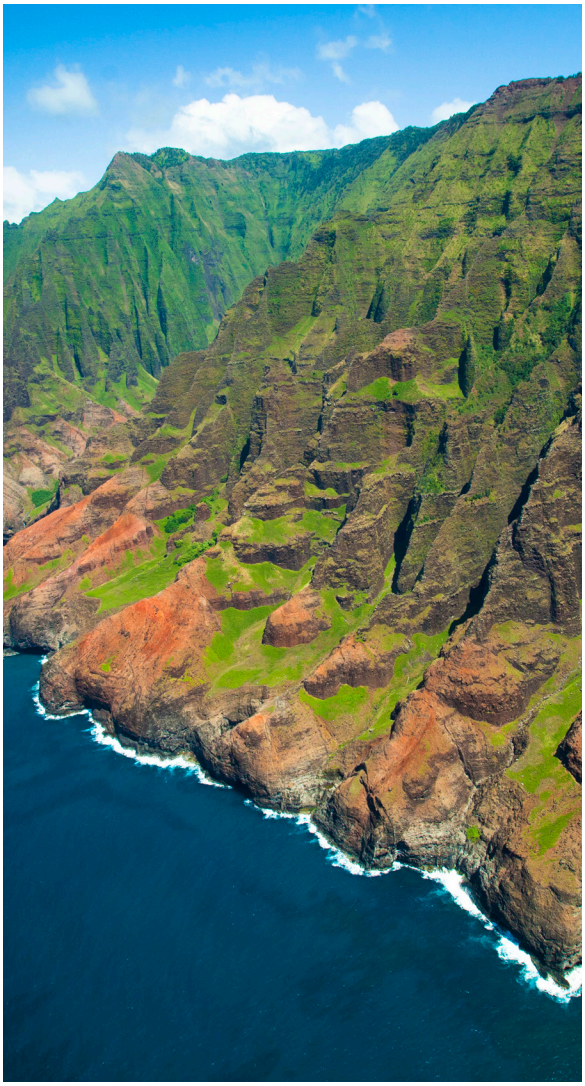
UHERO

THE ECONOMIC RESEARCH ORGANIZATION
AT THE UNIVERSITY OF HAWAIʻI

UHERO FORECAST FOR THE STATE OF HAWAII

Foreign visitors will provide lift, but risks have multiplied

MAY 12, 2022



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UHERO FORECAST FOR THE STATE OF HAWAII

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Executive Summary

Hawaii's recovery has resumed now that the winter Omicron wave is behind us. Once the Asian COVID-19 wave recedes, the long-awaited return of international visitors will begin in earnest. Hawaii's delayed recovery from the pandemic means that we expect moderately strong growth, despite clearly deteriorating conditions in the US and global economies. The worsening global economic environment poses substantial downside risks to our Hawaii forecast.

- Prospects for US and global growth have worsened markedly since our last forecast. The Russian war on Ukraine has pushed up energy and commodity prices, and supply chains are again threatened by spreading COVID-19 shutdowns in China. The Federal Reserve is pursuing a rapid pace of monetary tightening in the face of the highest inflation in decades. These factors will restrain global growth for the next several years and significantly raise recession risks.

- Hawaii's tourism recovery quickly resumed after the Omicron wave receded. As of March 25, there are no COVID-related requirements for arriving domestic passengers. The recent BA.2 wave has pushed back our forecast for the return of Asian travelers. The yen's weakness and rising travel costs will act as headwinds. Overall visitor arrivals will exceed 90% of pre-pandemic levels by year end, and real visitor spending will be a third higher than last year, aided by the return of higher-spending international visitors.

- After a second-half pause last year, the labor market has begun to edge upward again. The state's labor force took a hit during the pandemic. While the proportion of working age people employed or looking for work has now largely recovered, declining population—mostly on Oahu—leaves the pool of available workers below 2019 levels, acting as a constraint on future growth. Hawaii's nonfarm payroll job count will rise by more than 4% this year, continuing at a healthy pace in 2023.

- Inflation in the Islands hit 7.5% in March, as measured by the Honolulu consumer price index, only a bit lower than for the US overall. Inflation has raised household costs by an average of $3,600 and has also raised business production costs. As a result, inflation will burden economic growth until it returns to trend over the next two years.

- Real personal income has fallen with the end of pandemic-era fiscal support, and inflation will also take a toll. Real income will decline 5% this year and recover less than 1% in 2023. Employment gains and a tight labor market will support a return to moderate income growth by 2024. Real gross domestic product, the broadest measure of production, will rise 3.5% this year and approach its pre-COVID peak by the middle of 2024.

- Homebuyers are being squeezed both by surging home prices and mortgage rates that have risen by more than two percentage points since last summer. Rents in the Islands have also increased significantly. A potential moratorium on new water meters, resulting from the Red Hill Navy fuel groundwater contamination, threatens new home building. Public construction prospects are robust, owing to a significant volume of State and Federal projects. Labor shortages and material costs will be challenges.

- Were it not for the anticipated return of international visitors, we would be marking down our forecasts because of the combined effects of war, inflation, supply bottlenecks, and pending Fed interest rate hikes. While we think ongoing tourism recovery will offset these forces in Hawaii, they nevertheless represent an increasing recession risk.

Forecast Summary

MAJOR ECONOMIC INDICATORS
STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
STATE OF HAWAII						
Nonfarm Payrolls (Thou)	658.5	559.2	583.4	609.1	630.5	639.5
% Change	0.1	-15.1	4.3	4.4	3.5	1.4
Unemployment Rate (%)	2.4	12.0	5.8	3.6	2.9	2.8
Real Personal Income (Mil 2021$)	82,762.6	85,647.3	87,106.9	82,676.5	83,416.9	84,740.3
% Change	1.4	3.5	1.7	-5.1	0.9	1.6
Real GDP (Mil 2021$)	96,744.6	86,028.7	90,018.4	93,148.3	95,473.7	97,551.6
% Change	0.0	-11.1	4.6	3.5	2.5	2.2
Total Visitor Arrivals by Air (Thou)	10,385.8	2,708.3	6,777.1	8,935.5	9,487.4	9,522.8
% Change	5.0	-73.9	150.2	31.8	6.2	0.4
Visitor Days (Thou)	89,690.4	28,515.8	65,341.3	80,713.3	84,180.5	84,092.5
% Change	2.2	-68.2	129.1	23.5	4.3	-0.1
Real Visitor Expenditures (Mil 2021$)	18,674.6	5,051.4	12,995.7	17,413.1	18,907.2	18,235.3
% Change	-0.4	-73.0	157.3	34.0	8.6	-3.6
HONOLULU COUNTY						
Nonfarm Payrolls (Thou)	473.9	411.5	421.9	438.3	453.7	459.3
% Change	0.1	-13.2	2.5	3.9	3.5	1.2
Unemployment Rate (%)	2.3	10.5	5.4	3.4	2.7	2.7
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2021$)	60,880.7	62,809.3	63,473.7	60,500.1	61,054.4	62,031.0
% Change	0.8	3.2	1.1	-4.7	0.9	1.6
Total Visitor Arrivals by Air (Thou)	6,153.9	1,506.2	3,330.9	4,698.4	5,460.0	5,525.3
% Change	5.0	-75.5	121.1	41.1	16.2	1.2
HAWAII COUNTY						
Nonfarm Payrolls (Thou)	70.9	60.4	64.5	66.8	68.6	69.7
% Change	-0.2	-14.7	6.8	3.5	2.7	1.6
Unemployment Rate (%)	3.1	11.8	5.5	3.7	3.1	3.0
Real Personal Income (Mil 2021$)	9,067.8	9,766.5	10,061.2	9,518.3	9,562.0	9,680.7
% Change	2.3	7.7	3.0	-5.4	0.5	1.2
Total Visitor Arrivals by Air (Thou)	1,763.9	493.6	1,184.1	1,591.8	1,678.8	1,705.6
% Change	3.4	-72.0	139.9	34.4	5.5	1.6
MAUI COUNTY						
Nonfarm Payrolls (Thou)	80.4	61.2	69.1	73.7	76.6	78.2
% Change	0.2	-23.9	12.8	6.7	3.9	2.1
Unemployment Rate (%)	2.4	18.4	7.4	4.3	3.0	2.7
Real Personal Income (Mil 2021$)	8,937.0	9,037.4	9,417.8	8,695.6	8,823.4	9,011.9
% Change	4.0	1.1	4.2	-7.7	1.5	2.1
Total Visitor Arrivals by Air (Thou)	3,111.1	807.3	2,336.1	3,022.2	3,061.0	3,049.4
% Change	5.0	-74.1	189.4	29.4	1.3	-0.4
KAUAI COUNTY						
Nonfarm Payrolls (Thou)	33.3	26.0	27.9	30.3	31.6	32.3
% Change	1.6	-22.0	7.3	8.6	4.2	2.4
Unemployment Rate (%)	2.4	16.6	7.8	4.3	3.5	3.4
Real Personal Income (Mil 2021$)	3,878.4	4,033.3	4,154.1	3,962.4	3,977.1	4,016.7
% Change	3.3	4.0	3.0	-4.6	0.4	1.0
Total Visitor Arrivals by Air (Thou)	1,370.0	330.3	812.6	1,172.2	1,274.7	1,295.1
% Change	-1.3	-75.9	146.0	44.2	8.7	1.6

Note: Source is UHERO. Figures for county income for 2021 are UHERO estimates. Figures for 2022-2024 are forecasts.

Second Quarter Hawaii Forecast

After a slowdown with the Delta and Omicron waves of the COVID-19 pandemic, Hawaii's recovery has slowly resumed. While now coming under better control, the recent COVID waves in Asia have set back a bit longer the awaited return of international visitors. We now expect these visitors to return in significant numbers in coming months, continuing throughout the year. Ongoing recovery of tourism and the broader local economy will drive substantial growth of the Hawaii economy.

Hawaii's late recovery from the COVID-19 pandemic means that moderately strong growth is expected here despite clearly deteriorating conditions in the US and global economies. The worsening global economic environment nevertheless poses substantial downside risks for our Hawaii forecast.

US and global prospects head south

Prospects for US and global economic growth have worsened markedly since our March forecast. While the Russian war on Ukraine is the high-profile threat, pushing up energy and other commodity prices, other economic fundamentals have also deteriorated. In the near term, supply chains are once again threatened by wide-ranging shutdowns in China as the country battles to enforce its *Zero COVID* policy in the face of a surging Omicron wave. At home, the Fed is signaling a rapid pace of monetary tightening in the face of the highest inflation in decades. And markets have not waited on the Fed, pushing mortgage rates up almost one and one-half percentage points just since we released our March forecast. These factors will significantly restrain growth for the next several years and raise recession risks.

Last year's inflation surge is proving larger and more persistent than expected, the product of buoyant demand and still-binding supply-side constraints. The demand-side factors still appear to be largely temporary in nature. Pandemic fiscal support and the inability to consume dining, entertainment, recreation, and other service activities during the pandemic led to a shift in demand toward physical goods, leading to shortages and shipping backlogs. These shipping problems are likely to last through this year, but eventually a more normal pattern of consumer spending will cause them to ease. And the end of fiscal support will also restrain overall spending. At the same time, some supply-side challenges may be more long-lived, including high commodity prices. And there are key industries where supply constraints remain very important, for example autos and other sectors using semiconductor chips, where COVID-19 has caused on-and-off production disruptions. The shutdowns in China, by disrupting production and exports, threaten further cost pressures.

Fed poised for more big rate hikes

In response to high inflation, the Federal Reserve made its second rate move at its May meeting, boosting the federal funds rate a half-percent. Fed Chair Jerome Powell is now signaling that additional half-point increases are likely in coming months. The workdown of the Fed's large balance sheet of mortgage-backed and other securities will begin in June, and this will put upward pressure on mortgage rates, which have already surged more than two percentage points since last summer for a thirty-year conventional mortgage. Long-term bond rates have also moved higher. The rise of inflation, at the same time that demand is threatened by fiscal constraints

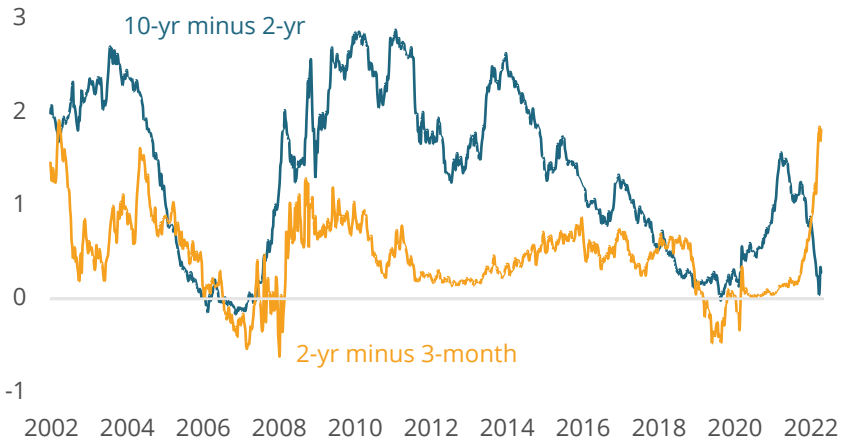
and fallout from the Ukraine war, has raised concerns about a possible return to 1970s-style *stagflation*. Given the temporary nature of some of the current shocks and the coming aggressive action by the Fed, such concerns seem unjustified. Expectations of future inflation have risen, but by much more for the next year than for five years out. Fears that rapid wage gains could get passed through into further inflation seem overblown, considering that wages have yet to move upward in real terms. And labor simply lacks the wage-bargaining power that it had in the 1970s. Also, oil prices are much less important to the now more energy-efficient US economy.

