

# Tourism's Contribution to the State and County Economies in Hawai'i: A Benchmark Estimate for 2017



**Research & Economic Analysis Division**

**Department of Business, Economic Development  
& Tourism**

**STATE OF HAWAI'I**

**September 2023**

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## Introduction

Since the Maui wildfire tragedy, there have been several media and public enquiries about the economic impact of tourism on Maui. Reported impact levels have varied. A recent New York Times article, for example, indicated that tourism comprises 40% of Maui's economy, citing the County of Maui's County Profile which states that "The visitor industry remains the largest sector of Maui's economy accounting for approximately 40% of its overall GDP."<sup>1</sup> (GDP refers to Gross Domestic Product.) Other articles, such those published by CNN,<sup>2</sup> AP,<sup>3</sup> Civil Beat<sup>4</sup>, and an earlier article by the New York Times,<sup>5</sup> have referenced estimates from the Maui Economic Development Board (MEDB). According to the MEDB website:

The visitor industry touches every aspect of our three islands – approximately **70% of every dollar\*** is generated directly or indirectly by the visitor industry – it is irrefutably the "economic engine" for the County of Maui. (*\* corrected from 80% which was an old figure*)<sup>6</sup>

The website did not provide the source of the data or the year on which the estimate is based. MEDB's "old" estimate of 80% appears consistent, however, with an estimate in the County of Maui's Maui Island Plan, adopted on December 28, 2012, which indicates that the "visitor industry serves as Maui County's economic engine, generating more than 80% of the County's economic activity."<sup>7</sup>

The Research and Economic Analysis Division prepares this short briefing to clarify and to provide estimates of tourism's contribution to the state and county economies based on its 2017 Inter-County Input-Output (I-O) Model. The results herein are based on 2017 data and are thus specific to 2017. Tourism's economic impact is measured as its percentage contribution to each county's GDP as well as to the state GDP. GDP in this report is measured in nominal (2017) dollars.

The results show that tourism's contribution to the statewide economy was 17.2% if direct and indirect impacts are included and was 23.6% if all impacts (direct, indirect, induced) were

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<sup>1</sup> <https://www.nytimes.com/2023/09/01/us/hawaii-tourists-economy.html> The article links to a County Profile that appears as part of a Fiscal Year 2017 document on the Mayor's Proposed Budget.

[https://www.mauicounty.gov/DocumentCenter/View/102556/010\\_06\\_County-Profile](https://www.mauicounty.gov/DocumentCenter/View/102556/010_06_County-Profile)

<sup>2</sup> In a CNN article published on August 10, 2023, the author wrote, "It could take months to fully assess the economic impact of the wildfires. But tourism is the lifeblood of Maui's economy, around 80% of which is generated by visitors spending their money on the island. That means \$4 of every \$5 the island generates comes directly or indirectly from tourism, according to the Maui Economic Development Board."

<https://www.cnn.com/2023/08/10/economy/maui-economy-tourism-wildfires/index.html>

<sup>3</sup> As published in the Star Advertiser. <https://www.staradvertiser.com/2023/08/30/hawaii-news/maui-residents-reckon-with-role-of-isle-tourism/>

<sup>4</sup> A Civil Beat article published on September 4, 2023 stated that "About 70 cents of every dollar generated in Maui comes from tourism, according to the Maui Economic Development Board."

<https://www.civilbeat.org/2023/09/maui-businesses-plead-with-tourists-to-help-economy-after-fires/>

<sup>5</sup> <https://www.nytimes.com/2023/08/17/travel/maui-wildfires-travel-tourism.html>

<sup>6</sup> <https://www.medb.org/tourism/> Original emphasis.

<sup>7</sup> See page 4-8 of Chapter 4: Economic Development in the [Maui Island Plan](https://www.mauicounty.gov/DocumentCenter/View/84679/Chapter-4?bidId=):  
<https://www.mauicounty.gov/DocumentCenter/View/84679/Chapter-4?bidId=>

included. For Maui County, tourism's contribution to the county's economy was estimated at 29.3% if direct and indirect impacts were included and 37.8% if all ripple impacts were included.

