

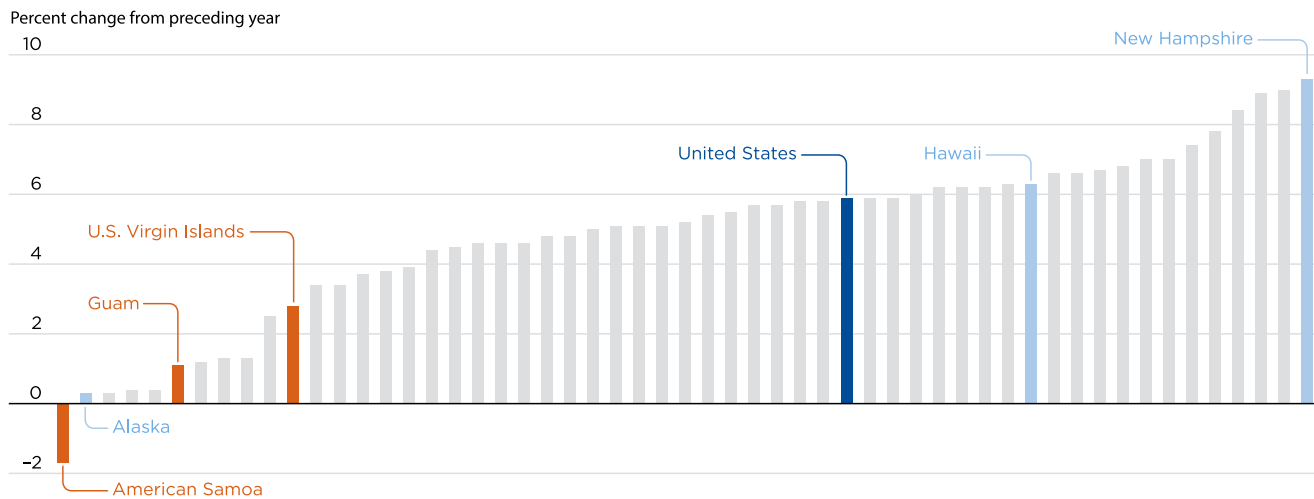
# Territorial Economic Accounts for American Samoa, Guam, and the U.S. Virgin Islands

Estimates of GDP for 2021 and Estimates of GDP by Industry and Compensation by Industry for 2020<sup>1</sup>

By Sabrina Montes, Garrett Fanning, and Aya Hamano | June 23, 2023

In 2021, the U.S. territories were in various stages of response and recovery from the COVID-19 pandemic. Like the U.S. states, Guam and the U.S. Virgin Islands saw increases in inflation-adjusted (or “real”) gross domestic product (GDP) (chart 1). In contrast, American Samoa real GDP decreased after being the only territory to increase in 2020.

**Chart 1. Real Gross Domestic Product for U.S. States, the District of Columbia, and Selected U.S. Territories, 2021**



Note. Gross domestic product (GDP) estimates for the United States include the 50 states and the District of Columbia. 2021 GDP estimates for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023. U.S. Bureau of Economic Analysis

Trade with the U.S. states and with the rest of the world was important in all three territories. The performance of export-oriented services (e.g., tourism) and goods manufacturing (e.g., oil refining and tuna canning) were major factors affecting these economies in 2021.

Across all three territories, there was a continued influx of federal funds related to pandemic response and recovery, including funds for the territorial government and households included in the Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020, the Coronavirus Response and Relief Supplemental Appropriations Act of 2021, and the American Rescue Plan of 2021. Real personal consumption expenditures increased in all three territories. Like in the rest of the nation, consumers in the U.S. territories faced price inflation in 2021.

- In American Samoa, real GDP decreased 1.7 percent in 2021 (table 1). The decrease in real GDP primarily reflected a decrease in exports, including canned tuna and related products.
- In Guam, real GDP increased 1.1 percent in 2021 (table 1). The increase in real GDP primarily reflected increases in personal consumption expenditures, territorial government spending, and private fixed investment. A decrease in exports partly offset these increases, reflecting a continued decline in spending by visitors.
- In the U.S. Virgin Islands, real GDP increased 2.8 percent in 2021 (table 1). The increase in real GDP primarily reflected an increase in exports due to growth in exports of petroleum and in spending by visitors. Decreases in private inventory investment and private fixed investment associated with petroleum refining and storage industries partly offset these increases.

