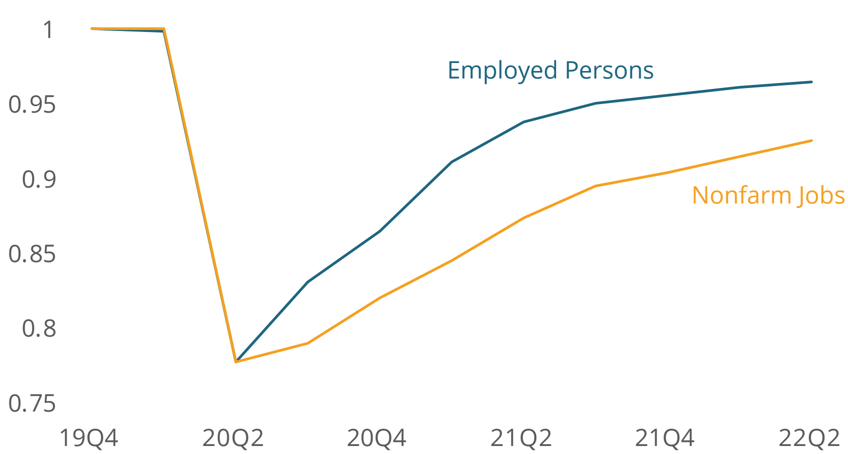
The ongoing liberalization of international travel restrictions now paves the way for the return to a more diverse visitor mix. That recovery will help to sustain the visitor industry in the face of worsening macro conditions. At the same time, surging prices and a strong dollar will weigh on discretionary spending, meaning a more challenging environment for many tourism businesses.

Job gains continue, but remain incomplete

Hawaii's labor market has continued to make upward progress, if at a slower pace than last year. At the depths of the pandemic, 170,000 workers became unemployed or simply left the labor force. The level of employment has now returned to within 3% of its pre-COVID level despite a net decline in the state's population. The labor force participation rate—the proportion of the sixteen-and-over population that is working or looking for work—has made steady gains, nearing a full recovery in July. The unemployment rate now sits at just over 4%.

EMPLOYED PERSONS AND NONFARM JOBS (INDEX, 2019 Q4 = 1)

Fewer second jobs may explain the lagging payroll recovery.



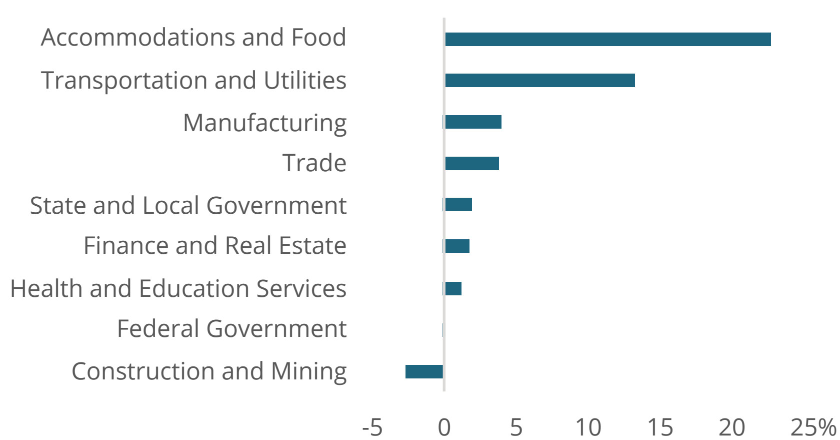
While the number of people working is approaching pre-COVID levels, the number of filled jobs reported by firms is still 7% lower than before the pandemic began. One potential explanation is a smaller number of workers holding multiple jobs. Hawaii tends to have a relatively high share of multiple job holders, making up 7% of the labor force in 2019. While data for the state is not yet available for 2022, national figures show the percentage of multiple job holders running well below their 2019 levels.

In part, this reflects lagging recovery in retail trade and other sectors impacted by the slow return of international visitors. But it may also reflect other factors. First, some previous multiple job holders likely entered the *gig economy* during the pandemic. Such self-employment became more attractive because it allows for more flexible schedules, less in-person contact, and is not subject to layoffs. But self-employment is not captured in the nonfarm jobs data. The prevalence of persistent COVID effects—so-called *long* COVID—may also have impacted multiple job holding. In *UHERO Public Health Report: Health Effects and Views of COVID-19 in Hawaii*, researchers found that nearly a third of people who tested positive for the disease also experienced long-COVID symptoms, a bit higher than the 26% identified in a US Census Bureau study. Based on these studies, we estimate that 40,000 to 50,000 workers have had or are currently dealing with persistent symptoms of COVID-19 infection.

Industry job gains have been mixed this year. In the year's first half, the accommodations and food services industry saw the biggest gains, with a 23% rise in payrolls. Of course this industry has lagged others because of the slow recovery of international visitors and so remains 12% below its pre-COVID employment. Hospitality employers nevertheless continue to report difficulty finding qualified new employees. It is unclear whether this reflects a change in worker preferences away from the sector, as a national survey has found, or an outflow of service workers from Hawaii.

Total payroll job growth has proceeded at a slower pace this year than in the first period of post-pandemic recovery. Job levels in government, finance, and health care and social assistance have risen only marginally. The construction sector has seen a small net decrease in payrolls this year. The lull in construction employment will be temporary, because there is a very large volume of new public-sector construction projects in the pipeline. We

GROWTH IN HAWAII PAYROLL JOBS THROUGH JULY
Large job gains in the tourism sector have pushed us closer to recovery.



will say more about this in the construction section below. Note that our job measures reflect our internal benchmarking of preliminary Bureau of Labor Statistics data.

Some slowing of job gains is to be expected as business staffing approaches its pre-COVID-19 peak in many industries. Job openings have retreated from their December 2021 peak by about 20%. This is still very high by historical standards, and it is consistent with anecdotal evidence of labor shortages. Hiring may also be slowing because of concern about a pending macroeconomic slowdown or recession. At the national level, a number of major corporations have announced layoffs in recent weeks. The ratio of job openings to unemployed workers has also flattened out, suggesting that the labor market is not as tight as indicated by the unemployment rate. It nevertheless remains near levels seen in 2018-2019 during a period of healthy labor market activity.

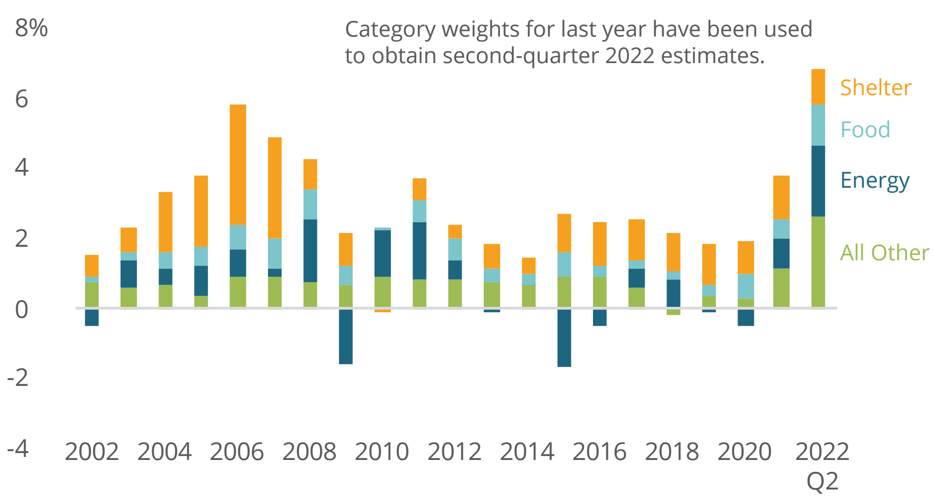
Inflation has become a key issue in Hawaii, as it has for the US and global economies. So far, the rate of consumer price rise in the Islands has been somewhat slower than for the nation overall. During the second quarter of the year, Honolulu inflation was just under 7%, about two percentage points lower than the national rate. Although shelter costs have been a key driver of inflation in the past, their contribution to inflation has remained relatively stable since 2015. Instead, energy and other items have been the biggest contributors to inflation over the past year. While the shelter and food category each contributed one percentage point to inflation in the second quarter, energy contributed two and all other items contributed another three percentage points.

Inflation is taking a large bite out of household purchasing power. Over the past year, workers in most industries saw increases in their nominal wage, but these have not kept up with rising prices. Because wages tend to adjust slowly when there is unexpectedly-high inflation, wages in real terms have fallen in most sectors. The purchasing power of a given wage rate has therefore declined.

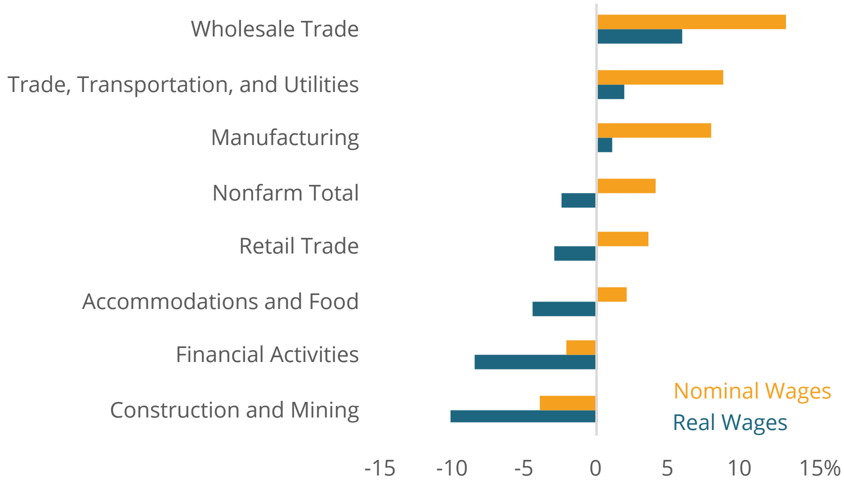
Rising minimum wages will be a help for the lowest paid workers. On October 1, Hawaii's minimum wage will rise to $12 per hour from the current $10.10, and it will continue increasing by $2 every two years, reaching $18

CONTRIBUTIONS TO HONOLULU CONSUMER PRICE INFLATION

Rising shelter costs have not fully fed through to local inflation.