This briefing also examines the estimates of tourism's impact on the state and county economies using data from the initial period of the COVID-19 pandemic, during which visitor arrivals effectively came to a standstill. Economic data from the COVID-19 period appear consistent with the estimates from the Inter-County I-O Model. The data do not support an estimate that tourism contributes 70% to the Maui economy.

## The Hawai'i Inter-County Input-Output Model

A tool commonly used to calculate economic impacts is the Input-Output Model. The core of the I-O model is the transaction matrix that depicts the trade flows between industries (intermediate goods and services used to produce goods and services for final consumption) and the sales of each industry to the final demand sectors (sales to households, visitors, government, private investors, and out-of-state exports). DBEDT began constructing the Hawai'i State Input-Output (State I-O) model in 1967 and has updated the model every five years as Economic Census data for Hawai'i become available from the U.S. Census Bureau.

Since 1997, DBEDT has also constructed the Hawai'i Inter-County IO (Inter-County I-O) model every five years, right after the State I-O model is done. The most recent Inter-County I-O model is based on 2017 data.<sup>8</sup> DBEDT released two versions of the Inter-County I-O model: (1) the Detailed Model, in which the economy of Honolulu County is represented by 62 industry sectors and the economies of other counties are represented by 20 sectors; and (2) the Condensed Model, with each county's economy represented by 20 industry sectors. The more detailed the industry classification, the more precise the model will be in estimating economic impacts. Data availability at the detailed industry level, however, has always been an issue.

Table 1 presents the Inter-County I-O model at a very high level for illustrative purposes. The first four columns represent purchases made by the county in each column from the counties in the rows, and from out-of-state imports. Dollar amounts are in millions. This table shows, for example, that industries in Hawai'i County purchased \$4,250.7 million of goods and services from other industries within the same (Hawai'i) county in 2017. Industries in Hawai'i County purchased \$1,148.8 million from industries in Honolulu County, \$48.2 million from industries in Kaua'i County, and \$23.8 million from industries in Maui County in 2017. Hawai'i County also purchased \$1,430.8 million in out-of-state imports, for a total of \$6,902.3 million in purchases. Reading across the table shows the dollar amount of sales made by the row county to the counties in the columns and to the final demand sectors. For example, this table shows that industries in Honolulu County sold \$1,148.8 million of goods and services to Hawai'i County, \$22,594.4 million to industries in the same (Honolulu) county, \$755.1 million of goods and services to Kaua'i County, and \$2,200.6 million of goods and services to Maui County. Honolulu County's total intermediate sales (sum of the sales it made to the counties in the columns) was \$26,698.9 million. Honolulu County's total sales to final consumption sectors (households,

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<sup>8</sup> [https://dbedt.hawaii.gov/economic/reports\\_studies/2017-inter-county-io/](https://dbedt.hawaii.gov/economic/reports_studies/2017-inter-county-io/)

government, visitors, investors, and out-of-state exports) was \$75,083.9 million. Honolulu County's total sales (intermediate plus final) in 2017 was \$101,782.9 million.

Table 1. Trade Flows Between Counties for All Sectors: 2017 (\$ million)

	Purchasing County				Total intermediate sales	Total final sales	Total sales	GDP
	Hawai'i	Honolulu	Kaua'i	Maui				
Hawai'i	4,250.7	662.6	35.6	109.0	5,057.9	10,476.5	15,534.4	8,632.1
Honolulu	1,148.8	22,594.4	755.1	2,200.6	26,698.9	75,083.9	101,782.9	67,077.4
Kaua'i	48.2	198.1	2,108.3	98.9	2,453.5	5,114.7	7,568.3	3,927.8
Maui	23.8	228.8	9.6	4,369.2	4,631.3	13,593.7	18,225.0	9,981.3
Imports from out-of-state	1,430.8	11,021.6	731.9	1,466.0	14,650.3	21,859.8	36,510.1	
Total purchases	6,902.3	34,705.5	3,640.5	8,243.7	53,492.0	126,128.7	179,620.7	89,618.6