**Table 1. Contributions to the Percent Change in Real Gross Domestic Product (GDP) in American Samoa, Guam, and the U.S. Virgin Islands, 2021**

U.S. territory	Percent change in real GDP from preceding year (percent)	(percentage points)						
		Personal consumption expenditures	Private fixed investment	Change in private inventories	Government consumption expenditures and gross investment		Net exports of goods and services	
					Federal	Territorial	Exports	Imports
American Samoa	-1.7	4.69	2.76	-2.35	-0.42	4.53	-16.56	5.62
Guam	1.1	2.02	1.68	...	0.18	1.55	-3.02	-1.35
U.S. Virgin Islands	2.8	0.41	-6.63	-32.30	-0.34	-0.08	40.91	0.87

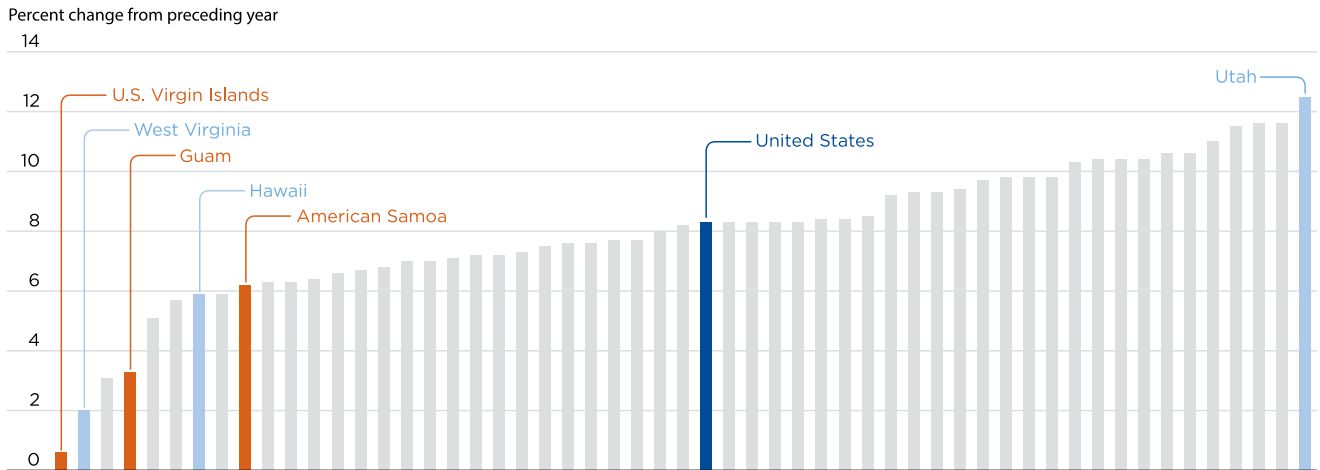
Notes. The table shows the percent change of total real GDP and the contributions (in percentage points) of each major component to that change. For example, for American Samoa, exports accounted for -16.56 percentage points of the 1.7 percent decrease in real GDP in 2021. Imports are a subtraction item; thus, a decrease in imports results in a positive contribution to GDP. Private inventory investment is not estimated for Guam due to source data limitations.

# Components of Territorial GDP

## Personal consumption expenditures

Real personal consumption expenditures (PCE) in American Samoa, Guam, and the U.S. Virgin Islands increased in 2021 (chart 2). In all three territories, consumer spending was supported by government assistance payments distributed to households through the Coronavirus Response and Relief Supplemental Appropriations Act and the American Rescue Plan Act.

**Chart 2. Real Personal Consumption Expenditures for U.S. States, the District of Columbia, and Selected U.S. Territories, 2021**

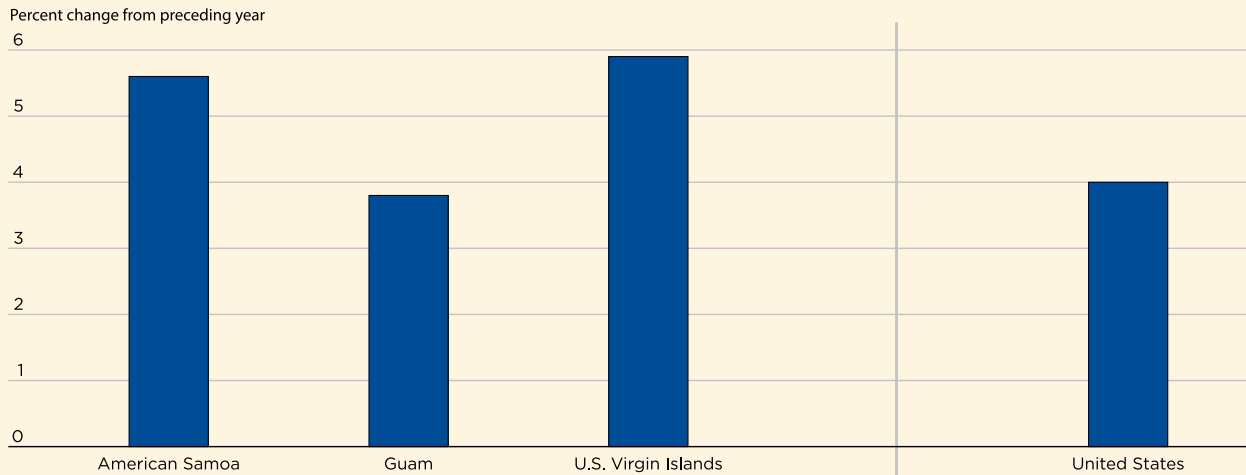


Note. Personal consumption expenditures (PCE) estimates for the United States include the 50 states and the District of Columbia. 2021 PCE estimates for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023. U.S. Bureau of Economic Analysis

## Prices in the U.S. Territories

The PCE price index reflects changes in the prices of goods and services purchased by consumers. Like the rest of the nation, the economies of American Samoa, Guam, and the U.S. Virgin Islands saw increases in price indexes for personal consumption expenditures in 2021 (chart I).