CHANGE IN HOURLY WAGES OVER THE PAST TWELVE MONTHS
Inflation is eroding wage gains.



per hour in 2028. While the increase is not tied directly to inflation, it will nevertheless ease cost of living pressures for affected workers. The tip credit is also increasing from 75 cents to one dollar and will rise to $1.50 in 2028. Employers can reduce the minimum wage by the tip credit if workers earn more than $7 per hour in tips. A flip side of minimum wage hikes is always their potential impact on business costs. In the current tight labor market, these impacts may be less of a concern, because many businesses are being forced to raise wages in any event to acquire needed workers.

Discerning the actual change in labor earnings is complicated by the changing mix of employed workers. Since lower-paid workers are more likely to work in service providing jobs that require significant in-person contact, employment for these individuals was affected to a greater degree by COVID-19 than were other types of jobs. As the mix of filled jobs tilted towards higher-income occupations in 2020, real labor earning per employee skyrocketed above $100,000. Now, as lower- income service workers have returned to the labor force, real earnings per employee have come down significantly.

Still, rising inflation is clearly imposing substantial costs on working families. In nominal terms, income per employee is 8% higher than its 2019 level; after adjusting for inflation, real income per employee is half a percent lower than it was in 2019. And the total personal income earned from all sources has also suffered as pandemic-era federal support programs have ended. Financial support for younger workers may be coming in the form of partial student loan debt relief. The Biden Administration has moved to forgive up to $10,000 of student loan debt, and more for some borrowers. But its overall impact on the economy will be relatively small, and in any event this will likely be delayed by court challenges.

Some federal help, but not immediately

Two recent pieces of federal legislation could have positive effects in Hawaii, although their impact is longer-term.

The *CHIPS and Science Act* offers two potential economic benefits for Hawaii. First, in the longer run, increased domestic chip manufacturing may provide resilience during future economic shocks. This could help to avoid some of the supply-chain issues that generated the recent burst of inflation, but will have no impact on current high inflation rates. Second, the Act provides $10 billion dollars over five years to support twenty new regional technology hubs. If Hawaii is successful in attracting some of this funding, it would expand local manufacturing, contribute to productivity growth, and support efforts to diversify the economy.

The *Inflation Reduction Act* doesn't reduce inflation immediately either, but provides longer-term relief. For the first time, it allows Medicare to negotiate directly with drug companies to reduce the cost of prescription medications, and it caps the annual cost of prescription medicines at $2,000. Medicare would also receive a rebate from drug companies if they raise drug prices faster than inflation. The Act extends subsidies that cap household health insurance premiums below 8.5% of income through to the end of 2025, which is expected to have particular benefits for poorer Asian, Native Hawaiian, and Pacific Islander communities. Targeting energy costs, the Act provides subsidies for clean energy generation, energy efficient appliances, electric vehicles, and industrial energy efficiency, which should ultimately help to reduce energy costs. In addition, the Act tightens fiscal policy to complement tighter monetary policy, by closing loopholes, funding increased IRS enforcement, and implementing a 15% minimum corporate tax and 1% excise tax on stock buybacks.

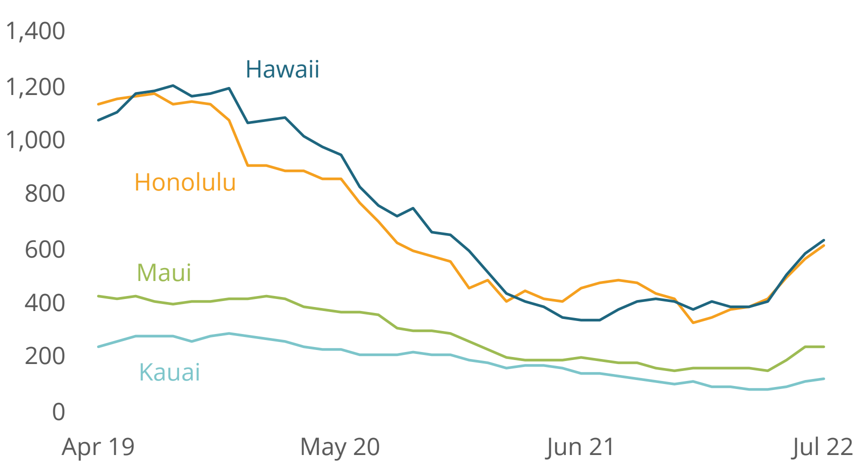
Resale home market eases back

Rising mortgage interest rates and high home prices have dampened the demand for home buying. As a result, prices have flattened over the past quarter. The median resale price of a single-family home on Oahu has been essentially unchanged for the past six months. Other indicators also provide evidence of a cooling housing market. The inventory of available single-family homes on Oahu has increased by 87% since the beginning of the year. Home resales have fallen nearly 30% year-over-year. However, the median days on market for real estate listings on Oahu has remained low, at twelve days for both condominiums and single-family homes.

Rising rents continue to be a key driver of inflation across the US. According to data from Zillow, the median rent in the US has risen 13% over the past year. On Oahu, rents have risen a more moderate 7%, and they have been flat since May. Still, the limited new rental supply combined with the rising cost of financing a home purchase continue to put upward pressure on rents.

SINGLE-FAMILY HOME INVENTORY FOR HAWAII COUNTIES

The inventory of single-family homes is up, following a pandemic-era decline.



High costs of materials and labor weigh on the outlook for new construction. The costs of concrete and cement have climbed to historically high levels across the US. Industry suppliers are warning of large price increases for cement and concrete in Hawaii over the coming year. Recently, the cost of lumber has declined 10% from a March high, but it remains 40% above 2019 levels. A general shortage of construction labor—and an acute shortage of specialized labor—are also contributing to higher costs and could potentially delay the completion of projects. Relative to the mainland, Hawaii has actually experienced considerably less cost appreciation so far. A national index shows annualized growth in US construction costs of 8% year-on-year, while the same index reports costs in Honolulu growing by 4%.

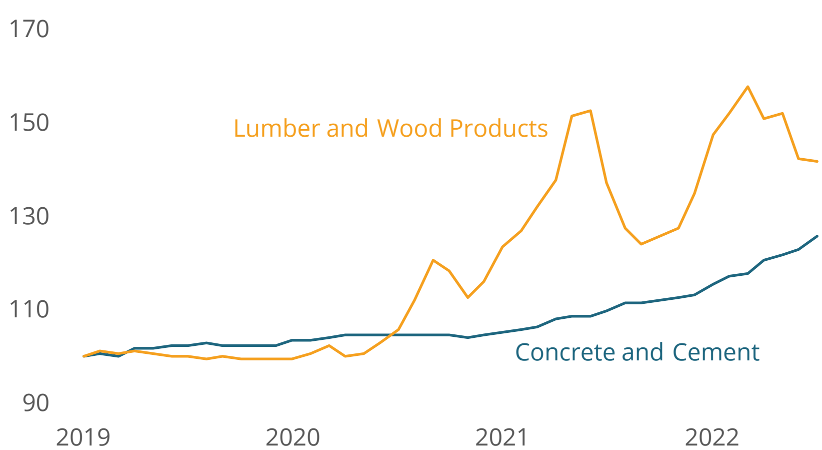
Difficulty obtaining permits also contributes to costs, as well as delays in new construction. On both the Big Island and Oahu builders have reported that these delays have in some cases led to lost work and even layoffs. Amid reports of unprecedented permit delays on Oahu, the Director of Honolulu's permitting office has resigned, adding to uncertainty about whether the permitting process can be meaningfully reformed in the near term.

Hawaii continues to benefit from large federal infrastructure contracts. Over the past year, the federal government awarded more than $4 billion in contracts for upgrades to Pearl Harbor and $2.8 billion in funding associated with the Infrastructure Investment and Jobs Act. These projects are mostly in the engineering and design phases, but they will begin to show up in a recovery of construction job counts in 2023. As a result, construction will help to offset some of the slowing effects of the mild US recession that is coming. At the same time, the new large contracts may put further upward pressure on local construction costs, given the already tight conditions prevailing in materials and labor markets.

The $600 million allotted to the Department of Hawaiian Home Lands has the potential to be an important source for new housing construction going forward. Current plans dedicate the bulk of funding to building needed infrastructure, although a significant portion will also be used for construction of housing units. The current major party gubernatorial candidates both have expressed support for shifting funds toward direct home construction. In addition, Honolulu has announced plans for the construction of 1,000 units of affordable housing, spread across six projects. The units were funded through grants from the city's Affordable Housing Fund and should be completed within five years.

NATIONAL CONSTRUCTION COSTS (INDEX, JAN 2019 = 100)

Construction costs have risen significantly.



THE HAWAII OUTLOOK

In our second quarter forecast we emphasized both the promising prospects for tourism and the risks associated with inflation, Federal Reserve tightening, and global weakness. These factors continue to be key to the Hawaii outlook. Hawaii tourism continues to recover, and we are finally seeing the beginning of a Japanese visitor return, which will be a substantial support for the Islands.