To calculate each county's GDP, sales to other counties are considered exports, and purchases from other counties are considered imports. State and county GDP is defined as the sum of the industry value added within the state or county, and it can be measured as the total sales minus intermediate sales plus net exports. For example, GDP in Maui County can be calculated as follows:

$$\begin{aligned}
 \text{Maui GDP} &= \$18,225.0 \text{ million (total sales)} - \$4,631.3 \text{ million (intermediate sales)} + \$23.8 \text{ million} \\
 &\quad (\text{exports to Hawai'i County}) + \$228.8 \text{ million (exports to Honolulu County)} + \$9.6 \\
 &\quad \text{million (exports to Kaua'i County)} - \$109.0 \text{ million (imports from Hawai'i County)} - \\
 &\quad \$2,200.6 \text{ million (imports from Honolulu County)} - \$98.9 \text{ million (imports from} \\
 &\quad \text{Kaua'i County)} - \$1,466.0 \text{ million (imports from out-of-state)} \\
 &= \$9,981.3 \text{ million}
 \end{aligned}$$

Table 2 shows the flow of visitor expenditures between counties. The counties in the columns represent the counties in which the visitor spending occurred, while the row counties represent the counties that contributed to visitor spending through the supply of goods and services. For example, of the total visitor spending in Maui County (obtained from intercept surveys of visitors at the Kahului, Molokai, and Lanai Airports), \$27.5 million were provided by Hawai'i County industries, \$819.9 million were from Honolulu County industries, and \$24.5 million were from Kaua'i County industries. Goods and services produced in Maui County accounted for 77.6 percent of its total visitor purchases. Common items purchased from other counties include produce purchased by local restaurants and inter-island air tickets. Reading across the table shows the value each row county contributed to the column county for visitors. For example, Maui County supplied \$17.0 million of goods and services to visitors in Hawai'i County, \$14.5 million to visitors in Honolulu County, and \$40.2 million to visitors in Kaua'i County, on top of its own contribution of \$4,289.9 million of goods and services to the visitors in its own county.

As shown below, tourism’s contribution at the county level consists of two components: (1) the contribution from goods and services produced in its own county; and (2) the contribution from goods and services produced in other counties in the state.

Table 2. Trade Flows Between Counties for Visitor Expenditures: 2017 (\$ million)

	County Location of Visitor Spending				Total Sales to Visitors
	Hawai'i	Honolulu	Kaua'i	Maui	
Hawai'i	2,275.2	28.6	16.5	27.5	2,347.7
Honolulu	248.1	8,093.8	307.2	819.9	9,469.0
Kaua'i	23.7	15.1	1,577.7	24.5	1,640.9
Maui	17.0	14.5	40.2	4,289.9	4,361.6
Imports from out-of-state	181.5	577.2	137.5	365.5	1,261.7
Total	2,745.4	8,729.2	2,079.0	5,527.3	19,080.9

It should be noted that the impacts calculated through the I-O model assume that the relationships between inputs and outputs are fixed, i.e., there is no substitution among different inputs. As a result, the I-O model reflects a “constant returns to scale” production function and each industry’s production process is in terms of an average for that industry.

## Results: Tourism’s Contribution to the State and County Economies

Tourism’s contributions to the economy can be calculated through mathematical computations using the I-O model. The first set of calculations is based on the direct and indirect impacts of visitor spending. Direct impacts measure the impacts of visitor spending on the businesses that directly serve visitors such as hotels, restaurants, retail stores, tour buses, and rental car companies. Indirect impacts include the sales of businesses that do not directly sell to visitors but support the businesses that do work directly with visitors. Such businesses include, for example, commercial laundry services, utility companies (electricity, water, and sewer services), warehousing, and food processing. The second set of calculations includes direct, indirect, and induced impacts. Induced impacts include the economic activities (spending) of the employees of the businesses that directly and indirectly work with visitors.