The bigger recession risk may be that excessive Fed tightening, combined with weakening in Europe, will precipitate an economic downturn. In the past it has been difficult for the Fed to raise rates sharply without causing a recession. An indicator often used by economists and financial analysts is the difference ("spread") between prevailing interest rates on Treasury bonds of different maturities. When rates on short-term bonds rise above longer-term rates—known as a yield curve inversion—it may be an indication that markets expect growth (and therefore interest rates) to fall in the future because of a weakening economy. Today, these indicators are giving a mixed signal. The spread between ten-year and two-year bonds has fallen to rough parity, close to the negative spread that in the past has often signaled a pending recession. But the spread between the two year and three-month bond has surged upward. By such short-term yield spreads—similar to measures favored by Fed Chair Powell—the market is not yet flashing recession warning signs.

Fiscal policy will be a significant weight on US growth this year. The ending of pandemic-era support programs means a negative shift of federal outlays by nine percentage points of GDP this year alone, although monies yet to be spent by the states will help smooth this drawdown. The federal budget in January ran a monthly surplus for the first time since September 2019.

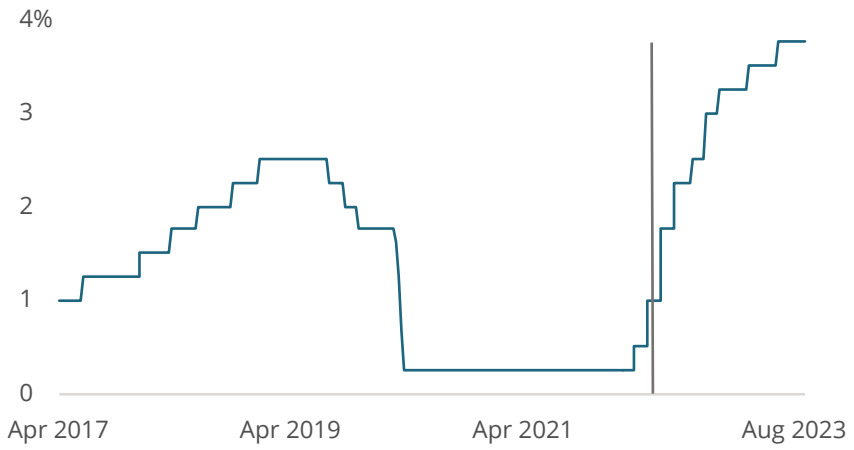
US gross domestic product contracted at a 1.4% annual rate in the first quarter, according to the advance estimate. While this headline number is worrisome, the most important components of GDP showed some resilience. Consumer spending, by far the largest part of total spending, remained above water, and business investment also grew. A surge in imports and a draw-down in inventories were the biggest first quarter drags. Government

TREASURY BOND YIELD SPREADS
The spreads between bonds of different maturities are sending mixed signals about recession risk.



ANTICIPATED FEDERAL FUNDS INTEREST RATE, CME MARKETWATCH

Markets expect the Fed to hike interest rates rapidly.



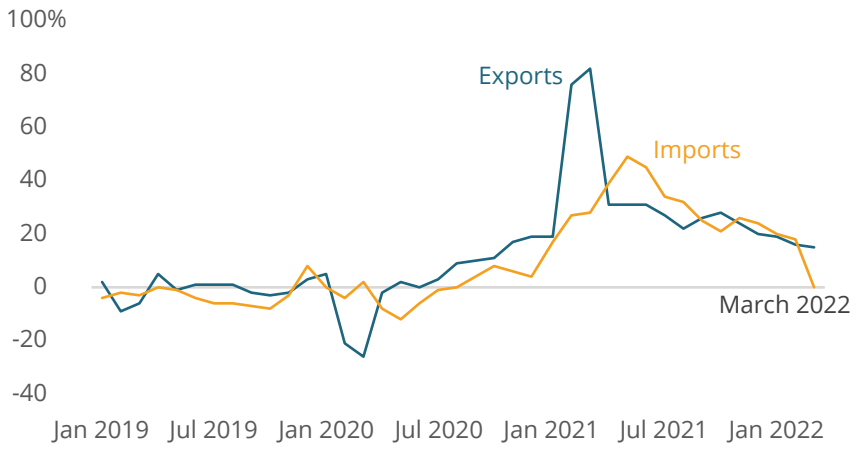
spending also declined. However, other indicators of the economy's health remain robust, particularly job market measures, and some pickup may occur now that Omicron is behind us. In our view, it is simply too soon to know how all of this will develop, but clearly the risk of recession is much greater today than it was when we prepared our first quarter forecast.

The Russian war on Ukraine adds to concerns

Commodity prices began to rise well before the Russian attack on Ukraine, because of big demand-supply imbalances and in some cases COVID-19 related production disruptions. Now, the war—and sanctions levied on Russia in response—are driving up costs further. While the US embargo on Russian oil imports will have little effect (we are no longer a net oil importer), Western Europe's move to wean itself from Russian energy will necessarily impose transition costs over the next several years, despite US commitments to begin supplying natural gas. The war also threatens access to some key industrial metals, as well as Russian and Ukrainian exports of wheat, which account for 30% of global exports. As always, higher food costs will hit poorer countries hardest, and lower-income citizens in developed countries as well. In the US, higher energy prices act as a tax on consumers, but since the US is now the world's largest oil producer, higher energy prices also tend to spur oil patch investment, which has a supportive effect on the overall US economy.

Other potential impacts of the war remain unclear. Russia is sure to have a deep recession this year and probably next. Eastern European countries are facing a huge cost of accommodating Ukrainian refugees. While the democracies have tightened financial sanctions, reliance on Russian oil and natural gas has prevented the imposition of the most effective sanction—a wholesale embargo of Russian energy products. However, as we are completing this report, EU countries may be near agreement on a plan to phase out Russian oil imports over the rest of this year. Russia has begun to retaliate for what it views as a Western "economic war" by cutting off gas supplies to Poland and Bulgaria. The EU has also resisted Russia's insistence on ruble energy payments, raising the risk of further supply cuts and a surge in gas prices. And of course there is the small but non-negligible risk of a broadening of the conflict to NATO member states, which could plunge the world into a broader war. For the longer term, possible NATO expansion to Finland and Sweden (but likely not Ukraine) could further feed President Putin's fears of encirclement, with unknown consequences for overall global security. Already, unofficial comments by a Russian general suggest

GROWTH OF CHINA'S TRADE (2-MONTH MOVING AVERAGE)
Widespread COVID lockdowns have halted China's trade growth.



ambitions that would extend to parts of Moldova, and Putin is saber rattling with tests of a new ICBM.

And COVID is not done yet

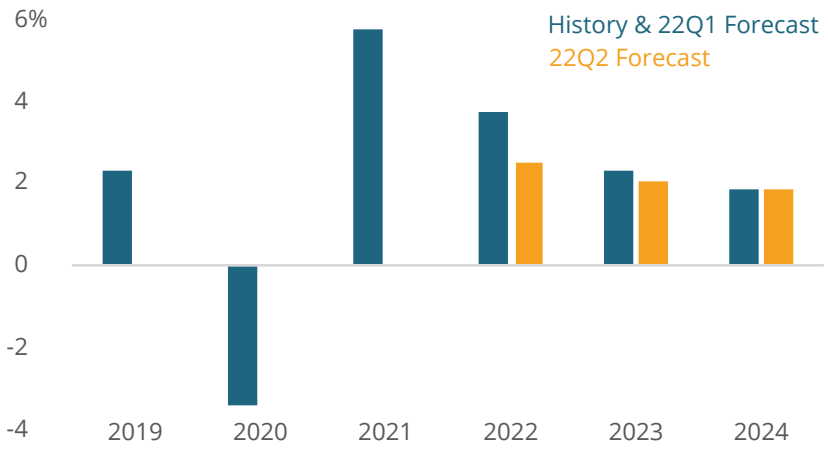
The (first) Omicron wave of the COVID-19 pandemic is now over in the US and many other countries. But the new BA.2 variant has led to a rise in Europe and is now causing an upturn in cases in a number of US cities—albeit from low levels. Of greatest economic significance is the widespread partial or full lockdowns that China is now imposing in the face of a late Omicron wave. At the time of this writing, these *COVID Zero* restrictions are affecting production that accounts for 40% of China's GDP; they have brought Chinese trade growth to a standstill. The Chinese shutdowns threaten new and substantial supply chain disruptions at a time when there were signs of easing globally.

With nearly all COVID-19 protective measures now lifted in the US, the question is how the virus impacts will play out in coming months. Areas where vaccinations and booster shots are widespread will be better positioned than other areas in a country that still badly lags many other developed countries in vaccination progress. Evidence from Europe indicates that hospitalization rates for the BA.2 variant are much lower than for past waves. This bodes well for continued progress in a return to "normal" economic activity. A renewed surge in pressure on hospitals could require new crackdowns. The approval of a second booster shot is encouraging at a time when the new Omicron variant could lead to resurgent virus cases. How this upturn evolves may tell us if the pandemic is over and COVID-19 has become an endemic disease handled by, say, annual booster shots and seasonal preventative measures.

The growth and inflation outlook has worsened

The persistence of inflation, the hawkish shift of the Fed, China's shutdowns, and the war in Ukraine have reduced substantially the near-term outlook for the US and global economies. We now expect that the US will see only 2.5% growth this year, a more than one percentage point markdown from our forecast made in the first quarter. Japan's already tepid growth will manage just 1.2% this year, compared with 1.7% in our previous forecast. International organizations have downgraded sharply their forecasts for the next few years. The OECD's interim outlook of March 17 sees global growth potentially more than one percentage point weaker this year than projected before the war and inflation as much as 2.5 percentage points higher. The IMF spring

REVISIONS TO UHERO US GDP GROWTH FORECASTS
A worsening global environment has reduced our outlook for US growth.



forecast of April 18 shows global growth slowing from 6.1% last year to 3.6% in 2022-2023, again nearly a full 1% reduction from their January forecast update. Not surprisingly, Europe is the most exposed to these shocks—particularly the countries like Germany and Italy that are most dependent on Russian energy exports—but negative effects will be experienced in all regions. While at this point we expect the US economy to continue to grow, albeit at a slower pace, the risk of recession is now significant.

After Omicron, the tourism recovery is back on track

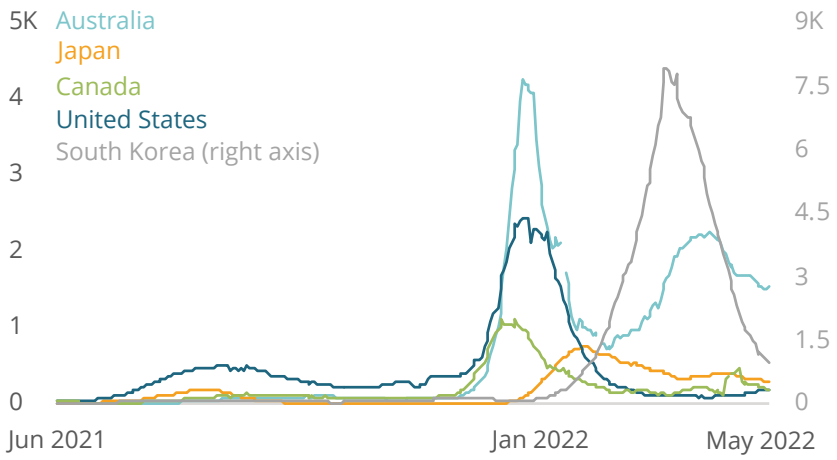
Hawaii's tourism industry was mired in the (first) Omicron wave at the start of the year. Even with Hawaii's high vaccination rate, cases soared, and hospitalizations matched their previous peak. But the wave receded faster than earlier ones, and Hawaii's tourism industry quickly resumed its recovery. With the end of *Safe Travels* restrictions on March 25, there are no COVID-related requirements for arriving domestic passengers. The seasonally adjusted number of US mainland visitors to the Islands has trended up steadily since late January. The March average daily visitor census climbed within 12% of its 2019 level, and the April number of deplaning passengers came within half a percent of its pre-recession level. Canadian visitors are now also present in greater numbers, recovering to about half of their pre-pandemic level.

While the US visitor market continues to surpass pre-pandemic levels, and Canadians are showing up in increasing numbers, there has not yet been any significant improvement in Japanese visitor arrivals, which in March fell short of their pre-pandemic level by 97%. Quarantine requirements have been eased for vaccinated travelers, but remain in place for others. Unvaccinated Japanese residents are required to quarantine for seven days upon their return home. More important is Japan's daily limit on inbound or returning passengers, currently capped at 10,000, less than 10% of the 2019 level. Before the pandemic, Japanese visitors to Hawaii averaged approximately 4,000 passengers per day and accounted for 12% of all visitor spending in the Islands.

The new BA.2 variant has caused a pickup in cases in Europe and Asia. Case counts in major visitor markets, including Japan, South Korea, and Australia, while improving, remain somewhat elevated despite greater than 80% vaccination rates. What gives us hope for continuing easing of travel restrictions is that COVID-19 infections tend to have fewer and fewer serious consequences, and as the virus becomes endemic, societies are learning to cope with it. While the heavily politicized US pandemic response has

DAILY NEW CASES PER MILLION PEOPLE

The number of COVID-19 cases in major tourism markets is now subsiding.