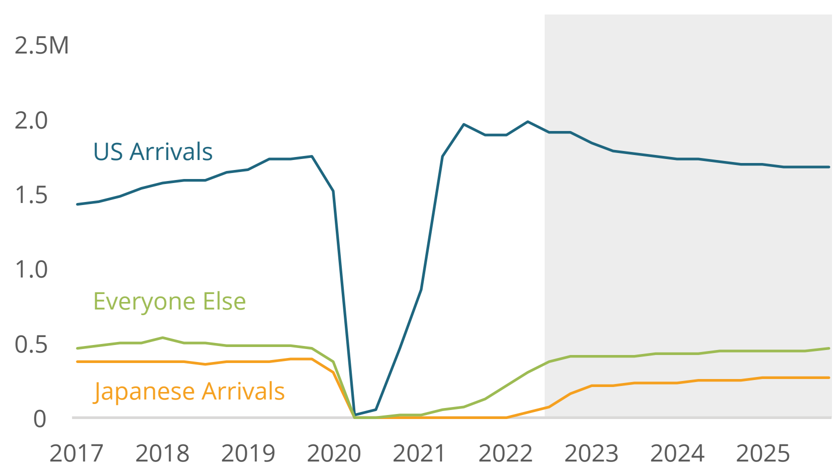
But the already-poor external picture has become bleak. While current measures of US economic activity are mixed, prospects are poorer than they were a few months ago. Inflation has proven more intractable than expected. Interest rate hikes sufficient to bring inflation down to the Fed's 2% target will likely cause a mild US recession in the first half of 2023. Europe's energy and inflation crisis has already tipped Britain and the continent firmly in that direction. As a result, a sharp global slowdown is underway, with risks that it could end up being more severe than many expect. High inflation, higher interest rates, and broad macroeconomic weakness will batter Hawaii households, even if the tourism recovery and record high federal support for construction provide needed lift.

The Japanese return will help offset global weakness

As we have noted above, international visitors began to arrive in Hawaii in larger numbers this spring. Unfortunately, recovery of the all-important Japanese market has been delayed, at least in part by a spike in the BA.5 COVID-19 variant. While Japanese visitors are finally returning, they continue to lag somewhat behind our expectations. Liberalization of Japan's travel restrictions is expected to continue in coming months, leading to the best winter arrivals numbers since 2019. The Japanese market will have recouped roughly half of its pandemic era losses by the beginning of next year, with moderate additional gains thereafter.

Visitors from other international markets have now regained nearly 80% of their level before the pandemic began. We expect the recovery to exceed 85% by the fourth quarter of this year. Gains beyond this level will be constrained to some degree by weak currencies and poor macroeconomic

UHERO FORECAST FOR HAWAII VISITOR ARRIVALS
The US market will cede some ground as international visitors return.



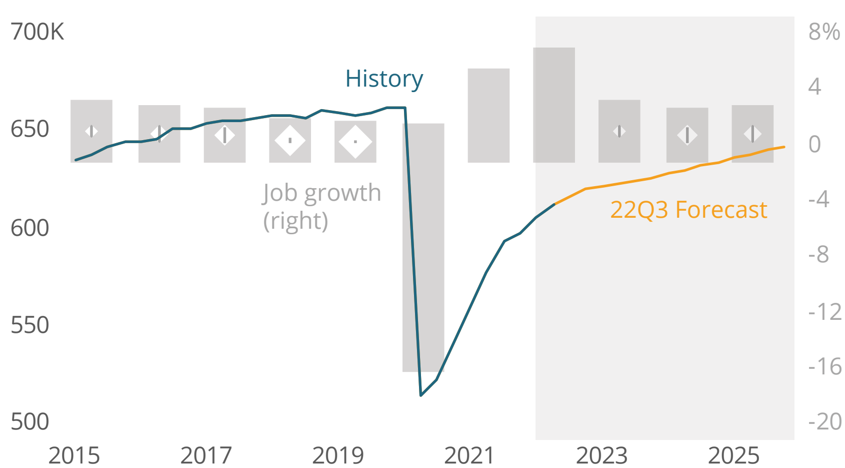
conditions, but also by limits to industry capacity. Robust numbers of US visitors replaced international travelers during the pandemic. We expect arrivals from the US to fall back somewhat as visitors from international markets return to Hawaii in greater numbers. US economic weakness will also weigh on the mainland market.

COVID-19 is receding as a major issue for the visitor industry. As we noted above, US households have largely decided that the virus will no longer prevent them from returning to familiar spending habits. This appears to be the case for consumers in many countries. Important exceptions to this have been Japan and China. Japan now seems poised to move beyond COVID, but China is another thing altogether. Chinese leadership are clinging to their damaging *Zero COVID* policy, completely locking down cities where even a single case is recorded. That means prospects for a return of Chinese travelers is remote. While typically small in numbers, Chinese visitors spend more daily than guests from most other markets. Absent an unexpectedly-severe virus surge this winter, COVID-19 should not prevent further recovery of the visitor industry.

Total visitor arrivals will continue to edge up over the rest of the year, reaching 92% of the pre-pandemic level by year end. This total is essentially unchanged from our second-quarter forecast, but reflects a bit larger share of US visitors and a bit fewer from Japan. Visitors will number more than 9.2 million for the year as a whole, rising to 9.7 million in 2023. With the long-awaited Japanese visitor return now underway, Oahu will make up ground, beginning to close the recovery gap with the Neighbor Islands. Measured by average daily census, in the fourth quarter Honolulu County will have recovered to within 97% of the pre-pandemic census. The Neighbor Island counties will return to of their pre-COVID levels. In the medium term, the loss of some tourism infrastructure due to small-business failures during the pandemic and barriers to the reentry of transient vacation rentals will limit overall visitor days to a little below their pre-pandemic peak.

The resumption of international tourism is gradually returning us to a more familiar and diversified Hawaii visitor industry, less reliant on North American markets. Normally, this would mean more visitor spending, but travel cost inflation and the surging dollar are weighing heavily on the budgets of international travelers. The real value of goods and services that

HAWAII NONFARM PAYROLL JOBS
Job gains will flatten in 2023.



these travelers can afford—and their contribution to industry fortunes—will continue to be more limited than in the past.

Total real visitor spending for 2022 as a whole will be within 2% of its level in 2019. Spending will begin to fall off a bit in 2023, amid softening global economic conditions and a very weak yen. Stable visitor numbers and a resumption of the long-term trend of declining per-person real daily spending will continue to curb spending thereafter. This is consistent with historical experience, where, despite periodic upward and downward movements, real visitor spending in recent years has been no higher than it was back in 1989.

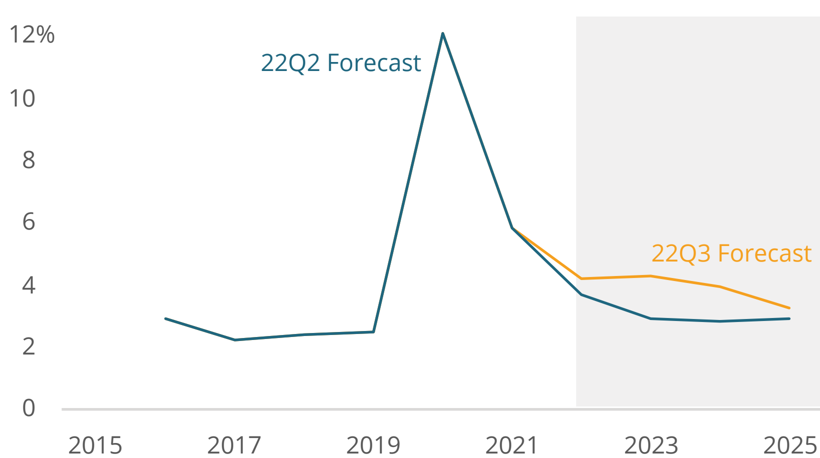
Economic gains will slow markedly in 2023

Hawaii will escape an economic downturn, but worsening macro conditions will bring growth to a near-standstill in 2023. Evidence of this is already apparent in macro indicators. The *UHERO Pulse*, which summarizes a number of indicators of economic activity at the weekly frequency, has been essentially flat for the past four months, following gains in the first part of the year. Labor markets remain healthy, but 2023 will bring a marked slowdown.

Hawaii's payroll job gains have slowed over the course of 2022, with year-on-year growth falling from more than 8% in January to just over 4% in July. Growth will slow further in 2023, expanding by only 1.7% for the year overall. These annual figures mask greater underlying weakness. From the fourth quarter of this year through the fourth quarter of next year, there will be less than 1% growth in the total nonfarm job count. The labor force and employment will expand by less than half a percent in 2023. The softening labor market will delay further improvement in the unemployment rate, which will remain above 4% through mid-2024, roughly its current level. Pandemic-related retirements and the absence of significant population growth on Oahu will weigh on labor force growth though the end of the forecast period. As a result, the number of filled jobs will not approach the pre-pandemic level until late in the decade.

Most sectors will see slower job growth in 2023-2024 than they have this year. Tourism dependent industries, which remain furthest from pre-pandemic levels of employment, will account for the largest number of new

HAWAII UNEMPLOYMENT RATE
Softening economic conditions will delay further improvement in unemployment.



jobs. The accommodations, food service, trade, and transportation industries combined will add more than 5,000 jobs in 2023, about half of all net job gains next year. Even with these gains, the job base in these industries will remain 7-9% below pre-pandemic levels. The healthcare industry is the only sector that will fully recover to its 2019 employment level by the end of 2023. The large "other services" sector, which includes everything from business services to waste management, will rise to within 6% of its pre-pandemic level. There will be some firming of job growth in most sectors as we move into 2024.