**Chart I. Price Indexes for Personal Consumption Expenditures for Selected U.S. Territories and the United States, 2021**



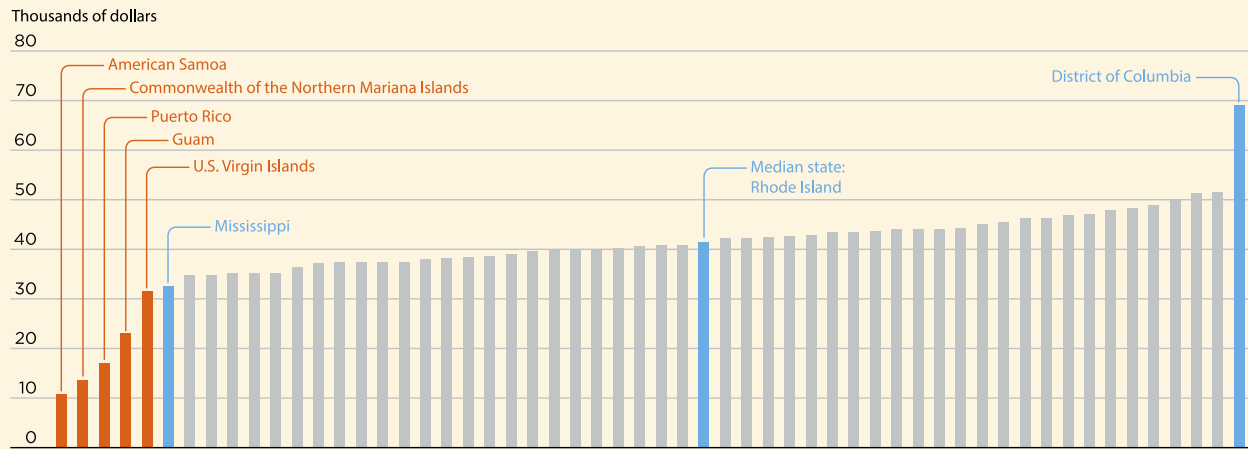
Note. U.S. price indexes for personal consumption expenditures (PCE) include the 50 states and the District of Columbia. 2021 price indexes for PCE for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023.  
U.S. Bureau of Economic Analysis

A key data gap for the U.S. territories is the lack of price information specific to each territory. As described in the [Summary of Methodologies](#), for most of the detailed components of GDP, inflation-adjusted estimates are calculated by deflating each component using an appropriate price index. Because of the limited availability of price indexes that are specific to the territories, U.S. price indexes are used for deflation in many cases. The territorial governments each produce their own consumer price indexes, which the U.S. Bureau of Economic Analysis (BEA) uses within the estimates of consumer spending. However, there are no producer price indexes for any territory, nor are there price indexes that cover trade in goods and services between each of the territories and the rest of the world, including the United States.

## Per Capita PCE, 2020

Per capita PCE estimates by geographies within the United States can be calculated using BEA's estimates of PCE by region divided by a population statistic. Such measures may be used to compare economic well-being across regions. Chart II shows per capita PCE for all U.S. territories, states, and the District of Columbia for 2020. For the territories, the population statistics used are those reported by the U.S. Census Bureau as part of the 2020 Decennial Census. Note that the availability of population data other than for Decennial Census years varies across territories. Among the territories, only Puerto Rico is included in the Census Bureau's annual U.S. population estimates program. The American Samoa and U.S. Virgin Islands governments produce their own annual population statistics; the Guam and Commonwealth of the Northern Mariana Islands governments do not.

**Chart II. Personal Consumption Expenditures Per Capita for U.S. States, the District of Columbia, and Selected U.S. Territories, 2020**



Notes. Per capita personal consumption expenditures (PCE) for U.S. territories are calculated using U.S. Bureau of Economic Analysis estimates of U.S. territory PCE divided by U.S. Census Bureau population estimates for April 1, 2020, reported in the 2020 Decennial Census. For the 50 states and the District of Columbia, per capita PCE estimates reflect Census Bureau midyear population estimates for 2020.  
U.S. Bureau of Economic Analysis

## Private fixed investment

In 2021, real private fixed investment (PFI) increased 30.8 percent in American Samoa and 6.8 percent in Guam, while decreasing 36.8 percent in the U.S. Virgin Islands.