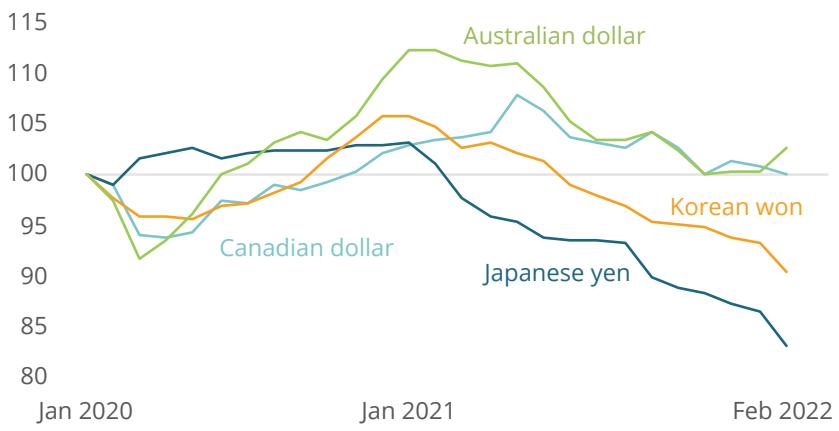


resulted in vaccination and booster rates that are substantially lower than in many developed countries, so far the US is seeing lower BA.2 case counts than other major visitor markets. And cases and hospitalizations in these countries are now subsiding. This sets the stage for further removal of travel restrictions and the return of international visitors in coming months. In particular, we look forward to the long-awaited return of Japanese visitors, who are crucial to the recovery of the international visitor market.

Despite the dearth of international visitors, real visitor spending in March was only 10% below its 2019 level. Real daily per-person spending now exceeds its level before the pandemic began. With the easing of travel restrictions, we expect the return of traditionally higher-spending Asian visitors to support further spending gains as the year progresses. One concern is a very weak yen, whose value in real terms is now 18% lower than when the pandemic began. This will make travel significantly more expensive for Japanese visitors. By some measures the Japanese real exchange rate is now the weakest it has been in fifty years, and the currency may well fall further as US interest rates rise. But its sharp drop in value makes the yen a relative outlier among Hawaii's major tourism market currencies. The Korean won is off less than 10%, and both the Australian dollar and the Canadian dollar are at roughly their pre-pandemic real values against the US dollar. The relatively stable purchasing power of these currencies will offset to some degree the yen's extreme weakness and support visitor spending as travel restrictions are removed.

Hotel bookings for upcoming stays are higher than they were last year, but still lag their level prior to COVID-19. For the month of March, the seasonally-adjusted hotel occupancy rate was 72%, six percentage points below the pre-pandemic level. Across the islands, Kauai is the only county where the occupancy rate exceeds the 2019 level; it is up 6%. The statewide average daily room rate has trended up strongly since the end of 2020, although it has edged downward this year in inflation-adjusted terms. Real revenue per available room (RevPAR), which is often used within the industry as an indicator of overall hotel performance, is now almost 10% above the 2019 level. By this measure, the strongest hotel performance has been on Kauai and Maui. Maui's moratorium on new transient accommodations will add to the pressure on room rates in coming years. Oahu's hotel performance has lagged other counties, although the return of international visitors will help. Bill 41, restricting short term rentals outside resort zones to 90 days, was recently signed by Mayor Blangiardi. It will take effect before the end of the year and will constrain the growth of visitors on Oahu in coming years.

REAL EXCHANGE RATES (INDEX, JANUARY 2020 = 100)
The yen has weakened significantly over the past two years.



Although the anticipated easing of travel restrictions and a return of Japanese and other international visitors is expected to bolster visitor arrivals and spending as the year progresses, rising prices will create headwinds for the industry. Commodity prices that were already surging last year have been further ignited by the Russian war on Ukraine. Rising commodity prices are putting upward pressure on travel costs, and strong North American travel demand has also contributed to price pressures.

Rates for hotel accommodations and rental cars represent significant expenses for Hawaii vacationers. Real room rates in the state are up by 23% from last year, and they are 18% higher than their March 2019 level. Although car rental rates came off their highs set last year during severe fleet shortages, they remain at elevated levels. Strong travel demand, still recovering fleet sizes, and caps on the number of cars—for example on Maui— have also contributed to price hikes. The emergence of car-rental companies such as Turo and Get Around, where car owners can offer their cars for rent (much like transient-vacation rentals), are beginning to provide a more cost-effective alternative for some vacationers. Strong demand has also driven up airfares to some extent. The seasonally-adjusted city average of U.S. airfares had risen by nearly a quarter in March compared with its 2021 level. However, airfares still remain about 4% below their pre-pandemic level. According to a UHERO study, travelers tend to be less responsive to airfares than room rates, which suggests that the recent rise in airfares is not a prohibitive factor for travel to Hawaii, especially for US travelers.

The transition of the virus to endemic status is bringing the gradual liberalization of travel restrictions in our major visitor markets, setting the stage for the long-awaited return of international visitors. International visitor arrivals and spending are expected to recover as the year progresses, even though the yen's extreme weakness will constrain the purchasing power of the traditionally high-spending Japanese visitors. High oil prices will put upward pressure on airfares from all markets, and together with rising accommodation costs, this will weigh on tourist budgets.

Population losses have weighed on labor markets

At the end of the first quarter, the BLS published revisions to the data on job counts. The resulting revised numbers were in some cases significantly different from previous official estimates. At the aggregate level, the data revisions raised the estimate of total Hawaii nonfarm jobs for 2021 by about 3% over the previous estimate. Accommodations and food service jobs had been underestimated by a particularly large margin: monthly payrolls for

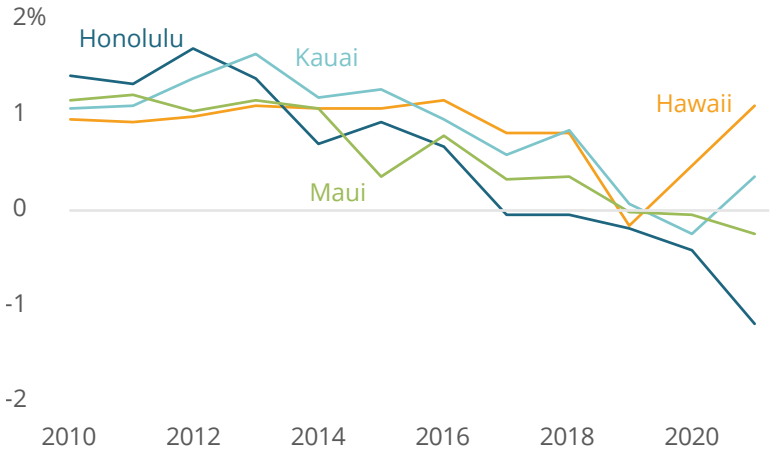
2021 were 4% higher on average following the official data revision. We use our own preliminary estimates of forthcoming benchmark revisions in our analysis and forecasting. UHERO's estimates captured most of the changes that were subsequently made in the official BLS revisions released in March. Our benchmark estimate of total job counts for 2021 differed from the revised figure by less than 0.1% and by 0.3% for the accommodations and food services sector.

The state's labor force took a hit during the pandemic. The number of people employed or actively looking for work fell by more than 64,000 between January and September 2020, a greater than 9% decline. The labor market has made substantial gains since then, but the state's labor force still has roughly 13,000 "missing" workers relative to the pre-COVID era. The net decline in the state's labor force is due in part to lower labor force participation, but a drop in Hawaii's population has played a bigger role. COVID-19 accelerated a decline in population that had already begun prior to the pandemic. Since 2019, the state's population has fallen nearly 1%, or roughly 14,000 people. The population decline has been predominantly on Oahu, which has lost 1.6% of its residents since 2019. Interestingly, the population of Hawaii Island and Kauai actually increased over the same time period. Hawaii County saw the largest rise in residents, with an increase of more than 1.5%.

A significant portion of the state's population decline may be due to residents relocating for better job opportunities elsewhere. Many mainland locales performed better prior to the pandemic, suffered less severe economic downturns during it, and have made more complete recoveries since. In the several years leading up to the COVID-19 onslaught, inflation-adjusted per-capita GDP at the national level increased at an average annual rate of 1.8%, while Hawaii saw annual growth of just under 1% over the same time period. The pandemic widened the gap between Hawaii and the US, as Hawaii's tourism-dependent economy plummeted while the national economy took a sizable, but smaller, hit. So better economic opportunities on the mainland may have generated some of the population outflow. While Hawaii's high cost of living is always a factor, this has remained stable over the past decade at 10-12% above the national average, and it is therefore unlikely to explain recent population losses.

YEAR-OVER-YEAR % CHANGE IN POPULATION

Honolulu has seen significant population losses over the past decade.



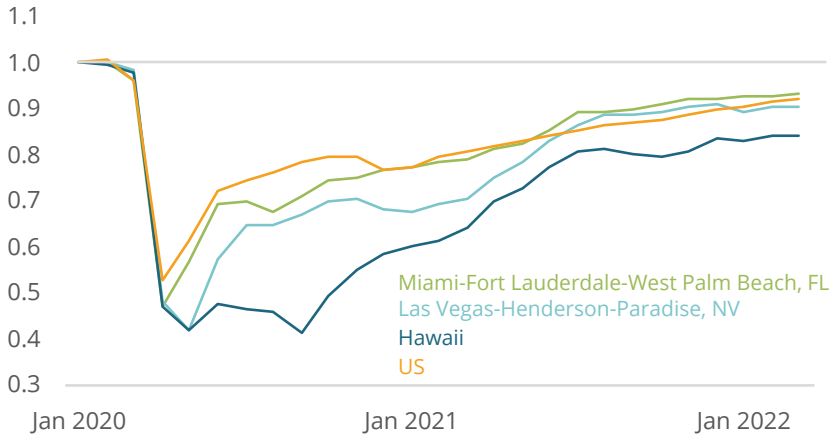
A possible reason for the lagging recovery in labor force participation among Hawaii's remaining population may be potential workers dealing with *long*-COVID. A UHERO and JABSOM survey conducted between December 2021 and February 2022 found that 29% of respondents had tested positive for COVID-19 at least once during the pandemic. Of those testing positive, 35% have dealt with lingering effects of the virus, with symptoms lasting for an average of two-and-a-half months. If the survey is representative of Hawaii's overall population, this would imply that about 200,000 workers tested positive for COVID-19 at some point, and of these roughly 70,000 could be dealing with *long*-COVID symptoms.

Of course, the pandemic effects on employment levels have varied considerably across industries. At the trough of the pandemic, Hawaii's accommodations and food service industry shed nearly 60% of its payrolls. Job losses were larger than at the national level, where industry payrolls declined 50%. As tourism began to recover strongly prior to the Delta wave, the gap in accommodations and food service jobs between Hawaii and the US as a whole began to close. However, the back-to-back COVID-19 waves stalled growth in Hawaii, leaving the industry more than 15% behind its pre-pandemic level.

Other areas across the country with large tourism economies saw similar effects of the pandemic early on, but have recovered a greater proportion of lost jobs since then. During the initial shutdown, Miami saw a payroll decline on par with Hawaii's. But as Florida rapidly reopened, tourism picked up strongly and is now within 7% of its pre-COVID-19 level. The accommodations and food service industry in Las Vegas also took a sizable hit early on, but the county also saw a much faster recovery, and the industry is now in line with the US overall, having recovered more than 90% of lost payrolls. The lagging recovery in the local tourism industry is due to Hawaii's heavy reliance on international visitors. In 2019, the percentage of international tourists in Hawaii was twice as large as that of Nevada. With international visitors in Hawaii down 75%, recovery in the accommodations and food service industry will continue to lag behind other tourism-heavy regions of the US for some time yet.

Differences in reliance on international tourism and the extent of COVID-related restrictions have produced different degrees of employment

ACCOMMODATIONS AND FOOD INDUSTRY PAYROLLS (INDEX, JAN 2020 = 1)
Without international visitors, Hawaii has lagged other tourism locales.



contraction and recovery in Hawaii's counties. Today, Honolulu, Hawaii, and Maui counties' accommodations and food service industries are within roughly 15% of their pre-COVID-19 levels, while Kauai County is lagging. Kauai's industry jobs remain about a quarter below their level before the pandemic, in part because it was the last to loosen COVID-19 restrictions for visitors.

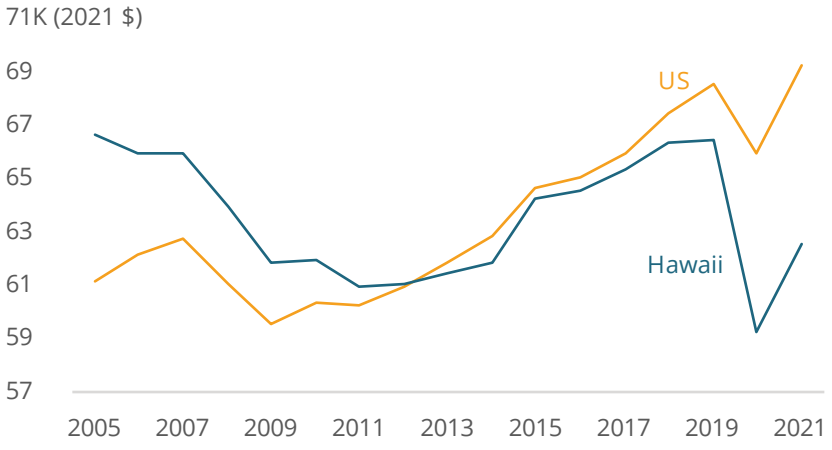
Although last year's back-to-back COVID-19 waves set back Hawaii's recovery—and Hawaii's overall job progress still lags the US by a substantial margin—recent data indicate the beginning of a pickup in employment gains. The gap in the unemployment rate between Hawaii and the rest of the US is also beginning to close. During the worst of the pandemic, Hawaii's unemployment rate was roughly seven percentage points higher than the national average; by March it was only half of a percentage point above the US rate.