Table 3 shows the value of GDP generated by direct visitor spending and the indirect business sales to support the businesses that service visitors directly (direct and indirect impacts). Table 4 presents the percentage contribution of visitor spending to the state and counties’ GDP. In 2017, tourism contributed 17.2% of Hawai'i GDP directly and indirectly. For Maui County, tourism contributed 29.3% of Maui County’s GDP, of which 28.3% were from the activities of businesses located in Maui County and 0.9% (0.2% + 0.4% + 0.3%) were contributed by business activities on other islands.

Table 3. GDP Generated by Tourism (\$ million, Direct and Indirect Impacts)

Impacted County	GDP generated from visitor spending by county of visit				
	Hawai'i	Honolulu	Kaua'i	Maui	State
Hawai'i	1,530.0	109.7	25.5	65.4	1,730.6
Honolulu	603.9	6,873.1	535.2	1,529.8	9,542.0
Kaua'i	31.5	37.0	1,071.3	58.5	1,198.3
Maui	23.9	41.1	33.7	2,829.4	2,928.2
State	2,189.4	7,060.8	1,665.8	4,483.1	15,399.1

Table 4. Tourism Contribution to Total GDP (% , Direct and Indirect Impacts)

Impacted County	% of GDP from visitor spending by county of visit				
	Hawai'i	Honolulu	Kaua'i	Maui	Total
Hawai'i	17.7	1.3	0.3	0.8	20.0
Honolulu	0.9	10.2	0.8	2.3	14.2
Kaua'i	0.8	0.9	27.3	1.5	30.5
Maui	0.2	0.4	0.3	28.3	29.3
State	2.4	7.9	1.9	5.0	17.2

Table 5 and Table 6 show tourism's contribution to GDP based on direct, indirect, and induced impacts. In 2017, tourism contributed 23.6% of the state's GDP including all the impacts. For Maui County, tourism contributed 37.8% of the county's GDP, of which 35.2% resulted from visitor spending in Maui County and 2.6% (0.5% + 1.5% + 0.6%) came from spending and business activities on other islands.

Table 5. GDP Generated by Tourism (\$ million, Direct, Indirect Impact, and Induced Impacts)

Impacted County	GDP generated from visitor spending by county of visit				
	Hawai'i	Honolulu	Kaua'i	Maui	State
Hawai'i	1,865.9	203.2	46.0	121.2	2,236.2
Honolulu	999.1	9,293.5	866.3	2,497.5	13,656.4
Kaua'i	43.6	71.2	1,292.5	82.4	1,489.7
Maui	54.1	145.0	57.5	3,511.5	3,768.1
State	2,962.7	9,712.9	2,262.3	6,212.5	21,150.4

Table 6. Tourism Contribution to Total GDP (% , Direct, Indirect, and Induced Impacts)

Impacted County	% of GDP from visitor spending by county of visit				
	Hawai'i	Honolulu	Kaua'i	Maui	Total
Hawai'i	21.6	2.4	0.5	1.4	25.9
Honolulu	1.5	13.9	1.3	3.7	20.4
Kaua'i	1.1	1.8	32.9	2.1	37.9
Maui	0.5	1.5	0.6	35.2	37.8
State	3.3	10.8	2.5	6.9	23.6

## An Assessment of the Impact Estimates Using Data from the COVID Period

To roughly assess the estimates of tourism's contribution to the economy, the visitor industry and the overall economic performance in the second quarter of 2020 are studied. The COVID-19 pandemic started in March 2020. Hawai'i then-Governor David Ige issued the first proclamation declaring a state of emergency<sup>9</sup> on March 4, 2020. On March 21, 2020, a Second Supplementary Proclamation and Rules Relating to COVID-19 implemented a mandatory self-quarantine for all persons entering the State. Visitor arrivals decreased by 99.4% in April 2020 from an average of 850,000 a month to only 4,985 visitors for that month. For the full second quarter of 2020, visitor arrivals totaled 32,731, a decrease of 98.7% from the same period a year ago.