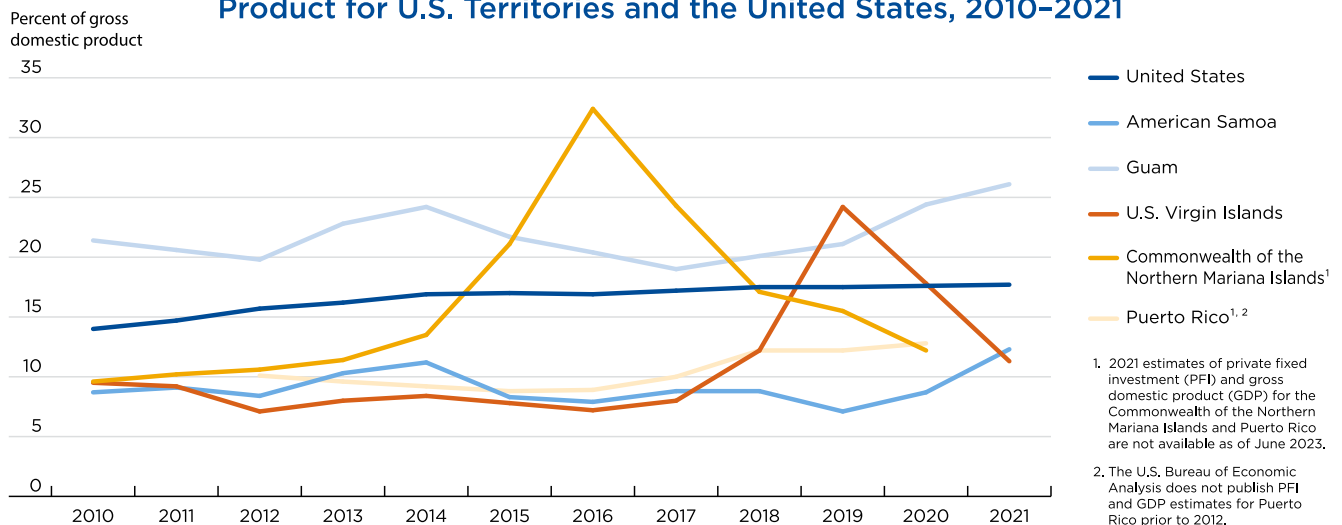
The 2021 increase in real PFI in American Samoa primarily reflected growth in residential and nonresidential structures. In 2021, market-value PFI as a share of nominal GDP reached its highest point over the period shown in chart 3 (2010–2021).

The 2021 increase in real PFI in Guam reflected growth in equipment and structures. Over the period shown in chart 3, market-value PFI as a share of nominal GDP has been higher than that for the United States as a whole and the share has been on an upward trend since 2017 (chart 3).

The 2021 decrease in real PFI in the U.S. Virgin Islands reflected a return to lower levels of business spending on construction and equipment following the completion of major capital improvement projects, such as those associated with the restart of the oil refinery on St. Croix.

Chart 3 shows the annual volatility in market-value PFI in the U.S. Virgin Islands as well as in the Commonwealth of the Northern Mariana Islands (CNMI). This volatility reflects a boom-bust cycle in industries that have played a dominant role in these economies over the last decade: oil refining in the U.S. Virgin Islands and casino gambling in the CNMI.

**Chart 3. Ratio of Private Fixed Investment as a Share of Gross Domestic Product for U.S. Territories and the United States, 2010–2021**



## Private Inventory Investment for American Samoa and the U.S. Virgin Islands

Due to limited data, BEA only estimates private inventory investment (i.e., change in private inventories) for commodities that are especially significant to the territorial economy, can be stored for a relatively long time, and account for a substantial share of imports of goods. For American Samoa, this includes cannery supplies such as tin plates that are used to manufacture cans for tuna. For the U.S. Virgin Islands, this includes crude oil and other petroleum products that are stored at the refinery and oil storage facility in St. Croix.