Falling federal support will offset near-term labor income gains

Personal income has been volatile throughout the pandemic, buoyed by exceptional amounts of fiscal stimulus on the one hand and lowered by job losses on the other. As we have noted before, in 2021 two surges in Covid-19 essentially stalled economic recovery. While tourism and employment are now moving up, fiscal policy is moving in the opposite direction. Having peaked immediately after the CARES and ARP Acts, transfer payments have fallen back sharply, pulling down total personal income. Together with rapidly rising inflation, this will cause a roughly 5% decline in real income this year.

Unlike transfer income, strong growth in payrolls is propelling recovery in personal labor income. In tourism related industries, the recovery in earnings will be especially pronounced this year. With travel restrictions loosening and individuals resuming more normal spending habits, accommodations and food services will see a 19% increase in labor earnings, while transportation and utilities will see a 9% increase. However, several industries that were more directly tied to pandemic fiscal stimulus show the opposite trend. Notably, finance and real estate will see a 2% decrease in earnings this year before recovering in 2023. As we will discuss below, growth in both jobs and wages will begin to slow after 2022 as we begin to approach the economy's long term growth path.

INFLATION-ADJUSTED PER CAPITA GDP
The pandemic widened the gap between Hawaii and the US.



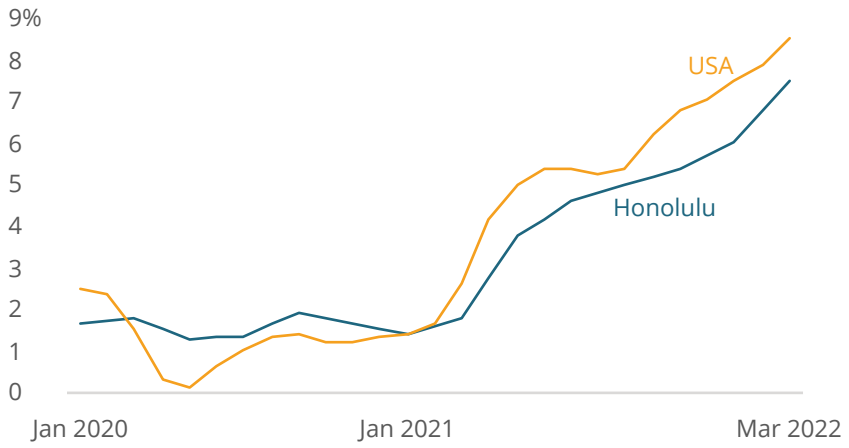
High inflation is burdening households and causing demand destruction

Inflation in Hawaii surged over the past 12 months, hitting 7.5% in March. National inflation numbers have exceeded Hawaii's since early in 2021. Hawaii's somewhat lower inflation is due primarily to smaller increases in transportation costs here, such as prices of new and used vehicles, public transport, oil, maintenance, and gasoline. (Note that consumer price measures for Hawaii are limited to the Honolulu metropolitan statistical area.)

Still, surging prices for transportation, energy and food are eating into household budgets and putting upward pressure on costs of production. This will reduce demand across all sectors of the economy, and some businesses will begin to scale back production as their costs soar. (See the box, *Hawaii inflation burdens*.) Household spending will need to be reallocated so that families can still afford to pay for necessities like food and shelter. Discretionary expenditures such as dining out or vacations are more difficult to justify when budgets are tight. As a result, inflation will impose direct burdens on households and businesses, and the demand destruction that results will create headwinds for Hawaii's recovery.

A big part of the past year's inflation story has been disruptions to supply chains caused by COVID-19 outbreaks. Some segments of the economy and international suppliers shut down temporarily, leading to shortages, difficulties with shipping, and backlogged orders. These bottlenecks have caused shortfalls of supply relative to unusually strong demand for merchandise, driving up costs and prices. Bottlenecks continue to be an issue, including the recent broad shutdown of large swaths of Chinese production during the country's current Omicron surge and production and shipping disruptions arising from the Russian invasion of Ukraine. Reduced access to Russian oil and natural gas, and to some key industrial materials from Russia and Ukraine, will continue to bedevil manufacturers and consumers. Of particular concern is reduced agricultural output. The two countries together account for nearly 30% of global wheat exports. As of mid-April, US wheat futures prices were up 105% to 140% on the price from two years ago, with much of that rise due to the Russian invasion of Ukraine. These new supply concerns are likely to exacerbate existing inflationary pressures associated with COVID-19-related bottlenecks.

CONSUMER PRICE INFLATION IN HONOLULU AND THE US OVERALL
Inflation in the Islands has surged, but a bit less than on the mainland.



Hawaii inflation burdens

Inflation is adding to the cost of living in Hawaii. In March, the Honolulu CPI inflation rate hit 7.5%, a level not seen since 1991. The average inflation rate in Honolulu between 2017 and 2020 was 1.9%, implying that in March 2022 there was "excess inflation" of 5.6%. We estimate that on average the cost of this excess inflation amounts to $3,606 per household, with the cost varying considerably by household income. In addition to the direct burden on households, these additional costs will reduce demand for goods and services and further hinder Hawaii's slow recovery. (For more details see UHERO's recent blog, The cost of "excess inflation" in Hawaii)

The excess inflation burden has been greatest for households that spend more on transportation, but not only due to the price of gasoline. The prices of new and used vehicles have also increased significantly in the last year, along with other public and private transportation costs. Relative to the size of the household budget, the second income quintile (households earning between $38,800 and $70,000 per year) bears the greatest increase in costs, experiencing excess inflation of 6.5%.

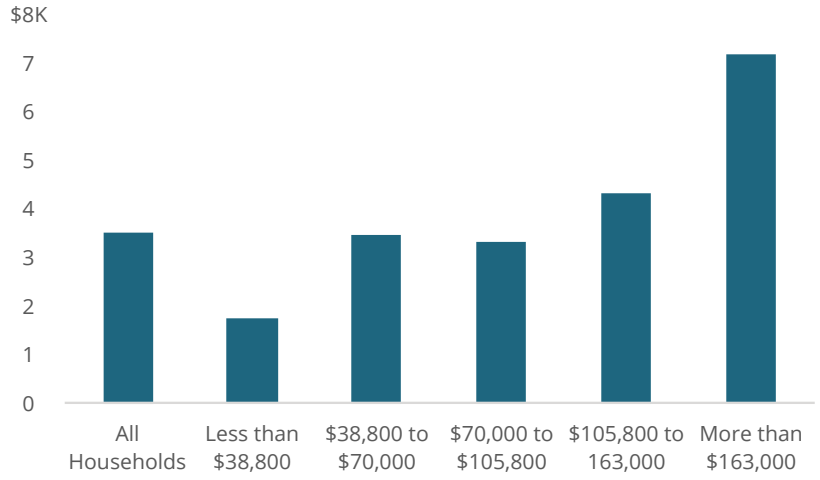
Energy is a key input to nearly all economic activity, although the relationship between energy costs and economic growth has diminished over time as production has become less energy-intensive. Energy prices have risen significantly in Hawaii since May 2021. This will constrain economic growth, although the modest pullback in oil prices from their March peaks may relieve some of the cost pressure.

At this point, the price of food is perhaps a bigger concern than the cost of energy and transportation. Higher food prices may well persist longer than energy costs, and they could have a longer-term impact on household wellbeing. This matters most for low-income households, where food makes up 20% of their overall household budgets. Food prices were already elevated prior to the invasion of Ukraine, but the war is generating further inflationary pressure.

It is unclear just how long inflation will remain elevated. As it has persisted, the US Federal Reserve has made it increasingly clear that it will act aggressively to get inflation moving back toward its long-run target of 2%. But even after inflation subsides, the higher interest rates that result from Fed tightening will impact household budgets. Costs of "excess inflation" to the economy will not abate anytime soon.

COST OF "EXCESS INFLATION" IN HAWAII BY HOUSEHOLD INCOME QUINTILE

UHERO calculations from responses to the Consumer Expenditure Surveys and the American Community Survey.



Housing affordability gets squeezed

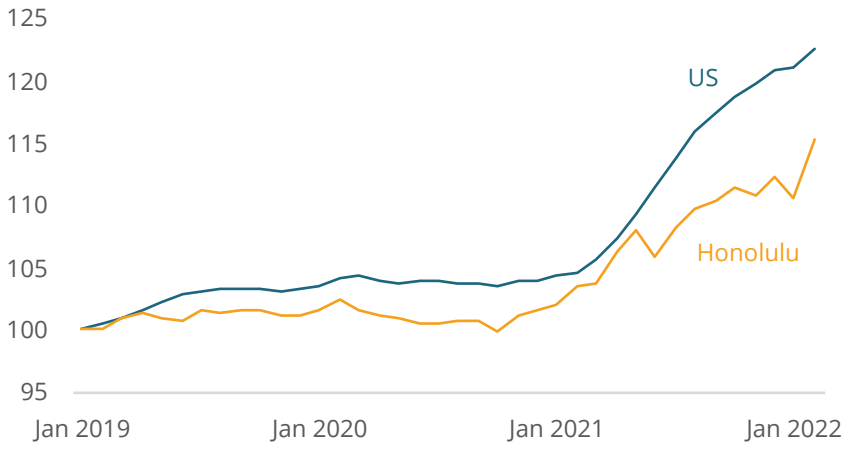
Rising housing costs have contributed significantly to recent inflationary pressures. Both home prices and rents have seen a sharp increase during the first few months of 2022. State trends for single-family home prices have been roughly in line with national developments, while the pace of rent inflation has been somewhat more restrained than for the nation overall.

Home buyers are now being squeezed from both higher interest rates and rising prices. The average rate on a conventional 30-year fixed-rate mortgage has risen more than two percentage points since last summer, recently topping 5%. Over the past year, the median resale price of a single-family home on Oahu has risen 21%, reaching a new record of $1.15 million. Anticipated interest rate increases may have pushed up demand in the short term as buyers rush to lock-in fixed-rate mortgages. Ultimately, the combination of higher interest rates and surging home prices will put downward pressure on housing demand suggesting rapid housing appreciation in Hawaii is unlikely to continue. Nationally, the number of existing home transactions has fallen for two consecutive months, providing some evidence that the market may be cooling. The number of single-family resales on Oahu has also fallen year-on-year for the past two months.

Inflationary pressure is also present in the rental market, although rent increases in Hawaii have been more restrained than in the US overall. Nationally, rents have risen 18% over the past year, while rents in Honolulu have risen 11%. Rental data is more limited on the Neighbor Islands, potentially masking unique trends. According to rental postings on Craigslist, which may not be representative of the overall market, asking rents on Kauai have risen 19%, while on Maui they have surged 41%. In March 2021, the median-priced Craigslist posting for a rental unit on Maui was $1,850, while in March 2022 it had risen to $2,600.

As the affordability of single-family homes declines, some would-be buyers of single-family homes will be pushed into the condominium or rental market. And in fact condominium sales have been particularly brisk in recent months. The number of condo resales during the first three months of the year was up 6% for the state as a whole. In Honolulu, median days on market for a condominium fell from 17 to 11, with the median sale price rising 12%. The Ala Moana-Kakaako area saw the most condominium resales, nearly doubled

HOME RENTS IN HONOLULU AND THE US OVERALL (INDEX, JANUARY 2019 = 100)
Rents have surged during the past year.



from a year earlier. Condominium resales have also risen significantly in the Makiki, Mililani, Moanalua, and Waikiki areas of Oahu.

The contamination of the Halawa water shaft from aging US Navy fuel storage tanks on Red Hill may lead to permit delays or denials for new housing development on Oahu. At least 17 current residential and commercial projects have received warning letters, including several affordable housing projects. Some of the larger commercial projects affected include The Queen's Medical Center redevelopment and Kamehameha Schools' Kakaako Master Plan. Uncertainty or delay in water permitting adds to already-challenging permitting and regulatory barriers faced by housing developers (see Measuring the Burden of Housing Regulation in Hawaii).

Plenty of public construction, if they can find the resources

2021 was a record year for government contracts awarded. While this year the value of new contracts has been relatively modest, previously-awarded contracts will support robust construction demand in coming years. The Navy awarded over $3 billion to update facilities around Pearl Harbor, which will be paid out over the next eight years. In January, the Navy increased a contract held by HDR Engineering by $45 million to adapt construction initiatives affected by the Red Hill fuel leak.

The Hawaii State Government has proposed $350 million in funds for the new Aloha Stadium project. In March, the State released $10 million of the CIP Funds towards the construction of the Stadium. Public and private investment around the Aloha Stadium development will create significant demand for construction labor in coming years. Also, in February CIP funds were released for several roadway and transportation repair projects, with the most notable being $135 million towards the widening of Farrington Highway.

Inflationary pressures have affected the construction industry, with material and labor costs rising significantly. A national index of building costs for nonresidential construction conducted by the Bureau of Labor Statistics showed a 22% increase in costs over the past year, due to both strong demand and supply chain bottlenecks. Labor shortages for skilled trades in the construction industry have led to higher wages, and high costs of materials, particularly lumber, have also contributed to rising costs.

Hawaii shipping companies are investing in new equipment and infrastructure, Pasha Hawaii recently introduced two new cargo vessels, and Young Bros. will be adding four new tugs to their fleet. Matson will increase Neighbor Island service capacity this summer. Aloha Marine Lines increased their capacity by 35% about 18 months ago through the purchase of two barges. While the expansion of shipping capacity is welcome, the threat of labor action from 22,000 unionized dock workers spanning ports across the US west coast is worrisome.