Table 7. Visitor Arrivals by Air: 2Q 2019 and 2Q 2020

County	2Q 2019	2Q 2020	% Change
Hawai'i	433,485	4,606	-98.9
Honolulu	1,558,205	23,996	-98.5
Kaua'i	353,076	1,978	-99.4
Maui	807,482	3,911	-99.5
<b>State Total</b>	<b>2,607,041</b>	<b>32,731</b>	<b>-98.7</b>

In this period, when visitor arrivals and thus visitor expenditures were at the state's lowest historic level (a mere 1.3% visitors remained), what happened to the state's overall economic indicators? Hawai'i GDP, measured in nominal dollars, decreased by 15.6% in the second quarter of 2020 from the same quarter in 2019. See Table 8. The magnitude of this decrease was close to the impact of 17.2% (direct and indirect impacts) calculated in this report.

During the second quarter of 2020, the Federal government hired more people in Hawai'i to conduct the 2020 Census. This increased the government GDP and may affect the estimated impacts of tourism. If the government GDP is excluded, private sector GDP decreased by 19.6% in the second quarter of 2020 from the second quarter of 2019.

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<sup>9</sup> [2104031-ATG\\_Nineteenth-Emergency-Proclamation-for-COVID-19-distribution-signed.pdf \(hawaii.gov\)](#)

Table 8. Hawai'i GDP by Industry: 2Q 2019 and 2Q 2020 (\$ million)

GDP	2Q 2019	2Q 2020	% Change
<b>GDP- All industry total</b>	<b>91,423</b>	<b>77,205</b>	<b>-15.6</b>
GDP- Agr., forestry, fishing, & hunting	356	357	0.3
GDP- Mining	72	53	-26.4
GDP- Utilities	1,865	1,830	-1.9
GDP- Construction	5,313	5,198	-2.2
GDP- Manufacturing	1,495	1,165	-22.1
GDP- Wholesale trade	3,008	2,551	-15.2
GDP- Retail trade	6,173	5,102	-17.3
GDP- Transportation & warehousing	5,673	2,455	-56.7
GDP- Information	1,931	1,728	-10.5
GDP- Finance & insurance	3,526	3,599	2.1
GDP- Real estate and rental & leasing	15,728	15,031	-4.4
GDP- Prof., scientific, & tech. services	3,880	3,520	-9.3
GDP- Mgt of companies & enterprises	1,158	1,086	-6.2
GDP- Admin. & waste mgt services	2,761	2,292	-17.0
GDP- Educational services	1,039	875	-15.8
GDP- Health care & social assistance	6,545	6,072	-7.2
GDP- Arts, entertainment, & recreation	1,168	496	-57.5
GDP- Accommodation & food services	9,440	3,805	-59.7
GDP- Other services, except gov't	2,165	1,701	-21.4
GDP- Government	18,128	18,291	0.9
<b>GDP- Excl. Government</b>	<b>73,295</b>	<b>58,914</b>	<b>-19.6</b>

Another statewide indicator is the state general excise tax (GET) base as presented in Table 9. The general excise tax base is considered to be a comprehensive measure for private business activity since all business sales, either to final consumers or to other industries as inputs, are subject to GET. The total GET base decreased by 24.1 percent during the second quarter of 2020. Sectors that are more heavily utilized by visitors experienced larger declines (hotel rentals and theater, amusement, etc.)

At the county level, quarterly data on general excise tax liabilities are available. GET liabilities are the general excise taxes levied on sales based on place of activities. For Maui County, GET liability in the second quarter of 2019 was \$130.3 million. GET liability dropped to \$75.4 million in the second quarter of 2020, a 42.1 percent decline. See Table 10. The GET liability decreases were close to the tourism impact with all of the effects (direct, indirect, and induced) as calculated using the I-O Model in this report.