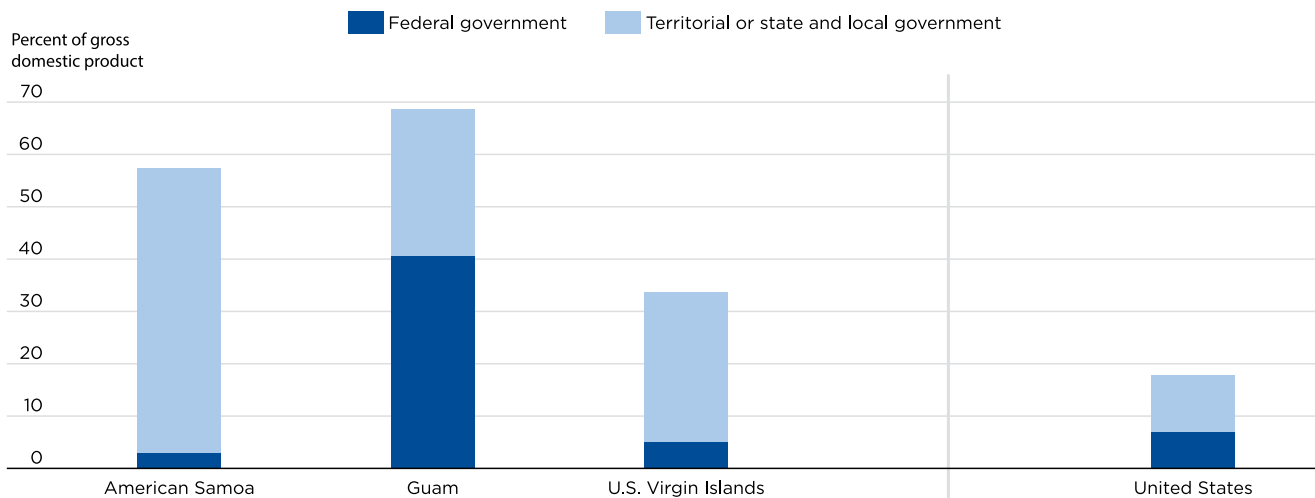
Producing these estimates is challenging for BEA because there are currently no annual data available on the physical stocks of these products. Approximately once every 5 years, the Census Bureau conducts the [Economic Census of Island Areas](#) (ECIA), which is the most comprehensive data set available on the territorial economies. However, much of the ECIA data covering the canning industry in American Samoa and the petroleum refining industry in the U.S. Virgin Islands is suppressed by the Census Bureau to protect the confidentiality of information reported by the one or two businesses dominating these industries. Therefore, BEA estimates private inventory investment in most years using information on imports, exports, domestic production, and domestic consumption of inventoried commodities.

The territorial GDP estimates would benefit greatly from improved data sources on or related to inventory investment. For the U.S. Virgin Islands, potential sources of information include tabulations of data collected from the territorial government's monthly fuel tax return form. As can be seen in the 2021 estimates for the U.S. Virgin Islands, the contribution of private inventory investment to the growth rate of real GDP can be substantial (table 1).

## Government consumption expenditures and gross investment

In 2021, the ratio of government consumption expenditures and gross investment—or “government spending”—to GDP was higher in American Samoa, Guam, and the U.S. Virgin Islands than in the United States (chart 4). For American Samoa and the U.S. Virgin Islands, territorial government spending accounted for most of government spending. In contrast, in Guam, federal government accounts for a larger share due to a substantial U.S. military presence, including Andersen Air Force Base, Naval Base Guam, and Marine Corps Base Camp Blaz.

**Chart 4. Ratio of Government Spending to Gross Domestic Product for Selected U.S. Territories and the United States, 2021**



Note. Estimates of government spending and gross domestic product (GDP) for the United States include the 50 states and the District of Columbia. 2021 government spending and GDP estimates for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023. U.S. Bureau of Economic Analysis

In 2021, real government spending increased 8.0 percent in American Samoa and 2.6 percent in Guam, primarily reflecting growth in territorial government spending. The increase in spending was supported by federal grant revenues, including Coronavirus Relief Fund payments and Education Stabilization Fund payments authorized by the CARES Act and the American Rescue Plan Act.

In contrast, real government spending in the U.S. Virgin Islands decreased 1.2 percent, reflecting decreases in federal and territorial government spending. Federal government spending decreased after being elevated in 2020 to support reconstruction of federal facilities heavily damaged during the 2017 hurricanes Irma and Maria. Territorial government spending also decreased, reflecting a decline in compensation of government employees. Although territorial government spending in 2021 was supported by pandemic-related federal grants, prior years of spending had been supported by federal disaster grants awarded in the aftermath of the 2017 hurricanes.