THE HAWAII OUTLOOK

With the winter's Omicron wave behind us, Hawaii's visitor industry and broader economy have resumed recovery. As we noted above, the visitor census has risen to within 12% of its March 2019 level, even with no return yet of Japanese visitors. The labor market is also back on an upward path, albeit so far a modest one. Prospects remain generally favorable for continued economic expansion. At the same time, downside risks to the economy have become much more pronounced. These include the expected rapid Fed tightening, delays to travel liberalization because of the BA.2 Omicron variant, significant supply chain disruptions (especially those originating in China), and high commodity prices and political risks associated with the ongoing war in Ukraine.

International tourism looks poised for recovery. Finally.

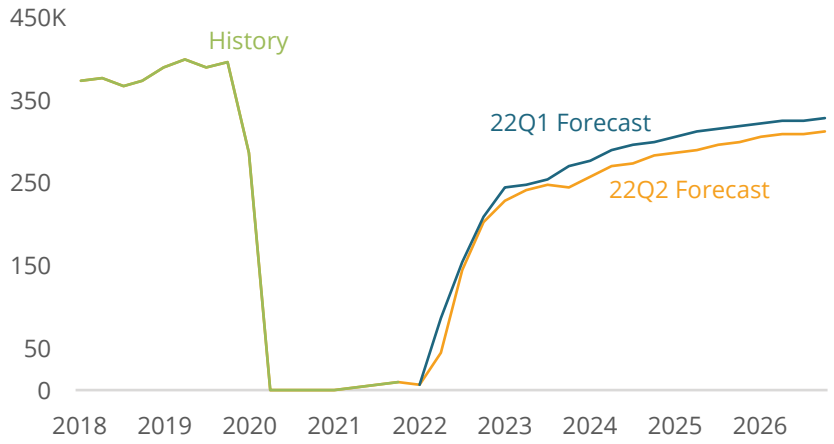
As we have noted in past reports, North American visitors have remained surprisingly resilient throughout the pandemic, and they have driven a relatively healthy industry rebound, particularly on the Neighbor Islands. We have every reason to believe that we are finally set for a rebound of international visitors too. In the near term, there remain challenges. Recovery of the Japanese market is being delayed by continuing limits on the number of daily entrants (or reentrants) to the country. But with BA.2 variant case counts having turned the corner, liberalization is likely over the next few months. Still, we have pushed back a bit our expected path for Japanese market recovery. We now expect significant recovery to become apparent by the third quarter. Japanese visitors will have recouped roughly half of their pandemic era losses by the end of the year, with moderate additional gains in 2023. We do not expect the number of Japanese visitors to reclaim its pre-pandemic level because of trend population decline.

As COVID-19 retreats throughout the region, visitors from other international markets will start to arrive in significant numbers during the next two quarters, recovering to three-quarters of their pre-pandemic level by the fourth quarter of this year. By that time, international arrivals will still lag, but the industry will begin to approach a more normal scale and composition, less dependent on the North American markets alone.

The emergence of the BA.2 COVID-19 variant in the US raises some concerns about potential economic and travel disruptions over the next month or so. But the experience in most other countries—limited hospitalization rates and a relatively rapid virus retreat—suggest that this should not significantly disrupt US and Canadian travel to the Islands. And in fact, case counts may be beginning to turn the corner in some cities that were the first to see a BA.2 surge. Indications continue to favor a gradual move to endemic status for the virus, so that periodic outbreaks are more easily handled, with less economic fallout.

If industry concerns are no longer chiefly pandemic related, new or more significant macroeconomic concerns are now apparent. While we have seen some relief recently, high energy prices are feeding through to increased travel costs. And overall inflationary pressures, already evident last year, have grown. This will weigh on household discretionary income. As we noted above, for now the US economy remains healthy, particularly the labor market. But that health will soon be challenged by the significant increase

UHERO FORECAST FOR JAPANESE VISITOR ARRIVALS
Omicron has pushed back our forecast for Japanese visitor recovery.



in interest rates that is now underway. Further economic disruption related to the war in Ukraine cannot be ruled out. At this point, we remain rather optimistic about prospects for North American visitor markets, based on remaining pent up demand and strong economic fundamentals. US arrivals will exceed their previous peak this year. While we do not separately forecast the number of visitors from Canada, this market will also be strong.

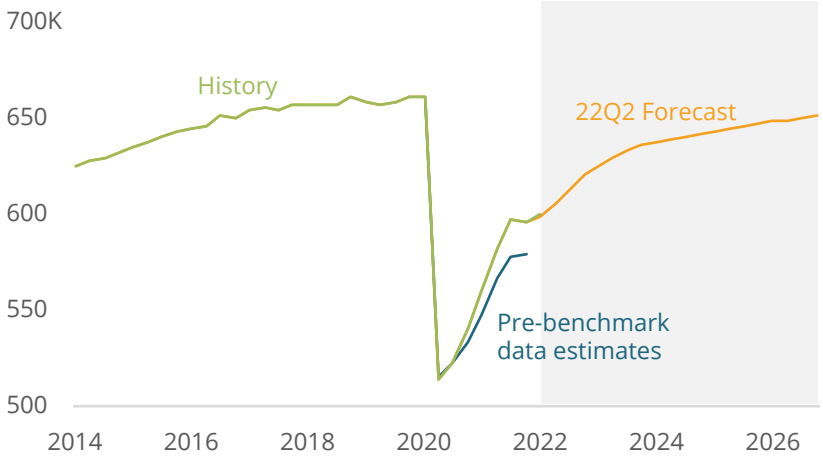
After a weak first quarter, total visitor arrivals will edge above last summer's level this quarter and exceed 90% of their pre-pandemic level by the year's end, just a bit stronger than we forecast at the beginning of March. Visitors will number more than 8.9 million for the year as a whole, rising to 9.5 million in 2023. Oahu will continue to lag in overall numbers compared with the Neighbor Islands until international markets make a significant recovery. Real visitor spending in 2022 will be a third higher than last year, aided by the return of higher-spending international visitors, although the weakness of the yen against the dollar will act as a spending restraint. 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 the overall visitor census to a little below its pre-pandemic peak. Once recovered, real visitor spending will decline slowly, because of stable visitor numbers and a resumption of the long-term decline in per-person real daily spending. This is consistent with historical experience, where, despite periodic upward and downward movements, real visitor spending in recent years was roughly equal to its level back in 1989.

Employment has yet to pick up, but it will

Overall economic activity was suppressed by the Omicron wave, but conditions began improving soon after case counts peaked in late January. The *UHERO Pulse*, summarizing a number of indicators of economic activity at the weekly frequency, turned up in late January and had risen nearly 20 points by mid-April to its highest level since the pandemic began. But the improvement has not yet translated into significant additional labor market gains. While beginning to edge upward, the labor market is just now back to last summer's level. There remains significant room for further labor market recovery.

Despite the minimal progress since last summer, the state's job base will see a strengthening of gains as the year progresses. The total number of payroll jobs will expand by 4.4% for the year overall, roughly in line with our first-quarter forecast. Growth will continue at a healthy 3.5% pace in 2023. By then, job growth will have absorbed most of the remaining slack in

UHERO FORECAST AND BENCHMARK REVISION OF NONFARM PAYROLLS
The state's job base will pick up gains as the year progresses.



the labor market, driving the unemployment rate below 3%, compared with 4.1% in March. The recovery that we have seen in labor force participation will support further gains in employment, although 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.

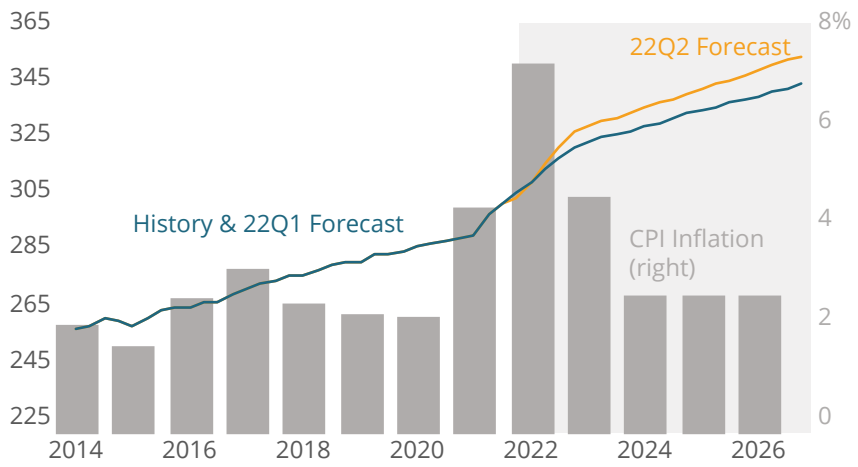
Tourism dependent industries suffered the greatest job losses during the pandemic, and they remain the furthest from pre-pandemic levels of employment. They now have the most potential for recovery as the visitor industry strengthens. The accommodations, food service, trade, and transportation industries combined will add about 20,000 jobs by the end of 2023, about half of all net job gains over the period. Still, the job base in these industries will remain 6-9% below pre-pandemic levels at that time. The healthcare industry is the only sector that will more-or-less fully recover to pre-pandemic levels of employment by the end of 2023. The large "other services" sector, which includes everything from business services to waste management, will rise to within 3% of its pre-pandemic level.

Income has plunged, but will gradually move toward trend

As we have discussed above, inflation in the Islands began picking up in the summer of 2021 when the supply of goods, hampered by production delays and transportation bottlenecks, fell short of demand. Russia's aggression in Ukraine and the ensuing Western-led sanctions triggered another wave of tight supplies, this time of natural resources and agricultural commodities, fueling even higher inflation. At the same time, piles of cash savings accumulated during the pandemic are burning holes in US pockets. The desire to spend the money, rather than let it be eroded by inflation, further contributes to inflationary pressure. After lagging the US overall, the shelter component of the consumer price index, which includes rents and the imputed cost of home ownership, will trend up at an 8% annual rate this year. The momentum will soften afterwards as affordability declines. Energy prices have receded somewhat after their break-neck appreciation earlier this year, and their contribution to rising costs will wane as the market settles at a new equilibrium. Food costs will continue to rise sharply over the next two years. Overall, we now see somewhat higher near-term inflation than we had anticipated in our last report, but the rate of price increase will ease off its current 7% annual pace to about 2% by 2024, roughly its long-run average. This is consistent with our view that this inflationary episode, while damaging, is still largely temporary in nature.

AVERAGE LEVEL OF CONSUMER PRICES IN HAWAII (HONOLULU CPI, 1982-84 = 100)

Near-term inflation will push consumer prices higher than we anticipated in our last forecast.



The winding down of pandemic-era fiscal support to families could already be felt at the end of last year, and real income will continue to decline during the next several months. High inflation this year and next will cut into purchasing power. For this year overall, real personal income will fall about 5%, essentially back to its level in 2019, and it will recover less than one percent in 2023. As inflation recedes to 2% in 2024, employment gains and a tight labor market will support a return to moderate income growth.

The pace of employment and income gains will converge toward their long-run growth paths by mid-decade. The nonfarm payroll job base will average one percent annual growth from 2023 to 2026, by which time it will have nearly regained 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 3.5% this year and surpass its pre-COVID peak by the middle of 2024.

Gnawing fingernails over recession risks

Hawaii finds itself in a somewhat unique position among US states. Because our recovery has been delayed by our reliance on international tourism, improving COVID–19 conditions now set the stage for foreign market rebounds that will support further Hawaii recovery. Local factors will offset some of the drag from deteriorating global macroeconomic conditions, so that measured growth in Hawaii will likely exceed that of the US overall. The fact is that were it not for our delayed recovery, we would be marking down significantly the outlook for the Hawaii economy because of the worsening macro environment.

This does not make us immune from deteriorating conditions elsewhere. The shutoff of pandemic support programs is reducing Hawaii residents' incomes just as it is for mainland families. Inflation is eating into household budgets just as it is in other states. The surge in mortgage rates and pending hikes in short-term rates will drastically alter borrowing and spending conditions here as elsewhere. And these factors will of course weigh on vacation spending by potential US and overseas visitors. An outright recession could be a gut punch to Hawaii tourism.

And recession risks are certainly on the rise. We noted above that the increase in short-term interest rates relative to long-term rates—and the

threat of outright yield curve inversions—is of particular concern, since this has nearly always preceded recessions in the past. The longer high inflation persists, the further the Fed will feel compelled to push up short-term rates. The first-quarter US GDP contraction raises the stakes. Simply put, things look bad for US and global growth, and the Fed has seldom been able to eliminate inflationary pressure without causing a recession. A number of financial institutions and analysts have raised their assessment of recession risk substantially in recent weeks, although the complexity of the economy and the economic environment makes such assessments very difficult to make with any confidence.

Finally, the recent uptick of COVID-19 in Hawaii is of some concern. Hawaii has seen a rapid rise in recent weeks, in some cases tied to large seasonal school events like proms. The lower severity of Omicron variants and the public's likely pushback against renewed restrictions suggests that any economic effects of this wave are likely to be small. But clearly it is too soon to tell. A significant climb in hospitalizations could change the calculus for policymakers.

So Hawaii proceeds forward, toward a more complete tourism recovery and the increase in spending and jobs that will spill over to the broader local economy. But all the while we will be nibbling away at our fingernails, hoping that COVID costs are truly behind us and that a US and global recession can yet be avoided.