Table 9. State General Excise Tax Base (\$ Thousand)

Category	2Q 2019	2Q 2020	% Change
<b>GET Base</b>	<b>28,441,214</b>	<b>21,576,094</b>	<b>-24.1</b>
GET Base- Retailing	9,465,708	7,061,957	-25.4
GET Base- Services	4,437,607	3,640,661	-18.0
GET Base- Contracting	2,430,306	2,243,688	-7.7
<b>GET Base- Theater, amusement, etc.</b>	<b>124,180</b>	<b>48,805</b>	<b>-60.7</b>
GET Base- Interest & All other (4%)	895,549	484,268	-45.9
GET Base- Commissions	346,256	241,631	-30.2
<b>GET Base- Hotel rentals</b>	<b>1,425,715</b>	<b>469,428</b>	<b>-67.1</b>
GET Base- All other rentals	2,048,785	1,702,058	-16.9
GET Base- Use (4%)	275,982	208,472	-24.5
GET Base- Insurance solicitors	189,941	160,015	-15.8
GET Base- Producing	69,641	66,641	-4.3
GET Base- Manufacturing	142,256	116,445	-18.1
GET Base- Wholesaling	4,533,427	3,514,824	-22.5
GET Base- Services (wholesale)	305,750	219,121	-28.3
GET Base- Use (1/2%)	1,750,109	1,398,080	-20.1

Table 10. General Excise Tax Liabilities: 2Q 2019 and 2Q 2020 (\$ Thousand)

County	2Q 2019	2Q 2020	% Change
Hawai'i	107,727	80,499	-25.3
Honolulu	573,072	425,187	-25.8
Kaua'i	55,260	32,774	-40.7
Maui	130,302	75,421	-42.1
<b>State Total</b>	<b>866,362</b>	<b>613,879</b>	<b>-29.1</b>

The above impacts are a combination of tourism and non-tourism related impacts since all businesses except those deemed “essential” were temporarily closed during that period. According to surveys conducted by DBEDT and 17 partner private organizations during the second quarter of 2020, about 60% of the businesses in Hawai'i were temporarily closed or only partially re-opened.<sup>10</sup>

Though the tourism and non-tourism related impacts cannot be separated, the following conclusions may be drawn:

- Including all of the ripple effects (direct, indirect, induced), tourism’s contribution to the economy, if measured by GET liabilities, was less than 29.1% statewide, and less than 25.3% for Hawai'i County, less than 25.8% for Honolulu County, less than 40.7% for Kaua'i County, and less than 42.1 percent for Maui County.
- The traditional tourism industry also serves local businesses and population. For example, if all of the hotel rooms were used for visitors, the hotel room revenue would have been \$135 million (occupancy rate x visitor room inventory x daily room rate x days in the quarter) in the second quarter of 2020, a decrease of 91.4 percent from the

<sup>10</sup> [https://www.ibmhawaii.com/\\_files/ugd/4f47f0\\_ded77090d0e143838dffd5914939ecdf.pdf](https://www.ibmhawaii.com/_files/ugd/4f47f0_ded77090d0e143838dffd5914939ecdf.pdf)

estimated \$1,578.2 million in the second quarter of 2019.<sup>11</sup> Given the actual decrease of 67.1% in hotel rental tax base, some hotel rooms must have been used by local businesses and residents.

- Due to the large amount of federal assistance during the COVID-19 pandemic period, tourism industry workers who lost their jobs received unemployment insurance and other monetary assistance. As such, their income did not decrease as much and the induced impact (23.6% - 17.2% = 6.4% of GDP) may not have been completely lost.

The economic impacts estimated using the Inter-County IO model appear reasonable.

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<sup>11</sup> Data on occupancy and average daily room rates are from Table 101 of the Hawaii Tourism Authority 2020 Annual Visitor Research Report. <https://files.hawaii.gov/dbedt/visitor/visitor-research/2020-annual-visitor.pdf>  
Data on visitor room inventory is from the Hawaii Tourism Authority 2020 Visitor Plant Inventory report. <https://files.hawaii.gov/dbedt/visitor/visitor-plant/2020VPI.pdf>