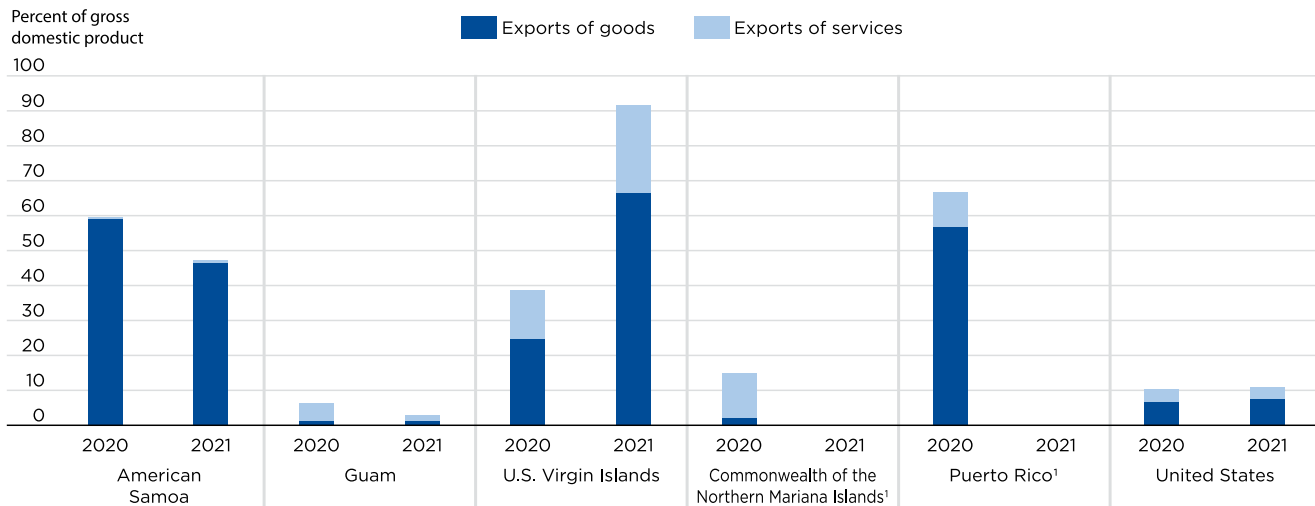
## Exports

Exports measures the portion of total production of goods and services in a territory that is provided to the rest of the world, including other countries, the 50 states and the District of Columbia, and other U.S. territories.

In 2021, exports (chart 5) in American Samoa, Guam, and the U.S. Virgin Islands reflected a diversity of factors, including geographic factors (such as the origin of most visitors) and the activities of the industries driving private sector production in the territory.

- In American Samoa, real exports decreased 27.0 percent, primarily reflecting a decline in exports of canned tuna and related products. Data from the U.S. Census Bureau [U.S. Trade with Puerto Rico and U.S. Possessions reports](#) show that the quantities of prepared or preserved fish shipped from American Samoa to the 50 states and the District of Columbia were 29 percent lower in 2021 compared with 2020.
- In Guam, real exports of goods and services decreased 49.2 percent. The decrease in exports was accounted for by exports of services, which consists primarily of spending by visitors. Data from the [Guam Visitors Bureau arrival summary reports](#) show that visitor arrivals declined 76 percent, reflecting the continued effects of the COVID-19 pandemic.
- In the U.S. Virgin Islands, real exports increased 94.9 percent, reflecting increases in both goods and services. The growth in exports of goods primarily reflected increases in exports of crude oil and petroleum products. In early 2021, the oil refinery on St. Croix was restarted after an almost 10-year hiatus; it then closed indefinitely in May.<sup>2</sup> Exports of services, which consists primarily of spending by visitors, also increased in 2021. Total visitor arrivals were higher in 2021 than in the prior year. Although cruise arrivals were lower, [statistics published by the U.S. Virgin Islands Bureau of Economic Research](#) show that arrivals of air visitors, who spend more on the islands than cruise visitors, were 97 percent higher in 2021.

**Chart 5. Ratio of Exports of Goods and Exports of Services to Gross Domestic Product for U.S. Territories and the United States, 2020 and 2021**



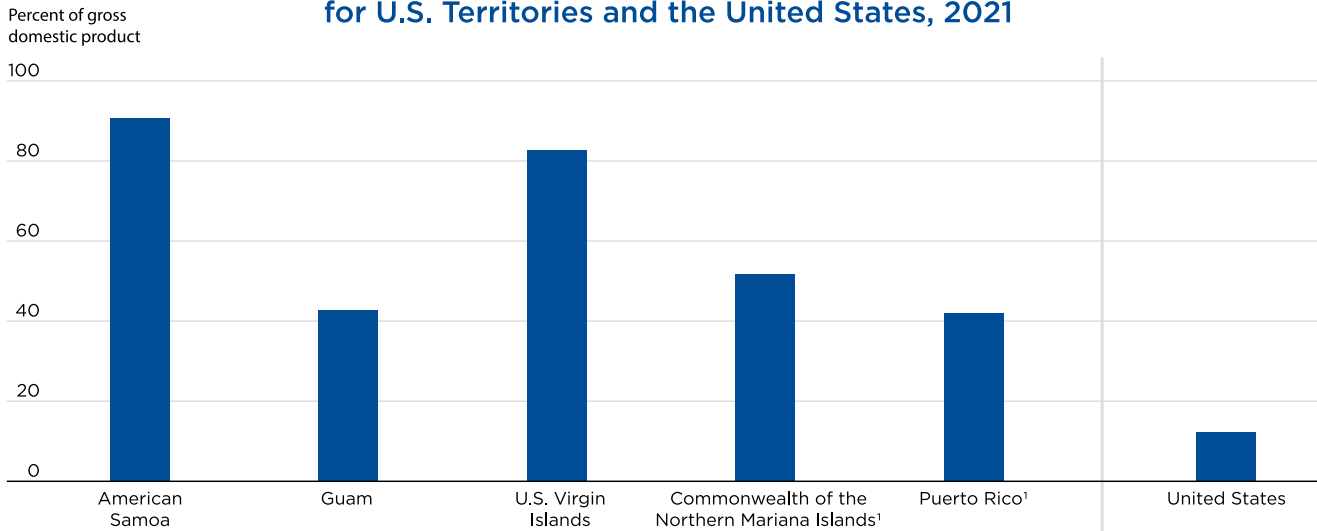
<sup>1</sup> 2021 estimates of exports and gross domestic product (GDP) for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023. Note. Estimates of exports and GDP for the United States include the 50 states and the District of Columbia. U.S. Bureau of Economic Analysis

## Imports

Imports measures the portion of total expenditures in a territory that is accounted for by goods and services provided by the rest of the world, including other countries, the 50 states and the District of Columbia, and other U.S. territories.