TABLE 1: MAJOR ECONOMIC INDICATORS

STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
Nonfarm Payrolls (Thou)	658.5	559.2	583.4	609.1	630.5	639.5
% Change	0.1	-15.1	4.3	4.4	3.5	1.4
Unemployment Rate (%)	2.4	12.0	5.8	3.6	2.9	2.8
Population (Thou)	1,455.7	1,451.9	1,441.6	1,437.1	1,437.0	1,438.7
% Change	-0.2	-0.3	-0.7	-0.3	0.0	0.1
Personal Income (Mil$)	78,515.0	82,528.2	87,106.9	88,193.7	92,554.3	95,927.3
% Change	3.1	5.1	5.5	1.2	4.9	3.6
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2021$)	82,762.6	85,647.3	87,106.9	82,676.5	83,416.9	84,740.3
% Change	1.4	3.5	1.7	-5.1	0.9	1.6
Real Per Capita Income (Thou 2021$)	56.9	59.0	60.4	57.5	58.1	58.9
% Change	1.6	3.8	2.4	-4.8	0.9	1.5
Real GDP (Mil 2021$)	96,744.6	86,028.7	90,018.4	93,148.3	95,473.7	97,551.6
% Change	0.0	-11.1	4.6	3.5	2.5	2.2
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	10,385.8	2,708.3	6,777.1	8,935.5	9,487.4	9,522.8
% Change - Total Visitor Arrivals by Air	5.0	-73.9	150.2	31.8	6.2	0.4
U.S. Visitors	6,871.3	1,987.3	6,465.4	7,449.7	7,009.2	6,799.8
% Change - U.S. Visitors	7.8	-71.1	225.3	15.2	-5.9	-3.0
Japanese Visitors	1,576.2	289.1	24.2	401.9	969.7	1,086.6
% Change - Japanese Visitors	5.8	-81.7	-91.6	1,558.5	141.3	12.0
Other Visitors	1,938.3	431.9	287.5	1,083.9	1,508.5	1,636.4
% Change - Other Visitors	-4.2	-77.7	-33.4	277.0	39.2	8.5
Visitor Days (Thou)	89,690.4	28,515.8	65,341.3	80,713.3	84,180.5	84,092.5
% Change	2.2	-68.2	129.1	23.5	4.3	-0.1
Average Daily Room Rate ($)	282.6	208.3	315.8	367.3	390.8	404.1
% Change	1.8	-26.3	51.6	16.3	6.4	3.4
Occupancy Rate (%)	80.8	31.7	57.1	71.5	74.2	74.4
Real Visitor Expenditures (Mil 2021$)	18,674.6	5,051.4	12,995.7	17,413.1	18,907.2	18,235.3
% Change	-0.4	-73.0	157.3	34.0	8.6	-3.6

Note: Source is UHERO. Occupancy rate includes UHERO's estimate of TVR occupancy. Figures for 2022-2024 are forecasts.

TABLE 2: JOBS BY INDUSTRY
STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
Nonfarm Payrolls (Thou)	658.5	559.2	583.4	609.1	630.5	639.5
% Change	0.1	-15.1	4.3	4.4	3.5	1.4
Construction and Mining	37.6	36.7	36.8	36.8	37.5	38.2
% Change	0.2	-2.4	0.2	0.1	1.9	1.9
Manufacturing	14.1	12.0	12.0	12.5	12.8	13.1
% Change	-2.8	-14.9	0.2	3.9	2.8	2.1
Trade	89.8	77.8	79.5	81.5	83.5	84.3
% Change	-1.1	-13.3	2.2	2.5	2.5	0.9
Transportation and Utilities	35.4	27.2	29.5	32.3	33.2	33.4
% Change	5.6	-23.1	8.2	9.7	2.7	0.6
Finance, Insurance and Real Estate	30.0	27.3	27.1	27.6	28.5	28.9
% Change	1.3	-9.0	-0.8	1.9	3.1	1.7
Services	325.2	256.7	278.3	297.5	312.4	318.0
% Change	-0.2	-21.1	8.4	6.9	5.0	1.8
Health Care and Soc. Assistance	73.5	71.0	71.6	71.9	73.5	74.6
% Change	0.7	-3.4	0.8	0.4	2.2	1.5
Accommodation and Food	113.1	69.5	84.8	98.3	105.4	107.4
% Change	-0.3	-38.6	22.0	15.9	7.3	1.9
Other	138.6	116.2	121.9	127.3	133.5	135.9
% Change	-0.5	-16.2	4.9	4.4	4.9	1.8
Government	126.2	121.1	120.2	120.9	122.5	123.6
% Change	0.5	-4.1	-0.7	0.6	1.4	0.8
Federal Government	34.3	35.2	34.8	34.6	34.6	34.6
% Change	1.7	2.4	-1.1	-0.6	0.1	0.0
State and Local Government	92.0	86.0	85.4	86.3	88.0	89.0
% Change	0.0	-6.4	-0.7	1.1	1.9	1.2

Note: Source is UHERO. Figures for 2022-2024 are forecasts.

TABLE 3: PERSONAL INCOME BY INDUSTRY
STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
Real Personal Income (Mil 2021$)	82,762.6	85,647.3	87,106.9	82,676.5	83,416.9	84,740.3
% Change	1.4	3.5	1.7	-5.1	0.9	1.6
Labor & Proprietors' Income	60,141.2	56,334.7	58,303.7	59,796.0	60,734.8	61,758.4
% Change	1.4	-6.3	3.5	2.6	1.6	1.7
Construction	4,882.1	4,979.9	4,997.0	5,024.8	5,055.8	5,133.4
% Change	3.9	2.0	0.3	0.6	0.6	1.5
Manufacturing	1,067.6	994.8	984.7	1,001.9	994.9	1,009.3
% Change	-0.5	-6.8	-1.0	1.7	-0.7	1.5
Trade	5,054.1	4,710.7	5,005.5	5,118.0	5,182.3	5,225.7
% Change	-0.4	-6.8	6.3	2.2	1.3	0.8
Transportation and Utilities	3,439.8	2,970.5	3,149.3	3,437.0	3,451.0	3,469.5
% Change	4.8	-13.6	6.0	9.1	0.4	0.5
Finance, Insurance & Real Estate	4,103.1	4,167.8	4,240.2	4,147.7	4,178.4	4,267.0
% Change	9.9	1.6	1.7	-2.2	0.7	2.1
Services	24,628.5	21,304.2	23,262.3	24,489.7	24,926.9	25,272.0
% Change	0.6	-13.5	9.2	5.3	1.8	1.4
Health Care & Soc. Assist. (% ch.)	3.0	4.2	2.9	-0.2	0.1	1.0
Accommodation & Food (% ch.)	4.9	-44.1	36.4	18.9	1.9	0.9
Other (% ch.)	-2.8	-6.3	4.1	2.7	2.7	1.8
Government	16,660.5	16,837.5	16,326.1	16,220.7	16,583.1	17,013.7
% Change	0.0	1.1	-3.0	-0.6	2.2	2.6
Federal, civilian (% ch.)	2.6	2.1	-3.0	-0.4	0.7	0.5
State & Local (% ch.)	0.9	0.0	-4.0	-2.2	3.2	3.6
Less Social Security Taxes (-)	6,923.5	6,525.4	6,811.7	6,965.0	7,067.9	7,182.4
% Change	3.0	-5.7	4.4	2.3	1.5	1.6
Transfer Payments	13,375.4	20,090.2	20,327.2	14,702.9	14,646.3	14,909.1
% Change	2.6	50.2	1.2	-27.7	-0.4	1.8
Dividends, Interest and Rent	16,169.5	15,747.8	15,287.6	15,142.4	15,103.9	15,255.7
% Change	1.3	-2.6	-2.9	-1.0	-0.3	1.0
Population (Thou)	1,455.7	1,451.9	1,441.6	1,437.1	1,437.0	1,438.7
% Change	-0.2	-0.3	-0.7	-0.3	0.0	0.1
Real Per Capita Income (Thou 2021$)	56.9	59.0	60.4	57.5	58.1	58.9
% Change	1.6	3.8	2.4	-4.8	0.9	1.5
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Nominal Personal Income (Mil. $)	78,515.0	82,528.2	87,106.9	88,193.7	92,554.3	95,927.3
% Change	3.1	5.1	5.5	1.2	4.9	3.6

Note: Source is UHERO. Figures for 2022-2024 are forecasts.

TABLE 4: CONSTRUCTION INDICATORS
STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
BUILDING PERMITS (Mil 2021$)						
Total Commitments to Build	4,195	6,504	13,689	6,097	6,568	6,342
% Change	-27.5	55.0	110.5	-55.5	7.7	-3.4
Real Private Building Permits	3,468	3,267	3,747	3,502	3,880	3,635
% Change	-4.4	-5.8	14.7	-6.5	10.8	-6.3
Real Residential Building Permits	1,305	1,203	1,995	1,617	1,681	1,499
% Change	-15.8	-7.8	65.8	-19.0	4.0	-10.8
Real Non-Residential Building Permits	2,164	2,063	1,752	1,886	2,200	2,136
% Change	4.1	-4.6	-15.1	7.6	16.7	-2.9
Real Government Contracts Awarded	727	3,238	9,942	2,595	2,687	2,707
% Change	-66.4	345.4	207.1	-73.9	3.6	0.7
CONSTRUCTION ACTIVITY						
Real GE Contracting Tax Base (Mil 2021$)	10,346	10,254	10,188	10,693	11,277	11,243
% Change	-1.4	-0.9	-0.6	5.0	5.5	-0.3
Nominal GE Contracting Tax Base (Mil $)	9,609	9,757	10,188	11,632	13,087	13,679
% Change	1.6	1.5	4.4	14.2	12.5	4.5
Construction Job Count (Thou)	37.6	36.7	36.8	36.8	37.5	38.2
% Change	0.2	-2.4	0.2	0.1	1.9	1.9
Real Construction Income (Mil 2021$)	4,882	4,980	4,997	5,025	5,056	5,133
% Change	3.9	2.0	0.3	0.6	0.6	1.5
PRICES & COSTS (HONOLULU)						
Honolulu Median Home Price (Thou $)	790.4	822.4	987.8	1107.5	1097.4	1067.1
% Change	0.2	4.1	20.1	12.1	-0.9	-2.8
Honolulu Median Condominium Price (Thou $)	427.6	433.1	470.9	515.6	521.3	511.7
% Change	1.1	1.3	8.7	9.5	1.1	-1.8
Honolulu Housing Affordability Index	85.0	94.4	83.6	57.4	57.5	61.3
% Change	7.7	11.0	-11.4	-31.4	0.2	6.7
Honolulu Construction Cost Index (2021=100)	92.9	95.2	100.0	108.8	116.1	121.7
% Change	3.1	2.5	5.1	8.8	6.7	4.8
30-Year Mortgage Rate (%)	3.9	3.1	3.0	5.1	5.6	5.5

Note: Source is UHERO. Figures for 2022-2024 are forecasts. Commitments to Build are the sum of private permits and public contracts awarded. 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

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	473.9	411.5	421.9	438.3	453.7	459.3
% Change	0.1	-13.2	2.5	3.9	3.5	1.2
Unemployment Rate (%)	2.3	10.3	7.1	3.4	2.7	2.7
Population (Thou)	1,017.6	1,013.2	1,000.9	996.0	995.0	995.2
% Change	-0.2	-0.4	-1.2	-0.5	-0.1	0.0
Personal Income (Mil $)	57,756.1	60,521.9	63,473.7	64,537.4	67,742.3	70,220.0
% Change	2.4	4.8	4.9	1.7	5.0	3.7
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2020 $)	58,663.5	60,521.9	61,162.1	58,296.9	58,830.9	59,772.0
% Change	0.8	3.2	1.1	-4.7	0.9	1.6
Real Per Capita Income (Thou 2020 $)	57.7	59.7	61.1	58.5	59.1	60.1
% Change	1.0	3.6	2.3	-4.2	1.0	1.6
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	6,153.9	1,506.2	3,330.9	4,698.4	5,460.0	5,525.3
% Change - Total Visitor Arrivals by Air	5.0	-75.5	121.1	41.1	16.2	1.2
U.S. Visitors	3,326.5	967.4	3,139.1	3,595.7	3,382.8	3,265.8
% Change - U.S. Visitors	9.3	-70.9	224.5	14.5	-5.9	-3.5
Japanese Visitors	1,492.8	269.4	23.1	383.1	946.4	1,041.0
% Change - Japanese Visitors	6.7	-82.0	-91.4	1,556.3	147.0	10.0
Other Visitors	1,334.6	269.5	168.7	719.5	1,130.8	1,218.4
% Change - Other Visitors	-6.0	-79.8	-37.4	326.5	57.2	7.8
Visitor Days (Thou)	41,827.3	12,829.5	26,980.7	34,533.8	37,969.3	38,035.1
% Change	3.3	-69.3	110.3	28.0	9.9	0.2
Occupancy Rate (%)	84.0	32.8	54.9	70.4	76.2	76.7

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

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

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	473.9	411.5	421.9	438.3	453.7	459.3
% Change	0.1	-13.2	2.5	3.9	3.5	1.2
Construction and Mining	27.2	26.8	26.8	26.8	27.4	28.0
% Change	-0.1	-1.6	0.0	0.0	2.4	1.9
Manufacturing	11.0	9.4	9.1	9.4	9.7	10.0
% Change	-4.5	-14.6	-3.3	3.2	3.5	2.6
Trade	62.1	53.5	54.1	55.3	56.7	57.3
% Change	-1.6	-13.9	1.1	2.2	2.6	0.9
Transportation and Utilities	26.1	20.7	21.5	23.2	23.9	24.0
% Change	7.0	-20.6	3.7	8.2	2.6	0.6
Finance, Insurance and Real Estate	23.0	21.7	21.2	21.4	21.9	22.3
% Change	1.3	-5.7	-2.4	1.0	2.5	1.6
Services	227.3	186.3	196.6	208.9	219.7	222.8
% Change	-0.1	-18.1	5.5	6.3	5.1	1.4
Health Care and Soc. Assistance	54.4	52.9	53.5	53.6	54.8	55.6
% Change	0.1	-2.8	1.1	0.2	2.3	1.5
Accommodation and Food	67.4	43.3	50.1	58.2	62.8	63.5
% Change	-0.4	-35.7	15.6	16.2	7.9	1.2
Other	105.5	90.3	93.2	97.2	102.1	103.7
% Change	0.0	-14.4	3.2	4.2	5.1	1.5
Government	97.1	93.0	92.6	93.2	94.4	95.0
% Change	0.1	-4.1	-0.5	0.7	1.3	0.7
Federal Government	31.6	32.3	32.1	31.9	31.9	31.9
% Change	1.6	2.4	-0.8	-0.5	-0.1	-0.1
State and Local Government	65.5	60.7	60.5	61.3	62.5	63.2
% Change	-0.6	-7.3	-0.3	1.3	2.0	1.1

Note: Source is UHERO. Figures for 2022 - 2024 are forecasts.