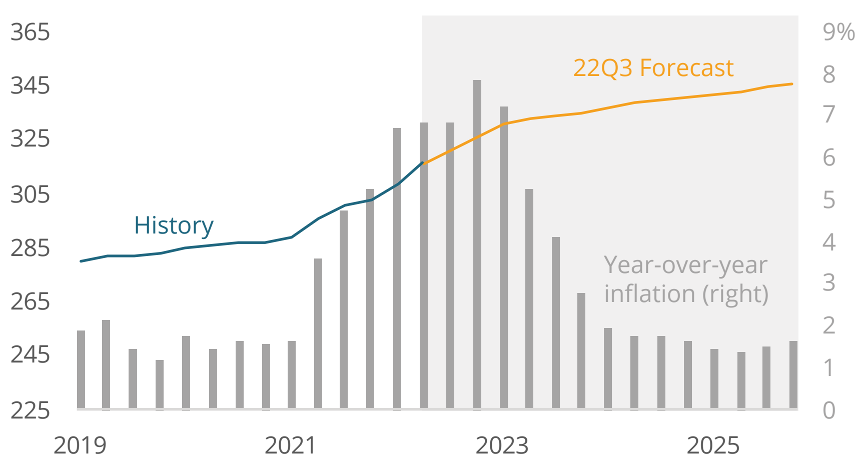
As we have noted above, the construction industry has seen modest net job losses this year, but these likely reflect the ebb and flow of projects rather than a significant change in industry fortunes. Pressures on the construction industry do exist, both on the cost side and in terms of housing affordability, but there remains a significant pipeline of pending projects that will sustain a high level of construction employment. The several large federally-funded projects we described above are particularly important. We see construction employment rising a bit above its current level for the next several years.

Inflation's bite on income will take time to reverse

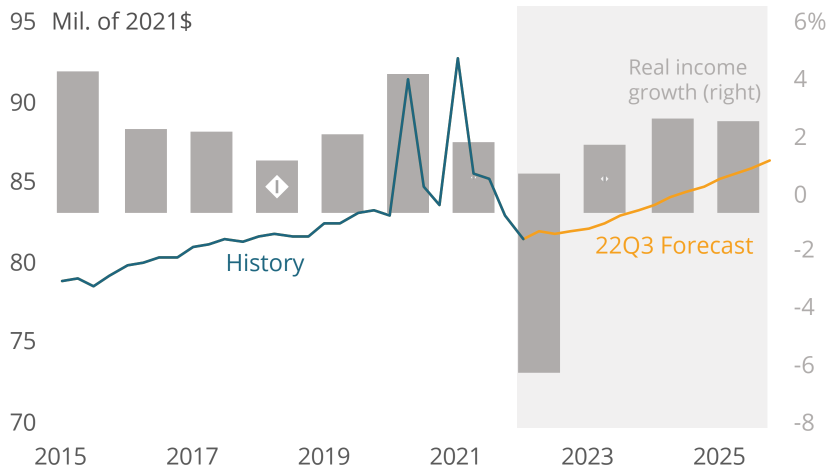
Inflation in Hawaii accelerated over the past year, surging from less than 2% at the start of 2021 to nearly 7% in the second quarter of this year. The recent partial fallback of energy prices will help to ease price pressures next year, but food price inflation is likely to take longer to subside, given still-tight global conditions. Rising shelter costs have yet to filter through fully to the CPI. That component will trend up at a nearly 8% pace next year. The momentum will soften afterwards, because growth in asking rents has slowed markedly this year. Overall Honolulu inflation will ease off this year's 7% annual pace to just under 5% in 2023, and then cool quickly to less than 2% by 2024, roughly its long-run average. This is consistent with our view that this inflationary episode, while more persistent than originally thought, will nevertheless recede as transitory factors ebb over the next year.

High inflation this year and next will cut into purchasing power, which was already suffering from the phase-out of pandemic-era federal support. For this year overall, real personal income will decline more than 5%, falling below its level in 2019. It will begin to recover next year, growing about one percent. As inflation recedes to 2% in 2024, firming demand and employment will support a return to moderate income growth.

HONOLULU CPI (INDEX, 1982-84 = 100)
Inflation has surged over the past year.



PERSONAL INCOME
Inflation and the phase-out of federal support have depressed real income.



The pace of employment and income gains will converge toward their long-run growth paths by mid-decade. The non-farm payroll job base will average slightly more than one percent annual growth from 2023 to 2026. At that point, it will still be 13,000 jobs shy of its pre-pandemic level. Real personal income growth will settle at a 1-1.5% annual pace. Production, as measured by real gross domestic product, will recover faster than employment due to rising visitor and household spending and productivity gains from the labor-saving changes that many companies have made during the pandemic. GDP will expand by more than 4% this year and surpass its pre-COVID peak by the middle of 2024.

A rough(er) road ahead

If we were cautious at the time of our last forecast, we are pessimistic now. US and global economic conditions have taken a decided turn for the worst. A European recession is now inevitable, and we think a US one is also on the way. While there is some chance that the Fed could yet thread that needle and achieve its desired soft landing, this seems increasingly unlikely. It will simply take too many interest rate hikes to get inflation down to an acceptable level.

And risks are clearly to the downside. With global conditions so poor, it would not take much to tilt the US economy into a deeper downturn than we currently expect. It is easy to see where the primary risks rise. The major Western countries hope to cushion their economies from the worst of the natural gas shortage, and to prevent Russia from earning windfall oil profits by capping the price of Russian oil. They have made some progress on the former, but efforts to reduce Russian oil profits could potentially drive prices dangerously higher. Equity markets have been sanguine about economic risks, excessively so in our view. So a major adjustment in stock prices could occur, reducing wealth and serving as a confidence shock to spending. And there are the harder-to-judge risks on the security side, in Eastern Europe of course, but also in the Western Pacific.

As we noted in this and our last report, Hawaii is in a unique position among US states. Because of our reliance on overseas visitors, especially from Japan, the delayed recovery of these markets will provide offsetting economic lift at just the right time. But even if the US avoids an outright recession, its growth impetus has clearly slowed, and higher interest rates and prices will be a direct burden on many local households. Hawaii is never immune to macroeconomic changes that occur beyond our shores.

TABLE 1: MAJOR ECONOMIC INDICATORS

STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
Nonfarm Payrolls (Thou)	559.7	581.4	612.9	623.1	630.3	638.4
% Change	-15.0	3.9	5.4	1.7	1.2	1.3
Unemployment Rate (%)	12.0	5.8	4.2	4.3	4.0	3.3
Population (Thou)	1,451.9	1,441.6	1,437.0	1,437.4	1,438.5	1,440.0
% Change	-0.3	-0.7	-0.3	0.0	0.1	0.1
Personal Income (Mil$)	82,528.2	86,591.1	87,652.9	92,917.6	96,363.4	99,601.8
% Change	5.1	4.9	1.2	6.0	3.7	3.4
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021$)	85,647.3	86,591.1	81,901.4	82,870.1	84,453.5	86,015.1
% Change	3.5	1.1	-5.4	1.2	1.9	1.8
Real Per Capita Income (Thou 2021$)	59.0	60.1	57.0	57.7	58.7	59.7
% Change	3.8	1.8	-5.1	1.2	1.8	1.7
Real GDP (Mil 2021$)	86,028.7	90,018.4	93,938.2	95,678.2	97,072.8	98,903.1
% Change	-11.1	4.6	4.4	1.9	1.5	1.9
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	2,708.3	6,771.0	9,201.2	9,709.8	9,577.7	9,578.8
% Change - Total Visitor Arrivals by Air	-73.9	150.0	35.9	5.5	-1.4	0.0
U.S. Visitors	1,987.3	6,457.0	7,715.3	7,133.5	6,829.9	6,680.9
% Change - U.S. Visitors	-71.1	224.9	19.5	-7.5	-4.3	-2.2
Japanese Visitors	289.1	14.0	299.5	898.5	991.6	1,076.7
% Change - Japanese Visitors	-81.7	-95.2	2,039.0	200.1	10.4	8.6
Other Visitors	403.3	287.5	1,312.1	1,677.7	1,756.2	1,821.2
% Change - Other Visitors	-79.2	-28.7	356.4	27.9	4.7	3.7
Visitor Days (Thou)	28,515.8	65,307.0	84,405.7	86,823.9	85,491.1	85,835.3
% Change	-68.2	129.0	29.2	2.9	-1.5	0.4
Average Daily Room Rate ($)	208.3	315.8	380.5	415.5	426.9	436.6
% Change	-26.3	51.6	20.5	9.2	2.8	2.3
Occupancy Rate (%)	31.7	57.1	75.5	76.9	76.0	76.4
Real Visitor Expenditures (Mil 2021$)	5,248.4	12,995.7	18,470.7	18,548.2	17,656.6	17,290.5
% Change	-71.9	147.6	42.1	0.4	-4.8	-2.1

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Occupancy rate includes UHERO's estimate of TVR occupancy. Figures for 2022-2025 are forecasts.