The U.S. territories are relatively reliant on imports of goods for domestic use; although some have large manufacturing sectors, production is specialized and primarily for export. In 2021, the imports-of-goods-to-GDP ratio ranged from 90.6 percent for American Samoa to 42.7 for Guam, compared with 12.2 percent for the United States excluding the territories (chart 6).

**Chart 6. Ratio of Imports of Goods to Gross Domestic Product for U.S. Territories and the United States, 2021**



1. 2021 estimates of imports and gross domestic product (GDP) for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023; 2020 statistics are shown for both territories. Note. Estimates of imports and GDP for the United States include the 50 states and the District of Columbia. U.S. Bureau of Economic Analysis

## 2020 GDP by Industry and Compensation by Industry

Estimates of GDP by industry and compensation by industry for 2020 were released at the same time for each territory as the 2021 GDP estimates described above. The impact of the COVID-19 pandemic was a key factor in the 2020 estimates. However, each territory's economy is unique, leading to variation in the trends in GDP and compensation by industry. For example, American Samoa receives fewer tourists than the other territories, so global restrictions on travel that were in place due to the pandemic had less of an effect on its economy than other island areas, including Guam and the U.S. Virgin Islands. Furthermore, the tuna canning industry's operations in American Samoa were less affected by the COVID-19 pandemic in comparison to other parts of the world; the territory was one of the few places in the world with zero confirmed cases in 2020, according to the [World Health Organization](#).

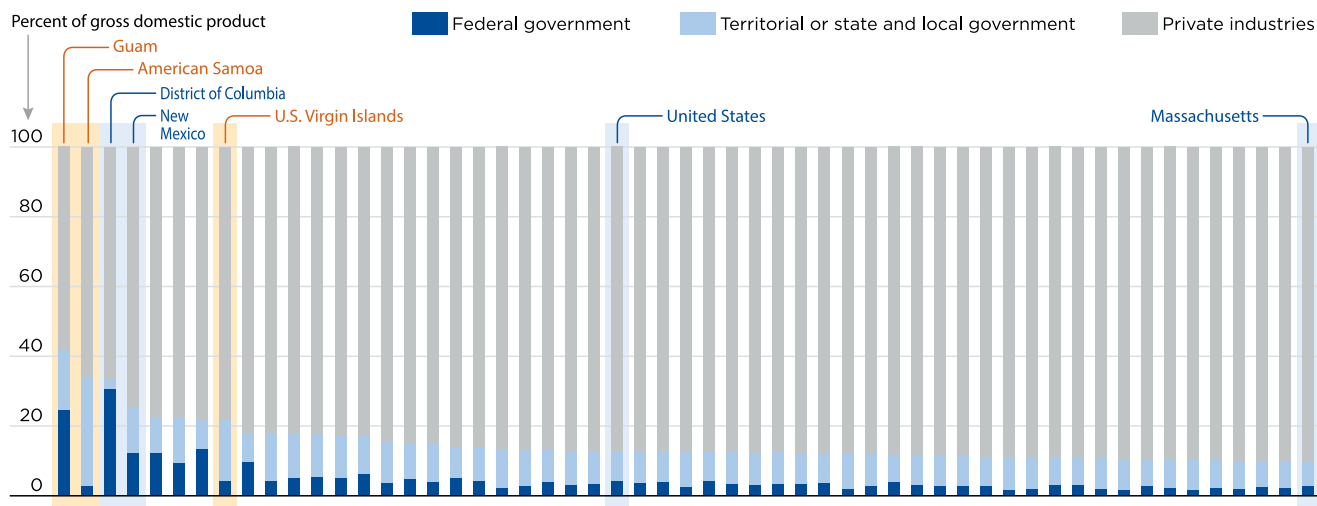
The following is a summary of the estimates of GDP by industry, by territory:

- In American Samoa, real GDP increased 5.0 percent in 2020. The GDP-by-industry data reveal that both the government and private sector contributed to the 2020 growth. The government sector increased 9.1 percent, primarily reflecting growth in compensation for territorial government employees. The private sector increased 3.1 percent, primarily reflecting growth in manufacturing due to increased tuna cannery output.
- In Guam, real GDP decreased 11.4 percent in 2020. The GDP-by-industry data reveal that the private sector was the source of decline in real GDP in 2020. The private sector decreased 18.8 percent, primarily reflecting a decline in accommodations, food services, and amusements. Data from the [Guam Visitors Bureau arrival summary reports](#) show that visitor arrivals declined 80.3 percent in 2020. Wholesale and retail trade also decreased, as nonessential businesses throughout Guam were subject to mandatory reductions in operations due to the COVID-19 pandemic.
- In the U.S. Virgin Islands, real GDP decreased 1.9 percent in 2020. The GDP-by-industry data reveal that the private sector was the source of decline in real GDP in 2020. Goods-producing industries decreased 15.3 percent, reflecting a decline in construction activity. The largest source of decline within services-producing industries was accommodation and food services, which decreased 27.7 percent, reflecting a decrease in visitor spending.