TABLE 7: PERSONAL INCOME BY DETAILED SECTOR
HONOLULU COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Real Personal Income (Mil 2020 $)	58,663.5	60,521.9	61,162.1	58,296.9	58,830.9	59,772.0
% Change	0.8	3.2	1.1	-4.7	0.9	1.6
Labor & Proprietors' Income	43,898.1	41,757.2	42,531.1	43,442.4	44,208.4	44,927.1
% Change	0.6	-4.9	1.9	2.1	1.8	1.6
Construction	3,468.0	3,566.8	3,576.1	3,593.9	3,632.5	3,689.2
% Change	4.4	2.8	0.3	0.5	1.1	1.6
Manufacturing	829.7	771.2	745.1	753.8	751.5	764.3
% Change	-1.8	-7.0	-3.4	1.2	-0.3	1.7
Trade	3,420.3	3,196.4	3,356.6	3,447.8	3,496.8	3,524.8
% Change	-2.1	-6.5	5.0	2.7	1.4	0.8
Transportation and Utilities	2,581.0	2,260.9	2,318.0	2,502.3	2,513.3	2,527.6
% Change	5.8	-12.4	2.5	8.0	0.4	0.6
Finance, Insurance & Real Estate	3,126.5	3,193.3	3,197.4	3,142.0	3,181.7	3,244.7
% Change	9.3	2.1	0.1	-1.7	1.3	2.0
Services	16,908.6	15,067.3	16,014.5	16,727.5	17,075.3	17,289.7
% Change	-0.6	-10.9	6.3	4.5	2.1	1.3
Health Care & Soc. Assist. (% ch.)	2.5	3.6	2.9	-0.3	0.3	0.9
Accommodation & Food (% ch.)	4.5	-44.5	31.5	19.8	2.7	0.8
Other (% ch.)	-3.9	-5.4	2.5	2.7	2.9	1.6
Government	13,465.3	13,592.1	13,221.4	13,167.1	13,447.8	13,776.2
% Change	-0.7	0.9	-2.7	-0.4	2.1	2.4
Federal, civilian (% ch.)	2.5	2.1	-2.9	-0.5	0.6	0.4
State & Local (% ch.)	-0.3	-0.6	-3.6	-2.1	3.2	3.6
Less Social Security Taxes (-)	5,031.0	4,813.6	4,902.6	5,005.8	5,092.9	5,175.1
% Change	2.1	-4.3	1.9	2.1	1.7	1.6
Transfer Payments	8,630.1	12,702.1	12,614.7	9,454.2	9,464.6	9,623.0
% Change	2.6	47.2	-0.7	-25.1	0.1	1.7
Dividends, Interest and Rent	11,216.9	10,928.8	10,615.7	10,524.6	10,514.3	10,620.3
% Change	0.9	-2.6	-2.9	-0.9	-0.1	1.0
Population (Thou)	1,017.6	1,013.2	1,000.9	996.0	995.0	995.2
% Change	-0.2	-0.4	-1.2	-0.5	-0.1	0.0
Real Per Capita Income (Thou 2020 $)	57.7	59.7	61.1	58.5	59.1	60.1
% Change	1.0	3.6	2.3	-4.2	1.0	1.6
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Nominal Personal Income (Mil $)	57,756.1	60,521.9	63,473.7	64,537.4	67,742.3	70,220.0
% Change	2.4	4.8	4.9	1.7	5.0	3.7

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

TABLE 8: MAJOR ECONOMIC INDICATOR SUMMARY
HAWAII COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	70.9	60.4	64.5	66.8	68.6	69.7
% Change	-0.2	-14.7	6.8	3.5	2.7	1.6
Unemployment Rate (%)	3.1	11.5	7.7	3.7	3.1	3.0
Population (Thou)	199.9	200.7	202.9	203.4	203.9	204.7
% Change	-0.2	0.4	1.1	0.2	0.3	0.4
Personal Income (Mil $)	8,602.4	9,410.8	10,061.2	10,153.5	10,609.4	10,958.7
% Change	3.9	9.4	6.9	0.9	4.5	3.3
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2020 $)	8,737.5	9,410.8	9,694.8	9,171.6	9,213.8	9,328.1
% Change	2.3	7.7	3.0	-5.4	0.5	1.2
Real Per Capita Income (Thou 2020 $)	43.7	46.9	47.8	45.1	45.2	45.6
% Change	2.5	7.2	1.9	-5.6	0.2	0.9
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	1,763.9	493.6	1,184.1	1,591.8	1,678.8	1,705.6
% Change - Total Visitor Arrivals by Air	3.4	-72.0	139.9	34.4	5.5	1.6
U.S. Visitors	1,250.6	379.2	1,137.8	1,366.1	1,301.6	1,277.0
% Change - U.S. Visitors	5.7	-69.7	200.1	20.1	-4.7	-1.9
Japanese Visitors	170.7	35.5	1.4	45.8	112.7	128.4
% Change - Japanese Visitors	-3.3	-79.2	-96.2	3,266.4	146.2	13.9
Other Visitors	342.6	79.0	44.9	179.9	264.5	300.2
% Change - Other Visitors	-1.0	-76.9	-43.2	300.8	47.0	13.5
Visitor Days (Thou)	12,977.7	4,992.5	10,966.8	12,545.4	12,546.3	12,640.0
% Change	1.5	-61.5	119.7	14.4	0.0	0.7
Occupancy Rate (%)	77.0	34.2	60.8	70.9	69.8	70.0

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

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

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	70.9	60.4	64.5	66.8	68.6	69.7
% Change	-0.2	-14.7	6.8	3.5	2.7	1.6
Construction and Mining	3.8	3.6	3.7	3.7	3.7	3.7
% Change	-2.4	-5.2	1.8	-0.6	0.7	1.7
Manufacturing	1.4	1.2	1.4	1.5	1.5	1.5
% Change	2.4	-9.2	10.9	8.1	-0.4	-0.9
Trade	11.5	10.6	11.1	11.3	11.5	11.5
% Change	0.2	-7.6	4.2	1.8	1.6	0.3
Transportation and Utilities	3.3	2.5	2.8	3.2	3.3	3.3
% Change	-1.0	-22.4	9.5	16.6	2.4	0.3
Finance, Insurance and Real Estate	2.7	2.3	2.3	2.4	2.5	2.5
% Change	1.9	-13.8	-1.6	3.8	4.6	1.8
Services	33.2	26.4	29.3	30.8	32.0	32.7
% Change	-1.6	-20.4	10.9	5.2	3.8	2.1
Health Care and Soc. Assistance	7.9	7.5	7.5	7.5	7.7	7.8
% Change	1.3	-5.3	0.6	-0.5	2.2	1.7
Accommodation and Food	12.9	8.3	10.7	12.0	12.5	12.7
% Change	-2.9	-35.9	29.3	12.2	4.4	1.9
Other	12.4	10.7	11.1	11.4	11.9	12.2
% Change	-2.1	-13.9	3.8	2.3	4.3	2.7
Government	15.0	14.2	14.1	13.9	14.2	14.4
% Change	3.0	-5.3	-0.7	-1.5	2.0	1.6
Federal Government	1.3	1.3	1.1	1.2	1.2	1.3
% Change	0.0	0.1	-13.1	8.2	2.0	1.1
State and Local Government	13.7	12.9	13.0	12.7	12.9	13.1
% Change	3.3	-5.8	0.6	-2.4	1.9	1.7

Note: Source is UHERO. Figures for 2022 - 2024 are forecasts.

TABLE 10: PERSONAL INCOME BY DETAILED SECTOR
HAWAII COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Real Personal Income (Mil 2020 $)	8,737.5	9,410.8	9,694.8	9,171.6	9,213.8	9,328.1
% Change	2.3	7.7	3.0	-5.4	0.5	1.2
Labor & Proprietors' Income	5,273.1	5,046.7	5,373.7	5,464.8	5,482.4	5,567.7
% Change	1.4	-4.3	6.5	1.7	0.3	1.6
Construction	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Manufacturing	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Trade	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Transportation and Utilities	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Finance, Insurance & Real Estate	—	284.8	—	—	—	—
% Change	—	—	—	—	—	—
Services	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Health Care & Soc. Assist. (% ch.)	—	—	—	—	—	—
Accommodation & Food (% ch.)	—	—	—	—	—	—
Other (% ch.)	—	—	—	—	—	—
Government	1,294.2	1,313.1	1,236.6	1,201.7	1,239.4	1,287.6
% Change	4.3	1.5	-5.8	-2.8	3.1	3.9
Federal, civilian (% ch.)	2.7	3.4	-7.6	0.4	2.5	1.6
State & Local (% ch.)	4.7	1.1	-5.6	-3.4	3.3	4.2
Less Social Security Taxes (-)	626.1	602.4	663.4	667.0	667.4	676.2
% Change	4.0	-3.8	10.1	0.5	0.1	1.3
Transfer Payments	2,135.1	3,046.3	3,265.3	2,353.0	2,316.8	2,363.7
% Change	1.8	42.7	7.2	-27.9	-1.5	2.0
Dividends, Interest and Rent	1,924.1	1,890.1	1,819.9	1,779.5	1,769.3	1,788.6
% Change	5.8	-1.8	-3.7	-2.2	-0.6	1.1
Population (Thou)	199.9	200.7	202.9	203.4	203.9	204.7
% Change	-0.2	0.4	1.1	0.2	0.3	0.4
Real Per Capita Income (Thou 2020 $)	43.7	46.9	47.8	45.1	45.2	45.6
% Change	2.5	7.2	1.9	-5.6	0.2	0.9
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Nominal Personal Income (Mil $)	8,602.4	9,410.8	10,061.2	10,153.5	10,609.4	10,958.7
% Change	3.9	9.4	6.9	0.9	4.5	3.3

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 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

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	80.4	61.2	69.1	73.7	76.6	78.2
% Change	0.2	-23.9	12.8	6.7	3.9	2.1
Unemployment Rate (%)	2.4	18.1	10.3	4.3	3.0	2.7
Population (Thou)	164.9	164.7	164.3	164.1	164.4	164.8
% Change	0.0	-0.1	-0.3	-0.1	0.1	0.3
Personal Income (Mil $)	8,478.3	8,708.3	9,417.8	9,275.9	9,789.9	10,201.7
% Change	5.7	2.7	8.1	-1.5	5.5	4.2
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2020 $)	8,611.5	8,708.3	9,074.9	8,379.0	8,502.1	8,683.8
% Change	4.0	1.1	4.2	-7.7	1.5	2.1
Real Per Capita Income (Thou 2020 $)	52.2	52.9	55.2	51.0	51.7	52.7
% Change	4.1	1.2	4.5	-7.6	1.3	1.9
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	3,111.1	807.3	2,336.1	3,022.2	3,061.0	3,049.4
% Change - Total Visitor Arrivals by Air	5.0	-74.1	189.4	29.4	1.3	-0.4
U.S. Visitors	2,488.6	672.0	2,236.7	2,737.7	2,604.3	2,543.5
% Change - U.S. Visitors	7.5	-73.0	232.8	22.4	-4.9	-2.3
Japanese Visitors	48.5	8.3	0.9	7.4	19.4	24.8
% Change - Japanese Visitors	-3.0	-83.0	-89.0	710.2	162.3	27.9
Other Visitors	574.0	127.0	98.6	277.1	437.3	481.0
% Change - Other Visitors	-4.1	-77.9	-22.4	181.1	57.8	10.0
Visitor Days (Thou)	24,776.6	7,754.3	20,387.8	24,599.5	24,033.0	23,641.1
% Change	2.9	-68.7	162.9	20.7	-2.3	-1.6
Occupancy Rate (%)	77.8	27.9	59.9	74.8	74.4	73.9

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

TABLE 12: JOBS BY DETAILED SECTOR (THOUSANDS)
MAUI COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	80.4	61.2	69.1	73.7	76.6	78.2
% Change	0.2	-23.9	12.8	6.7	3.9	2.1
Construction and Mining	4.4	4.3	4.3	4.2	4.3	4.4
% Change	0.9	-1.6	-0.8	-1.3	0.9	2.3
Manufacturing	1.2	1.0	1.0	1.1	1.1	1.1
% Change	7.4	-20.0	1.8	12.1	2.2	1.8
Trade	11.5	9.7	10.3	10.6	10.9	11.1
% Change	-0.2	-15.5	5.4	3.7	2.6	1.3
Transportation and Utilities	4.8	3.3	3.6	4.2	4.4	4.4
% Change	4.1	-31.6	9.0	17.7	3.8	1.0
Finance, Insurance and Real Estate	3.1	2.4	2.6	2.8	3.0	3.0
% Change	0.5	-22.3	7.1	8.3	5.9	2.2
Services	46.5	32.2	38.7	42.0	44.1	45.2
% Change	-0.3	-30.6	19.9	8.6	4.9	2.6
Health Care and Soc. Assistance	8.1	7.9	8.0	8.0	8.1	8.3
% Change	3.5	-3.3	1.8	0.0	1.8	1.4
Accommodation and Food	23.4	13.1	18.0	20.6	22.0	22.6
% Change	0.7	-44.1	37.5	14.7	6.6	2.9
Other	15.0	11.3	12.7	13.4	14.0	14.3
% Change	-3.6	-24.4	12.2	5.4	4.3	2.7
Government	9.1	8.8	8.6	8.7	8.8	8.9
% Change	-0.4	-4.0	-1.9	1.3	1.3	1.0
Federal Government	0.9	0.9	0.9	0.9	0.9	0.9
% Change	1.0	-1.6	1.3	-1.1	1.5	0.4
State and Local Government	8.3	7.9	7.7	7.9	8.0	8.0
% Change	-0.5	-4.2	-2.3	1.6	1.3	1.1

Note: Source is UHERO. Figures for 2022 - 2024 are forecasts.