TABLE 2: JOBS BY INDUSTRY
STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
Nonfarm Payrolls (Thou)	559.7	581.4	612.9	623.1	630.3	638.4
% Change	-15.0	3.9	5.4	1.7	1.2	1.3
Construction and Mining	36.7	36.9	35.9	36.3	37.3	37.9
% Change	-2.3	0.5	-2.9	1.3	2.6	1.7
Manufacturing	12.0	12.0	12.4	12.7	12.9	13.2
% Change	-14.7	0.2	3.2	2.3	1.8	2.0
Trade	77.8	79.3	81.5	82.2	82.6	83.6
% Change	-13.3	1.8	2.9	0.7	0.6	1.2
Transportation and Utilities	27.3	29.5	32.5	33.1	33.3	33.9
% Change	-23.0	8.3	10.0	1.8	0.6	1.7
Finance, Insurance and Real Estate	27.4	27.2	27.7	27.7	27.9	28.3
% Change	-8.9	-0.8	1.9	0.1	0.7	1.6
Services	257.3	276.5	300.9	307.3	311.5	316.2
% Change	-20.9	7.5	8.8	2.1	1.4	1.5
Health Care and Soc. Assistance	71.1	71.5	72.6	73.5	74.1	74.8
% Change	-3.3	0.6	1.5	1.2	0.8	1.0
Accommodation and Food	69.6	85.0	99.1	103.2	104.8	106.6
% Change	-38.5	22.2	16.5	4.1	1.6	1.7
Other	116.6	119.9	129.2	130.7	132.6	134.7
% Change	-15.9	2.9	7.8	1.1	1.5	1.6
Government	121.2	120.0	122.1	123.8	124.7	125.3
% Change	-4.1	-1.0	1.8	1.3	0.8	0.5
Federal Government	35.2	34.7	34.8	34.9	34.9	34.9
% Change	2.4	-1.4	0.4	0.2	0.0	0.0
State and Local Government	86.0	85.3	87.3	88.9	89.8	90.4
% Change	-6.5	-0.8	2.3	1.8	1.1	0.7

Note: Source is UHERO. Industry job counts for 2021 are UHERO estimates of the benchmark revision. Figures for 2022-2025 are forecasts.

TABLE 3: PERSONAL INCOME BY INDUSTRY

STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
Real Personal Income (Mil 2021$)	85,647.3	86,591.1	81,901.4	82,870.1	84,453.5	86,015.1
% Change	3.5	1.1	-5.4	1.2	1.9	1.8
Labor & Proprietors' Income	56,334.7	57,908.7	58,805.2	60,022.9	61,087.0	62,093.2
% Change	-6.3	2.8	1.5	2.1	1.8	1.6
Construction	4,979.9	4,978.5	4,894.2	4,930.7	5,036.6	5,124.0
% Change	2.0	0.0	-1.7	0.7	2.1	1.7
Manufacturing	994.8	981.8	963.7	974.6	992.0	1,017.0
% Change	-6.8	-1.3	-1.9	1.1	1.8	2.5
Trade	4,710.7	4,974.1	4,999.9	5,063.6	5,129.4	5,217.6
% Change	-6.8	5.6	0.5	1.3	1.3	1.7
Transportation and Utilities	2,970.5	3,063.4	3,184.9	3,282.5	3,325.9	3,389.0
% Change	-13.6	3.1	4.0	3.1	1.3	1.9
Finance, Insurance & Real Estate	4,167.8	4,236.5	4,128.5	4,140.3	4,192.3	4,283.2
% Change	1.6	1.6	-2.5	0.3	1.3	2.2
Services	21,304.2	22,987.1	24,469.8	24,930.5	25,324.8	25,781.6
% Change	-13.5	7.9	6.5	1.9	1.6	1.8
Health Care & Soc. Assist. (% ch.)	4.2	3.0	2.1	1.0	1.1	1.5
Accommodation & Food (% ch.)	-44.1	30.1	19.1	4.6	2.4	2.3
Other (% ch.)	-6.3	3.6	3.8	1.2	1.5	1.8
Government	16,837.5	16,347.0	15,838.8	16,369.0	16,751.6	16,943.2
% Change	1.1	-2.9	-3.1	3.3	2.3	1.1
Federal, civilian (% ch.)	2.1	-3.0	-0.5	0.8	0.8	0.4
State & Local (% ch.)	0.0	-4.5	-3.9	5.6	3.1	1.6
Less Social Security Taxes (-)	6,525.4	6,758.1	6,864.0	6,985.1	7,104.6	7,217.6
% Change	-5.7	3.6	1.6	1.8	1.7	1.6
Transfer Payments	20,090.2	20,157.3	15,206.3	15,232.3	15,580.0	15,925.9
% Change	50.2	0.3	-24.6	0.2	2.3	2.2
Dividends, Interest and Rent	15,747.8	15,283.2	14,753.9	14,600.5	14,891.6	15,214.3
% Change	-2.6	-3.0	-3.5	-1.0	2.0	2.2
Population (Thou)	1,451.9	1,441.6	1,437.0	1,437.4	1,438.5	1,440.0
% Change	-0.3	-0.7	-0.3	0.0	0.1	0.1
Real Per Capita Income (Thou 2021$)	59.0	60.1	57.0	57.7	58.7	59.7
% Change	3.8	1.8	-5.1	1.2	1.8	1.7
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Nominal Personal Income (Mil. $)	82,528.2	86,591.1	87,652.9	92,917.6	96,363.4	99,601.8
% Change	5.1	4.9	1.2	6.0	3.7	3.4

Note: Source is UHERO. Figures for 2022-2025 are forecasts.

TABLE 4: CONSTRUCTION INDICATORS

STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
BUILDING PERMITS (Mil 2021$)						
Total Commitments to Build	6,504	5,768	7,050	7,734	7,318	6,996
% Change	55.0	-11.3	22.2	9.7	-5.5	-4.4
Real Private Building Permits	3,267	3,747	3,813	3,924	3,574	3,516
% Change	-5.8	14.7	1.8	2.9	-8.9	-1.6
Real Residential Building Permits	1,203	1,995	1,931	1,769	1,524	1,533
% Change	-7.8	65.8	-3.2	-8.4	-13.9	0.6
Real Non-Residential Building Permits	2,063	1,752	1,882	2,155	2,050	1,984
% Change	-4.6	-15.1	7.4	14.5	-4.8	-3.3
Real Government Contracts Awarded	3,238	2,021	3,237	3,818	3,744	3,480
% Change	345.4	-37.6	60.2	18.0	-1.9	-7.0
CONSTRUCTION ACTIVITY						
Real GE Contracting Tax Base (Mil 2021$)	10,207	9,973	10,624	11,842	12,141	12,017
% Change	-1.6	-2.3	6.5	11.5	2.5	-1.0
Nominal GE Contracting Tax Base (Mil $)	9,713	9,973	11,291	13,341	14,270	14,596
% Change	0.8	2.7	13.2	18.2	7.0	2.3
Construction Job Count (Thou)	36.7	36.9	35.9	36.3	37.3	37.9
% Change	-2.3	0.5	-2.9	1.3	2.6	1.7
Real Construction Income (Mil 2021$)	4,980	4,978	4,894	4,931	5,037	5,124
% Change	2.0	0.0	-1.7	0.7	2.1	1.7
PRICES & COSTS (HONOLULU)						
Honolulu Median Home Price (Thou $)	822.4	987.8	1123.6	1102.9	1072.9	1071.3
% Change	4.1	20.1	13.8	-1.8	-2.7	-0.1
Honolulu Median Condominium Price (Thou $)	433.1	470.9	517.1	514.7	503.0	502.5
% Change	1.3	8.7	9.8	-0.5	-2.3	-0.1
Honolulu Housing Affordability Index	94.4	83.5	55.7	54.4	59.7	63.5
% Change	11.0	-11.6	-33.3	-2.2	9.6	6.4
Honolulu Construction Cost Index (2021=100)	95.2	100.0	106.3	112.7	117.5	121.5
% Change	2.5	5.1	6.3	6.0	4.3	3.3
30-Year Mortgage Rate (%)	3.1	3.0	5.3	6.4	5.9	5.6

Note: Source is UHERO. Figures for 2022-2025 are forecasts. Commitments to Build are the sum of private permits and public contracts awarded. Figures for Total Commitments to Build and Real Government Contracts Awarded for 2020 and 2021 are UHERO estimates. Permits and tax base are deflated by Honolulu Construction Cost Index. Income is deflated by Honolulu CPI. Housing affordability index is the ratio of median family income to qualifying income for a loan for the median-priced home (times 100).

TABLE 5: MAJOR ECONOMIC INDICATOR SUMMARY
HONOLULU COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	411.1	418.5	440.5	448.5	453.3	458.4
% Change	-13.2	1.8	5.3	1.8	1.1	1.1
Unemployment Rate (%)	10.5	5.4	4.0	4.1	3.9	3.3
Population (Thou)	1,013.2	1,000.9	995.9	995.2	995.1	995.2
% Change	-0.4	-1.2	-0.5	-0.1	0.0	0.0
Personal Income (Mil $)	60,521.9	63,095.6	64,087.0	67,856.4	70,372.6	72,705.0
% Change	4.8	4.3	1.6	5.9	3.7	3.3
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021 $)	62,809.3	63,095.6	59,881.9	60,518.9	61,674.9	62,787.2
% Change	3.2	0.5	-5.1	1.1	1.9	1.8
Real Per Capita Income (Thou 2021 $)	62.0	63.0	60.1	60.8	62.0	63.1
% Change	3.6	1.7	-4.6	1.1	1.9	1.8
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	1,506.2	3,319.0	4,961.1	5,628.6	5,581.2	5,621.6
% Change - Total Visitor Arrivals by Air	-75.5	120.4	49.5	13.5	-0.8	0.7
U.S. Visitors	1,024.3	3,139.1	3,796.2	3,492.4	3,323.3	3,236.8
% Change - U.S. Visitors	-69.0	206.5	20.9	-8.0	-4.8	-2.6
Japanese Visitors	269.4	18.0	280.5	878.6	950.2	1,033.4
% Change - Japanese Visitors	-82.0	-93.3	1,458.5	213.2	8.2	8.8
Other Visitors	273.9	168.7	879.9	1,257.6	1,307.7	1,351.4
% Change - Other Visitors	-79.5	-38.4	421.6	42.9	4.0	3.3
Visitor Days (Thou)	12,829.5	26,892.0	36,702.2	39,459.7	38,505.7	38,663.3
% Change	-69.3	109.6	36.5	7.5	-2.4	0.4
Occupancy Rate (%)	32.8	54.9	75.0	79.0	77.5	78.3

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2025 are forecasts.

TABLE 6: JOBS BY DETAILED SECTOR (THOUSANDS)
HONOLULU COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	411.1	418.5	440.5	448.5	453.3	458.4
% Change	-13.2	1.8	5.3	1.8	1.1	1.1
Construction and Mining	26.8	27.0	26.1	26.5	27.2	27.6
% Change	-1.7	0.8	-3.2	1.5	2.8	1.2
Manufacturing	9.4	9.2	9.2	9.4	9.6	9.8
% Change	-14.7	-2.5	0.1	2.1	2.2	2.7
Trade	53.5	53.9	55.8	56.3	56.6	57.3
% Change	-13.9	0.6	3.5	0.9	0.6	1.2
Transportation and Utilities	20.7	21.6	23.8	24.4	24.5	24.9
% Change	-20.7	4.3	10.4	2.4	0.4	1.6
Finance, Insurance and Real Estate	21.7	21.1	21.3	21.4	21.5	21.8
% Change	-5.9	-2.4	0.8	0.2	0.6	1.3
Services	186.0	194.0	210.9	215.6	218.1	220.7
% Change	-18.2	4.3	8.7	2.2	1.1	1.2
Health Care and Soc. Assistance	52.8	53.3	54.3	54.8	55.3	55.8
% Change	-2.8	0.9	1.9	0.9	0.8	0.9
Accommodation and Food	43.1	49.9	58.8	62.1	62.7	63.1
% Change	-36.2	15.8	18.0	5.5	1.0	0.7
Other	90.1	90.9	97.8	98.8	100.1	101.8
% Change	-14.6	0.8	7.6	1.0	1.4	1.7
Government	93.0	91.7	93.5	95.0	95.8	96.4
% Change	-4.1	-1.4	1.9	1.6	0.9	0.6
Federal Government	32.3	32.0	32.1	32.2	32.2	32.1
% Change	2.3	-0.9	0.4	0.1	-0.1	0.0
State and Local Government	60.7	59.7	61.3	62.8	63.7	64.2
% Change	-7.2	-1.7	2.7	2.4	1.4	0.9

Note: Source is UHERO. Industry job counts for 2021 are UHERO estimates of the benchmark revision. Figures for 2022-2025 are forecasts.

TABLE 7: PERSONAL INCOME BY DETAILED SECTOR
HONOLULU COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Real Personal Income (Mil 2021 $)	62,809.3	63,095.6	59,881.9	60,518.9	61,674.9	62,787.2
% Change	3.2	0.5	-5.1	1.1	1.9	1.8
Labor & Proprietors' Income	43,335.4	43,824.3	44,366.9	45,315.3	46,095.5	46,792.5
% Change	-4.9	1.1	1.2	2.1	1.7	1.5
Construction	3,701.6	3,709.6	3,638.8	3,672.5	3,753.5	3,804.3
% Change	2.8	0.2	-1.9	0.9	2.2	1.4
Manufacturing	800.4	773.9	737.8	745.1	760.7	783.8
% Change	-7.0	-3.3	-4.7	1.0	2.1	3.0
Trade	3,317.2	3,470.3	3,492.3	3,540.0	3,585.3	3,647.7
% Change	-6.5	4.6	0.6	1.4	1.3	1.7
Transportation and Utilities	2,346.3	2,344.1	2,449.9	2,535.6	2,562.8	2,611.1
% Change	-12.4	-0.1	4.5	3.5	1.1	1.9
Finance, Insurance & Real Estate	3,313.9	3,312.7	3,239.7	3,256.6	3,294.6	3,357.8
% Change	2.1	0.0	-2.2	0.5	1.2	1.9
Services	15,636.8	16,419.1	17,400.5	17,731.4	17,982.1	18,266.1
% Change	-10.9	5.0	6.0	1.9	1.4	1.6
Health Care & Soc. Assist. (% ch.)	3.6	2.9	2.5	0.7	1.1	1.3
Accommodation & Food (% ch.)	-44.5	25.0	21.4	6.1	1.9	1.3
Other (% ch.)	-5.4	1.7	3.7	1.2	1.4	1.8
Government	14,105.8	13,688.3	13,304.3	13,728.7	14,050.7	14,215.3
% Change	0.9	-3.0	-2.8	3.2	2.3	1.2
Federal, civilian (% ch.)	2.1	-1.2	-2.0	0.7	0.8	0.4
State & Local (% ch.)	-0.6	-5.5	-3.4	6.0	3.4	1.8
Less Social Security Taxes (-)	4,995.5	5,051.9	5,112.8	5,220.5	5,309.8	5,389.7
% Change	-4.3	1.1	1.2	2.1	1.7	1.5
Transfer Payments	13,182.1	12,993.1	10,110.2	10,170.1	10,384.2	10,596.7
% Change	47.2	-1.4	-22.2	0.6	2.1	2.0
Dividends, Interest and Rent	11,341.9	11,014.2	10,638.7	10,525.8	10,735.8	10,962.2
% Change	-2.6	-2.9	-3.4	-1.1	2.0	2.1
Population (Thou)	1,013.2	1,000.9	995.9	995.2	995.1	995.2
% Change	-0.4	-1.2	-0.5	-0.1	0.0	0.0
Real Per Capita Income (Thou 2021 $)	62.0	63.0	60.1	60.8	62.0	63.1
% Change	3.6	1.7	-4.6	1.1	1.9	1.8
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Nominal Personal Income (Mil $)	60,521.9	63,095.6	64,087.0	67,856.4	70,372.6	72,705.0
% Change	4.8	4.3	1.6	5.9	3.7	3.3

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts.

TABLE 8: MAJOR ECONOMIC INDICATOR SUMMARY

HAWAII COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	61.0	65.6	68.8	69.6	70.3	71.1
% Change	-13.9	7.5	5.0	1.1	1.0	1.0
Unemployment Rate (%)	11.6	5.6	4.1	4.3	3.8	3.3
Population (Thou)	200.7	202.9	203.4	204.0	204.7	205.5
% Change	0.4	1.1	0.2	0.3	0.3	0.4
Personal Income (Mil $)	9,410.8	9,977.5	10,027.2	10,675.1	11,043.6	11,410.6
% Change	9.4	6.0	0.5	6.5	3.5	3.3
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021 $)	9,766.5	9,977.5	9,369.3	9,520.7	9,678.7	9,854.1
% Change	7.7	2.2	-6.1	1.6	1.7	1.8
Real Per Capita Income (Thou 2021 $)	48.7	49.2	46.1	46.7	47.3	47.9
% Change	7.2	1.1	-6.3	1.3	1.3	1.4
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	482.0	1,184.1	1,660.7	1,730.5	1,728.8	1,746.5
% Change - Total Visitor Arrivals by Air	-73.0	145.6	40.3	4.2	-0.1	1.0
U.S. Visitors	381.3	1,137.8	1,404.5	1,326.4	1,287.0	1,270.9
% Change - U.S. Visitors	-69.7	198.4	23.4	-5.6	-3.0	-1.3
Japanese Visitors	35.5	1.0	29.3	98.1	114.8	129.4
% Change - Japanese Visitors	-79.2	-97.2	2,828.6	235.2	17.0	12.7
Other Visitors	70.4	44.9	229.4	306.0	326.9	346.2
% Change - Other Visitors	-79.1	-36.2	411.0	33.4	6.8	5.9
Visitor Days (Thou)	4,584.8	10,966.8	13,293.9	13,258.2	13,103.3	13,163.7
% Change	-64.9	139.2	21.2	-0.3	-1.2	0.5
Occupancy Rate (%)	34.2	60.8	75.5	73.8	72.7	72.9

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts.

TABLE 9: JOBS BY DETAILED SECTOR (THOUSANDS)
HAWAII COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	61.0	65.6	68.8	69.6	70.3	71.1
% Change	-13.9	7.5	5.0	1.1	1.0	1.0
Construction and Mining	3.6	3.7	3.6	3.6	3.7	3.8
% Change	-5.0	1.3	-2.7	0.6	2.1	2.6
Manufacturing	1.3	1.4	1.6	1.6	1.6	1.6
% Change	-9.1	11.7	11.9	2.9	0.7	0.0
Trade	10.6	11.1	11.2	11.3	11.3	11.4
% Change	-7.6	4.1	1.5	0.2	0.2	0.6
Transportation and Utilities	2.5	2.9	3.1	3.1	3.2	3.2
% Change	-23.3	14.6	8.3	0.4	1.3	1.8
Finance, Insurance and Real Estate	2.3	2.4	2.5	2.5	2.5	2.6
% Change	-13.6	2.3	5.0	-0.3	1.1	2.3
Services	26.3	29.5	32.0	32.6	33.2	33.6
% Change	-20.9	12.2	8.6	1.9	1.7	1.4
Health Care and Soc. Assistance	7.5	7.5	7.5	7.6	7.7	7.8
% Change	-5.5	0.3	0.0	1.9	0.7	0.8
Accommodation and Food	8.3	10.8	12.3	12.6	12.9	13.3
% Change	-35.8	30.4	14.4	2.2	2.4	2.6
Other	10.5	11.2	12.2	12.4	12.6	12.6
% Change	-15.2	6.5	8.6	1.5	1.5	0.6
Government	14.4	14.7	14.8	14.9	14.9	14.9
% Change	-4.2	2.1	1.2	0.4	0.1	-0.1
Federal Government	1.4	1.2	1.2	1.2	1.3	1.3
% Change	4.5	-9.8	0.2	1.5	0.7	-0.1
State and Local Government	13.0	13.4	13.6	13.6	13.7	13.6
% Change	-5.1	3.4	1.3	0.3	0.1	-0.1

Note: Source is UHERO. Industry job counts for 2021 are UHERO estimates of the benchmark revision. Figures for 2022-2025 are forecasts.