TABLE 13: PERSONAL INCOME BY DETAILED SECTOR
MAUI COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Real Personal Income (Mil 2020 $)	8,611.5	8,708.3	9,074.9	8,379.0	8,502.1	8,683.8
% Change	4.0	1.1	4.2	-7.7	1.5	2.1
Labor & Proprietors' Income	6,216.0	5,214.5	5,857.1	6,129.4	6,208.6	6,337.3
% Change	5.3	-16.1	12.3	4.6	1.3	2.1
Construction	557.0	565.4	550.3	543.2	537.7	545.5
% Change	6.0	1.5	-2.7	-1.3	-1.0	1.5
Manufacturing	78.4	73.3	78.6	82.7	82.4	84.0
% Change	8.8	-6.5	7.2	5.3	-0.4	1.9
Trade	605.7	535.8	576.5	590.8	591.3	602.3
% Change	4.0	-11.5	7.6	2.5	0.1	1.9
Transportation and Utilities	319.4	259.7	323.5	363.4	367.5	370.9
% Change	4.7	-18.7	24.6	12.3	1.1	0.9
Finance, Insurance & Real Estate	408.3	389.8	410.1	418.4	426.1	431.3
% Change	17.3	-4.5	5.2	2.0	1.8	1.2
Services	3,400.4	2,466.0	3,002.9	3,226.8	3,308.7	3,400.1
% Change	4.8	-27.5	21.8	7.5	2.5	2.8
Health Care & Soc. Assist. (% ch.)	7.3	1.9	-1.5	-0.8	-0.7	1.4
Accommodation & Food (% ch.)	6.8	-47.1	48.5	15.9	4.7	3.4
Other (% ch.)	1.0	-16.9	14.1	2.8	1.6	2.6
Government	818.5	827.9	800.6	787.5	806.3	831.6
% Change	3.5	1.1	-3.3	-1.6	2.4	3.1
Federal, civilian (% ch.)	3.9	0.6	-1.5	1.1	2.1	1.0
State & Local (% ch.)	3.2	0.9	-3.9	-2.2	2.5	3.5
Less Social Security Taxes (-)	715.3	606.2	704.5	729.0	736.4	749.9
% Change	6.9	-15.3	16.2	3.5	1.0	1.8
Transfer Payments	1,406.2	2,455.5	2,494.0	1,567.6	1,550.1	1,581.8
% Change	5.7	74.6	1.6	-37.1	-1.1	2.0
Dividends, Interest and Rent	1,674.0	1,614.6	1,583.6	1,567.6	1,554.6	1,569.6
% Change	-0.6	-3.6	-1.9	-1.0	-0.8	1.0
Population (Thou)	164.9	164.7	164.3	164.1	164.4	164.8
% Change	0.0	-0.1	-0.3	-0.1	0.1	0.3
Real Per Capita Income (Thou 2020 $)	52.2	52.9	55.2	51.0	51.7	52.7
% Change	4.1	1.2	4.5	-7.6	1.3	1.9
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Nominal Personal Income (Mil $)	8,478.3	8,708.3	9,417.8	9,275.9	9,789.9	10,201.7
% Change	5.7	2.7	8.1	-1.5	5.5	4.2

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

TABLE 14: MAJOR ECONOMIC INDICATOR SUMMARY
KAUAI COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	33.3	26.0	27.9	30.3	31.6	32.3
% Change	1.6	-22.0	7.3	8.6	4.2	2.4
Unemployment Rate (%)	2.4	16.3	10.9	4.3	3.5	3.4
Population (Thou)	73.4	73.2	73.5	73.6	73.7	73.9
% Change	0.1	-0.3	0.3	0.2	0.2	0.3
Personal Income (Mil $)	3,679.3	3,886.4	4,154.1	4,226.9	4,412.7	4,547.0
% Change	4.9	5.6	6.9	1.8	4.4	3.0
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Real Personal Income (Mil 2020 $)	3,737.1	3,886.4	4,002.9	3,818.1	3,832.2	3,870.4
% Change	3.3	4.0	3.0	-4.6	0.4	1.0
Real Per Capita Income (Thou 2020 $)	50.9	53.1	54.5	51.9	52.0	52.3
% Change	3.2	4.3	2.6	-4.8	0.1	0.7
TOURISM SECTOR DETAIL						
Total Visitor Arrivals by Air (Thou)	1,370.0	330.3	812.6	1,172.2	1,274.7	1,295.1
% Change - Total Visitor Arrivals by Air	-1.3	-75.9	146.0	44.2	8.7	1.6
U.S. Visitors	1,135.7	279.8	784.9	1,045.2	1,092.9	1,098.1
% Change - U.S. Visitors	0.1	-75.4	180.5	33.2	4.6	0.5
Japanese Visitors	25.3	3.6	0.4	6.7	15.4	16.7
% Change - Japanese Visitors	2.1	-85.7	-88.3	1,486.9	128.7	8.4
Other Visitors	209.0	46.8	27.3	120.2	166.4	180.3
% Change - Other Visitors	-8.9	-77.6	-41.6	340.0	38.4	8.4
Visitor Days (Thou)	10,108.8	2,940.4	7,001.9	9,034.5	9,631.9	9,776.3
% Change	-2.7	-70.9	138.1	29.0	6.6	1.5
Occupancy Rate (%)	73.3	30.6	57.0	68.5	72.4	73.2

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts.

TABLE 15: JOBS BY DETAILED SECTOR (THOUSANDS)
KAUAI COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Non-farm Payrolls (Thou)	33.3	26.0	27.9	30.3	31.6	32.3
% Change	1.6	-22.0	7.3	8.6	4.2	2.4
Construction and Mining	2.1	1.9	2.0	2.1	2.1	2.1
% Change	7.8	-8.7	3.2	7.0	0.2	0.2
Manufacturing	0.5	0.4	0.4	0.5	0.5	0.5
% Change	0.0	-18.3	-2.0	23.1	0.4	0.2
Trade	4.6	3.9	4.1	4.3	4.4	4.5
% Change	-0.4	-14.0	3.4	5.5	2.8	1.3
Transportation and Utilities	1.6	1.1	1.3	1.6	1.6	1.6
% Change	-1.0	-30.2	17.4	21.8	1.6	0.4
Finance, Insurance and Real Estate	1.2	1.0	1.0	1.0	1.1	1.1
% Change	0.7	-20.9	-0.3	8.4	5.0	2.5
Services	18.2	12.8	13.5	15.7	16.7	17.3
% Change	1.5	-29.7	5.4	16.2	6.3	3.7
Health Care and Soc. Assistance	3.0	2.8	2.7	2.9	2.9	3.0
% Change	2.6	-4.7	-3.4	5.8	2.1	1.4
Accommodation and Food	9.3	5.3	6.3	7.5	8.1	8.5
% Change	1.7	-43.3	19.4	18.2	8.9	5.0
Other	6.0	4.7	4.5	5.3	5.6	5.8
% Change	0.6	-21.0	-5.1	19.6	4.9	3.0
Government	5.1	5.0	5.0	5.1	5.2	5.2
% Change	2.8	-2.7	0.0	2.4	1.6	0.7
Federal Government	0.6	0.6	0.6	0.6	0.6	0.6
% Change	13.3	3.7	-5.9	2.7	1.0	0.1
State and Local Government	4.6	4.4	4.4	4.5	4.6	4.6
% Change	1.7	-3.5	0.8	2.3	1.6	0.8

Note: Source is UHERO. Figures for 2022 - 2024 are forecasts.

TABLE 16: PERSONAL INCOME BY DETAILED SECTOR
KAUAI COUNTY FORECAST

	2019	2020	2021	2022	2023	2024
Real Personal Income (Mil 2020 $)	3,737.1	3,886.4	4,002.9	3,818.1	3,832.2	3,870.4
% Change	3.3	4.0	3.0	-4.6	0.4	1.0
Labor & Proprietors' Income	2,564.7	2,259.5	2,418.5	2,581.7	2,623.7	2,677.1
% Change	5.7	-11.9	7.0	6.8	1.6	2.0
Construction	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Manufacturing	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Trade	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Transportation and Utilities	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Finance, Insurance & Real Estate	—	148.2	—	—	—	—
% Change	—	—	—	—	—	—
Services	—	—	—	—	—	—
% Change	—	—	—	—	—	—
Health Care & Soc. Assist. (% ch.)	—	—	—	—	—	—
Accommodation & Food (% ch.)	—	—	—	—	—	—
Other (% ch.)	—	—	—	—	—	—
Government	475.9	491.1	473.0	473.7	485.7	498.8
% Change	3.3	3.2	-3.7	0.2	2.5	2.7
Federal, civilian (% ch.)	5.9	5.4	-5.5	1.3	1.5	0.6
State & Local (% ch.)	2.8	2.8	-3.5	-0.1	2.8	3.1
Less Social Security Taxes (-)	299.1	264.8	293.2	309.5	313.8	319.6
% Change	6.8	-11.5	10.7	5.6	1.4	1.8
Transfer Payments	717.2	1,158.8	1,213.0	792.7	781.3	797.7
% Change	0.4	61.6	4.7	-34.6	-1.4	2.1
Dividends, Interest and Rent	765.6	740.1	711.7	719.2	715.7	721.6
% Change	-0.4	-3.3	-3.8	1.1	-0.5	0.8
Population (Thou)	73.4	73.2	73.5	73.6	73.7	73.9
% Change	0.1	-0.3	0.3	0.2	0.2	0.3
Real Per Capita Income (Thou 2020 $)	50.9	53.1	54.5	51.9	52.0	52.3
% Change	3.2	4.3	2.6	-4.8	0.1	0.7
Inflation Rate, Honolulu MSA (%)	1.6	1.6	3.8	6.7	4.0	2.0
Nominal Personal Income (Mil $)	3,679.3	3,886.4	4,154.1	4,226.9	4,412.7	4,547.0
% Change	4.9	5.6	6.9	1.8	4.4	3.0

Note: Source is UHERO. Income figures for 2021 are UHERO estimates. Figures for 2022 - 2024 are forecasts. Because of data disclosure rules, industry-level income is not available for some sectors.

TABLE 17: EXTERNAL INDICATORS
STATE OF HAWAII FORECAST

	2019	2020	2021	2022	2023	2024
U.S. FACTORS						
Employment (Thou)	157,538.1	147,794.8	152,580.7	159,089.5	160,870.7	161,543.8
% Change	1.1	-6.2	3.2	4.3	1.1	0.4
Unemployment Rate (%)	3.7	8.1	5.4	3.7	3.5	3.6
Inflation Rate (%)	1.8	1.2	4.7	7.3	4.5	3.2
Real GDP (Bil chained 2012$)	19,032.7	18,384.7	19,427.3	19,904.1	20,305.5	20,665.7
% Change	2.3	-3.4	5.7	2.5	2.0	1.8
Population (Thou)	330,513.0	331,761.0	332,213.0	333,177.1	334,353.5	335,597.9
% Change	0.5	0.4	0.1	0.3	0.4	0.4
JAPAN FACTORS						
Employment (Thou)	67,245.0	66,765.8	66,665.8	67,114.2	67,146.2	66,959.8
% Change	0.9	-0.7	-0.2	0.7	0.0	-0.3
Unemployment Rate (%)	2.4	2.8	2.8	2.7	2.7	2.6
Inflation Rate (%)	0.5	0.0	-0.2	2.0	2.4	1.6
Real GDP (Bil chained 2011 yen)	553,019.8	527,946.3	536,811.8	543,463.9	551,249.8	557,923.8
% Change	-0.2	-4.5	1.7	1.2	1.4	1.2
Population (Thou)	126,264.9	125,836.0	125,300.0	124,842.8	124,413.0	123,960.7
% Change	-0.2	-0.3	-0.4	-0.4	-0.3	-0.4
Exchange Rate (Yen/$)	109.0	106.8	109.8	122.1	121.1	118.3

Note: Source is UHERO. Figures for 2022-2024 are forecasts.

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AT THE UNIVERSITY OF HAWAIʻI

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