TABLE 10: PERSONAL INCOME BY DETAILED SECTOR

HAWAII COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Real Personal Income (Mil 2021 $)	9,766.5	9,977.5	9,369.3	9,520.7	9,678.7	9,854.1
% Change	7.7	2.2	-6.1	1.6	1.7	1.8
Labor & Proprietors' Income	5,237.4	5,570.8	5,669.3	5,771.9	5,867.6	5,953.0
% Change	-4.3	6.4	1.8	1.8	1.7	1.5
Construction	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Manufacturing	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Trade	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Transportation and Utilities	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Finance, Insurance & Real Estate	295.6	—	—	—	—	—
% Change	—	—	—	—	—	—
Services	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Health Care & Soc. Assist. (% ch.)	—	—	—	—	—	—
Accommodation & Food (% ch.)	—	—	—	—	—	—
Other (% ch.)	—	—	—	—	—	—
Government	1,362.7	1,343.7	1,275.5	1,329.4	1,358.6	1,368.1
% Change	1.5	-1.4	-5.1	4.2	2.2	0.7
Federal, civilian (% ch.)	3.4	-10.3	-2.2	2.1	1.4	0.3
State & Local (% ch.)	1.1	0.0	-5.4	4.6	2.3	0.7
Less Social Security Taxes (-)	625.2	684.6	697.6	702.6	712.7	721.6
% Change	-3.8	9.5	1.9	0.7	1.4	1.2
Transfer Payments	3,161.5	3,355.7	2,538.3	2,517.5	2,583.6	2,652.1
% Change	42.7	6.1	-24.4	-0.8	2.6	2.6
Dividends, Interest and Rent	1,961.6	1,899.5	1,831.3	1,816.8	1,852.6	1,897.5
% Change	-1.8	-3.2	-3.6	-0.8	2.0	2.4
Population (Thou)	200.7	202.9	203.4	204.0	204.7	205.5
% Change	0.4	1.1	0.2	0.3	0.3	0.4
Real Per Capita Income (Thou 2021 $)	48.7	49.2	46.1	46.7	47.3	47.9
% Change	7.2	1.1	-6.3	1.3	1.3	1.4
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Nominal Personal Income (Mil $)	9,410.8	9,977.5	10,027.2	10,675.1	11,043.6	11,410.6
% Change	9.4	6.0	0.5	6.5	3.5	3.3

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts. Because of data disclosure rules, industry-level income is not available for some sectors.

TABLE 11: MAJOR ECONOMIC INDICATOR SUMMARY

MAUI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	61.2	69.5	73.2	74.0	75.1	76.8
% Change	-23.9	13.5	5.4	1.0	1.5	2.3
Unemployment Rate (%)	18.4	7.4	4.7	4.9	4.3	3.0
Population (Thou)	164.7	164.3	164.1	164.4	164.8	165.2
% Change	-0.1	-0.3	-0.1	0.2	0.2	0.2
Personal Income (Mil $)	8,708.3	9,439.7	9,423.5	10,004.9	10,415.5	10,797.0
% Change	2.7	8.4	-0.2	6.2	4.1	3.7
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021 $)	9,037.4	9,439.7	8,805.1	8,923.0	9,128.2	9,324.2
% Change	1.1	4.5	-6.7	1.3	2.3	2.1
Real Per Capita Income (Thou 2021 $)	54.9	57.5	53.7	54.3	55.4	56.5
% Change	1.2	4.7	-6.6	1.2	2.1	1.9
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	844.8	2,336.1	2,931.0	2,964.2	2,944.1	2,965.2
% Change - Total Visitor Arrivals by Air	-72.9	176.5	25.5	1.1	-0.7	0.7
U.S. Visitors	726.0	2,236.7	2,569.7	2,458.5	2,405.3	2,403.0
% Change - U.S. Visitors	-70.8	208.1	14.9	-4.3	-2.2	-0.1
Japanese Visitors	8.3	0.8	6.3	17.9	22.6	26.8
% Change - Japanese Visitors	-83.0	-90.6	717.4	182.2	26.1	18.7
Other Visitors	115.7	98.6	373.1	487.8	516.3	535.4
% Change - Other Visitors	-79.8	-14.8	278.6	30.7	5.8	3.7
Visitor Days (Thou)	7,754.3	20,426.0	24,034.0	23,821.0	23,675.5	23,766.8
% Change	-68.7	163.4	17.7	-0.9	-0.6	0.4
Occupancy Rate (%)	27.9	59.9	73.4	73.7	74.0	74.4

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts.

TABLE 12: JOBS BY DETAILED SECTOR (THOUSANDS)

MAUI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	61.2	69.5	73.2	74.0	75.1	76.8
% Change	-23.9	13.5	5.4	1.0	1.5	2.3
Construction and Mining	4.4	4.3	4.2	4.2	4.3	4.4
% Change	-2.0	-2.7	-2.7	0.5	2.2	3.1
Manufacturing	1.0	1.0	1.2	1.2	1.2	1.2
% Change	-20.1	6.5	13.5	2.9	0.8	0.3
Trade	9.7	10.2	10.3	10.3	10.3	10.5
% Change	-15.5	5.1	0.6	0.0	0.4	1.6
Transportation and Utilities	2.9	3.7	4.0	4.0	4.1	4.2
% Change	-34.6	26.5	8.1	0.3	1.5	2.3
Finance, Insurance and Real Estate	2.4	2.7	2.8	2.8	2.8	2.9
% Change	-22.8	11.9	4.8	-0.3	1.2	2.7
Services	32.1	38.9	42.1	42.7	43.6	44.8
% Change	-31.0	21.3	8.2	1.6	2.0	2.8
Health Care and Soc. Assistance	8.0	7.9	7.9	8.0	8.1	8.2
% Change	-3.7	-0.9	-0.6	1.7	0.9	1.6
Accommodation and Food	13.0	18.1	20.4	20.8	21.3	22.1
% Change	-44.4	38.7	12.9	1.8	2.7	3.9
Other	11.1	12.9	13.8	14.0	14.2	14.5
% Change	-25.2	16.7	7.1	1.2	1.8	1.7
Government	8.8	8.7	8.7	8.8	8.8	8.9
% Change	-4.4	-0.6	0.5	0.2	0.4	0.7
Federal Government	0.9	0.8	0.8	0.8	0.9	0.9
% Change	0.0	-5.7	0.4	1.4	0.8	0.2
State and Local Government	7.9	7.9	7.9	7.9	7.9	8.0
% Change	-4.8	0.0	0.5	0.1	0.3	0.8

Note: Source is UHERO. Industry job counts for 2021 are UHERO estimates of the benchmark revision. Figures for 2022-2025 are forecasts.

TABLE 13: PERSONAL INCOME BY DETAILED SECTOR

MAUI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Real Personal Income (Mil 2021 $)	9,037.4	9,439.7	8,805.1	8,923.0	9,128.2	9,324.2
% Change	1.1	4.5	-6.7	1.3	2.3	2.1
Labor & Proprietors' Income	5,411.6	6,065.0	6,181.8	6,280.7	6,414.4	6,594.5
% Change	-16.1	12.1	1.9	1.6	2.1	2.8
Construction	586.8	571.6	549.7	553.4	563.2	576.5
% Change	1.5	-2.6	-3.8	0.7	1.8	2.4
Manufacturing	76.0	80.4	89.2	92.6	94.0	94.8
% Change	-6.5	5.8	10.8	3.8	1.5	0.9
Trade	556.1	588.8	564.3	568.8	577.4	595.7
% Change	-11.5	5.9	-4.2	0.8	1.5	3.2
Transportation and Utilities	269.5	334.0	348.6	351.3	358.3	368.0
% Change	-18.7	23.9	4.4	0.8	2.0	2.7
Finance, Insurance & Real Estate	404.5	426.8	430.0	430.5	434.8	442.5
% Change	-4.5	5.5	0.8	0.1	1.0	1.8
Services	2,559.5	3,118.6	3,276.5	3,352.0	3,446.9	3,569.0
% Change	-27.5	21.8	5.1	2.3	2.8	3.5
Health Care & Soc. Assist. (% ch.)	1.9	-2.3	-4.1	2.4	1.6	2.3
Accommodation & Food (% ch.)	-47.1	48.9	11.2	2.8	3.9	5.3
Other (% ch.)	-16.8	14.5	3.4	1.7	2.2	2.1
Government	859.2	829.0	783.5	813.9	833.0	844.9
% Change	1.1	-3.5	-5.5	3.9	2.3	1.4
Federal, civilian (% ch.)	0.6	-6.3	-2.0	2.1	1.5	0.7
State & Local (% ch.)	0.9	-3.3	-6.1	4.3	2.5	1.6
Less Social Security Taxes (-)	629.1	726.1	740.9	744.5	758.6	778.2
% Change	-15.3	15.4	2.0	0.5	1.9	2.6
Transfer Payments	2,548.3	2,562.1	1,699.4	1,692.4	1,737.0	1,779.3
% Change	74.6	0.5	-33.7	-0.4	2.6	2.4
Dividends, Interest and Rent	1,675.6	1,624.2	1,565.6	1,545.7	1,577.5	1,612.2
% Change	-3.6	-3.1	-3.6	-1.3	2.1	2.2
Population (Thou)	164.7	164.3	164.1	164.4	164.8	165.2
% Change	-0.1	-0.3	-0.1	0.2	0.2	0.2
Real Per Capita Income (Thou 2021 $)	54.9	57.5	53.7	54.3	55.4	56.5
% Change	1.2	4.7	-6.6	1.2	2.1	1.9
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Nominal Personal Income (Mil $)	8,708.3	9,439.7	9,423.5	10,004.9	10,415.5	10,797.0
% Change	2.7	8.4	-0.2	6.2	4.1	3.7

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts. Because of data disclosure rules, industry-level income is not available for some sectors.

TABLE 14: MAJOR ECONOMIC INDICATOR SUMMARY
KAUAI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	26.4	27.8	30.4	31.0	31.5	32.1
% Change	-20.9	5.5	9.0	2.0	1.8	1.8
Unemployment Rate (%)	16.6	7.8	5.0	5.2	4.3	3.3
Population (Thou)	73.2	73.5	73.6	73.8	73.9	74.1
% Change	-0.3	0.3	0.2	0.3	0.2	0.2
Personal Income (Mil $)	3,886.4	4,078.3	4,115.2	4,381.3	4,531.7	4,689.2
% Change	5.6	4.9	0.9	6.5	3.4	3.5
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Real Personal Income (Mil 2021 $)	4,033.3	4,078.3	3,845.1	3,907.5	3,971.6	4,049.6
% Change	4.0	1.1	-5.7	1.6	1.6	2.0
Real Per Capita Income (Thou 2021 $)	55.1	55.5	52.3	53.0	53.7	54.6
% Change	4.3	0.8	-5.9	1.3	1.4	1.7
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	339.0	812.6	1,344.3	1,342.6	1,334.0	1,340.0
% Change - Total Visitor Arrivals by Air	-75.4	139.7	65.4	-0.1	-0.6	0.5
U.S. Visitors	295.4	784.9	1,187.4	1,139.2	1,120.0	1,117.4
% Change - U.S. Visitors	-74.2	165.7	51.3	-4.1	-1.7	-0.2
Japanese Visitors	3.6	0.4	4.4	13.3	14.8	16.1
% Change - Japanese Visitors	-85.7	-90.0	1,121.1	200.5	11.5	9.0
Other Visitors	42.9	27.3	142.8	190.1	199.2	206.6
% Change - Other Visitors	-79.4	-36.3	422.6	33.1	4.8	3.7
Visitor Days (Thou)	2,859.6	7,001.9	10,396.5	10,285.1	10,206.7	10,241.6
% Change	-71.7	144.9	48.5	-1.1	-0.8	0.3
Occupancy Rate (%)	30.6	57.0	83.2	81.1	79.5	78.9

Note: Source is UHERO. Nonfarm Payrolls for 2021 are UHERO estimates of the benchmark revision. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts.

TABLE 15: JOBS BY DETAILED SECTOR (THOUSANDS)

KAUAI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Non-farm Payrolls (Thou)	26.4	27.8	30.4	31.0	31.5	32.1
% Change	-20.9	5.5	9.0	2.0	1.8	1.8
Construction and Mining	2.0	2.0	2.0	2.1	2.1	2.2
% Change	-6.0	3.1	0.6	1.1	2.3	2.9
Manufacturing	0.4	0.5	0.5	0.6	0.6	0.6
% Change	-16.7	12.0	15.7	3.1	0.8	0.2
Trade	3.9	4.1	4.2	4.3	4.3	4.4
% Change	-14.2	3.4	4.3	0.9	0.7	1.2
Transportation and Utilities	1.1	1.4	1.5	1.5	1.6	1.6
% Change	-29.2	21.0	11.2	0.8	1.6	2.1
Finance, Insurance and Real Estate	1.0	1.0	1.0	1.0	1.1	1.1
% Change	-18.6	-3.2	9.0	0.0	1.4	2.6
Services	12.9	14.1	15.9	16.3	16.7	17.1
% Change	-29.2	8.9	13.0	2.9	2.4	2.3
Health Care and Soc. Assistance	2.8	2.8	2.9	3.0	3.0	3.1
% Change	-4.5	0.7	3.0	2.5	1.1	1.3
Accommodation and Food	5.2	6.3	7.5	7.7	8.0	8.3
% Change	-43.9	20.1	18.8	3.5	3.2	3.5
Other	4.9	4.9	5.5	5.6	5.7	5.8
% Change	-18.6	1.5	11.3	2.4	2.1	1.3
Government	5.1	4.9	5.1	5.2	5.2	5.2
% Change	-1.5	-2.6	3.9	1.1	0.6	0.5
Federal Government	0.6	0.6	0.6	0.6	0.6	0.6
% Change	7.4	0.3	3.2	1.6	0.8	0.1
State and Local Government	4.4	4.3	4.5	4.5	4.6	4.6
% Change	-2.6	-3.0	4.0	1.0	0.6	0.5

Note: Source is UHERO. Industry job counts for 2021 are UHERO estimates of the benchmark revision. Figures for 2022-2025 are forecasts.

TABLE 16: PERSONAL INCOME BY DETAILED SECTOR
KAUAI COUNTY FORECAST

	2020	2021	2022	2023	2024	2025
Real Personal Income (Mil 2021 $)	4,033.3	4,078.3	3,845.1	3,907.5	3,971.6	4,049.6
% Change	4.0	1.1	-5.7	1.6	1.6	2.0
Labor & Proprietors' Income	2,344.9	2,448.6	2,587.2	2,655.0	2,709.6	2,753.2
% Change	-11.9	4.4	5.7	2.6	2.1	1.6
Construction	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Manufacturing	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Trade	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Transportation and Utilities	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Finance, Insurance & Real Estate	153.8	—	—	—	—	—
% Change	—	—	—	—	—	—
Services	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Health Care & Soc. Assist. (% ch.)	—	—	—	—	—	—
Accommodation & Food (% ch.)	—	—	—	—	—	—
Other (% ch.)	—	—	—	—	—	—
Government	509.7	486.0	475.6	497.0	509.4	515.1
% Change	3.2	-4.6	-2.1	4.5	2.5	1.1
Federal, civilian (% ch.)	5.4	-0.2	0.7	2.2	1.5	0.5
State & Local (% ch.)	2.8	-6.1	-2.7	5.2	2.7	1.3
Less Social Security Taxes (-)	274.8	295.5	312.7	317.5	323.5	328.1
% Change	-11.5	7.5	5.8	1.6	1.9	1.4
Transfer Payments	1,202.6	1,246.4	858.3	852.2	875.2	897.8
% Change	61.6	3.6	-31.1	-0.7	2.7	2.6
Dividends, Interest and Rent	768.1	745.3	718.3	712.1	725.8	742.3
% Change	-3.3	-3.0	-3.6	-0.9	1.9	2.3
Population (Thou)	73.2	73.5	73.6	73.8	73.9	74.1
% Change	-0.3	0.3	0.2	0.3	0.2	0.2
Real Per Capita Income (Thou 2021 $)	55.1	55.5	52.3	53.0	53.7	54.6
% Change	4.3	0.8	-5.9	1.3	1.4	1.7
Inflation Rate, Honolulu MSA (%)	1.6	3.8	7.0	4.8	1.8	1.5
Nominal Personal Income (Mil $)	3,886.4	4,078.3	4,115.2	4,381.3	4,531.7	4,689.2
% Change	5.6	4.9	0.9	6.5	3.4	3.5

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022-2025 are forecasts. Because of data disclosure rules, industry-level income is not available for some sectors.

TABLE 17: EXTERNAL INDICATORS

STATE OF HAWAII FORECAST

	2020	2021	2022	2023	2024	2025
U.S. FACTORS						
Employment (Thou)	147,794.8	152,580.7	158,426.7	158,887.2	159,813.3	161,542.5
% Change	-6.2	3.2	3.8	0.3	0.6	1.1
Unemployment Rate (%)	8.1	5.4	3.7	4.4	4.7	4.2
Inflation Rate (%)	1.2	4.7	8.3	4.8	2.5	2.1
Real GDP (Bil chained 2012$)	18,384.7	19,427.3	19,733.0	19,776.7	20,207.8	20,712.4
% Change	-3.4	5.7	1.6	0.2	2.2	2.5
Population (Thou)	331,761.0	332,213.0	333,105.6	334,242.8	335,462.4	336,756.6
% Change	0.4	0.1	0.3	0.3	0.4	0.4
JAPAN FACTORS						
Employment (Thou)	66,765.8	66,665.8	67,231.9	67,330.0	67,022.5	66,639.0
% Change	-0.7	-0.2	0.8	0.1	-0.5	-0.6
Unemployment Rate (%)	2.8	2.8	2.6	2.6	2.5	2.4
Inflation Rate (%)	0.0	-0.2	2.2	2.3	1.5	1.0
Real GDP (Bil chained 2011 yen)	527,765.1	536,803.3	542,210.8	549,671.0	555,475.3	559,947.3
% Change	-4.6	1.7	1.0	1.4	1.1	0.8
Population (Thou)	126,261.0	125,681.6	125,053.3	124,393.2	123,728.7	123,058.2
% Change	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5
Exchange Rate (Yen/$)	106.8	109.8	127.5	126.4	120.1	115.8

Note: Source is UHERO. Figures for 2022-2025 are forecasts.

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