The differences in the industry detail published in the U.S. Bureau of Economic Analysis' (BEA) territorial estimates result from differences in the availability and quality of industry-specific data for each territory. Although this limits comparisons of industries across territories and with other regions in the United States, it is possible to draw general conclusions about the relative importance of the government sector versus the private sector to the territorial economies. For example, the estimates show that compared with the United States, the government sector accounts for a relatively large share of the economic activity in American Samoa, Guam, and the U.S. Virgin Islands (chart 7).

In 2020, the government sector share of GDP ranged from 21.6 percent for the U.S. Virgin Islands to 41.8 percent for Guam, compared with 12 percent for the United States excluding the territories.

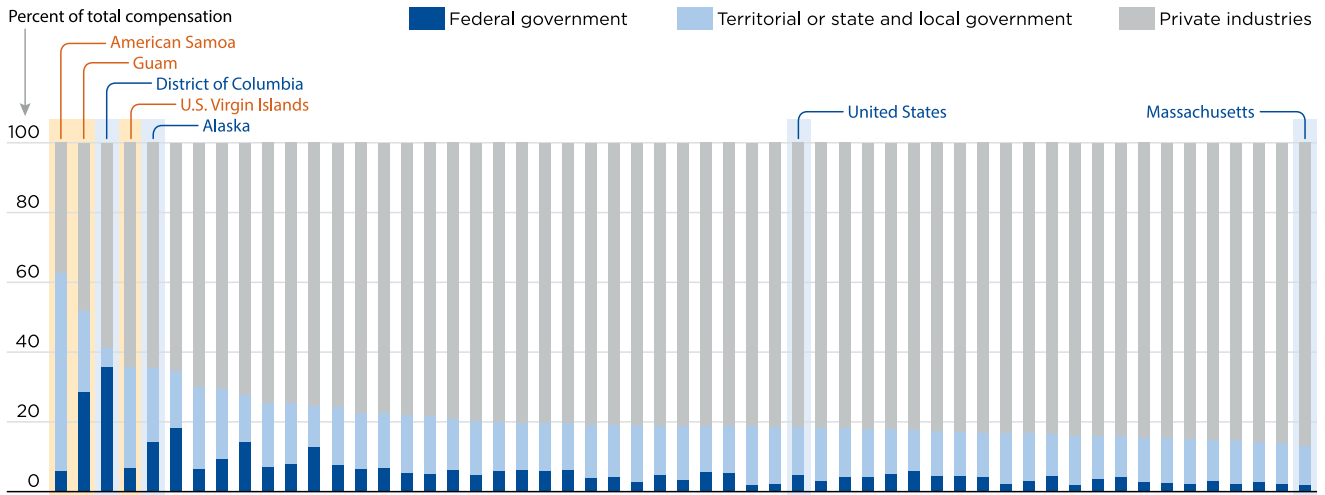
**Chart 7. Value Added by Industry as a Percentage of Gross Domestic Product for U.S. States, the District of Columbia, and Selected U.S. Territories, 2020**



Note. Estimates of value added by industry for the United States include the 50 states and the District of Columbia. 2020 value added by industry estimates for the Commonwealth of the Northern Mariana Islands are not available as of June 2023. The U.S. Bureau of Economic Analysis does not publish value added by industry estimates for Puerto Rico.  
U.S. Bureau of Economic Analysis

Similarly, the importance of the government sector as an employer in American Samoa, Guam, and the U.S. Virgin Islands is reflected in the compensation by industry estimates. In 2020, the government sector accounted for 35.7 percent of total compensation in the U.S. Virgin Islands, 51.6 percent in Guam, and 62.6 percent in American Samoa (chart 8). In comparison, for the United States excluding the territories, the government sector accounted for 18.5 percent of total compensation.

**Chart 8. Compensation of Employees by Industry as a Percentage of Total Compensation for U.S. States, the District of Columbia, and Selected U.S. Territories, 2020**



Note. Estimates of compensation of employees by industry for the United States include the 50 states and the District of Columbia. 2020 estimates of compensation by industry for the Commonwealth of the Northern Mariana Islands are not available as of June 2023. The U.S. Bureau of Economic Analysis does not publish compensation by industry estimates for Puerto Rico. U.S. Bureau of Economic Analysis

In American Samoa, total compensation increased from \$309 million in 2019 to \$345 million in 2020. The \$36 million increase primarily reflected growth in territorial government compensation.

In Guam, total compensation decreased from \$3.557 billion in 2019 to \$3.526 billion in 2020. The \$31 million decrease reflected a decline in private-sector compensation. The largest contributor to the decline was accommodations, food services, and amusements.

In the U.S. Virgin Islands, total compensation decreased from \$2.592 billion in 2019 to \$2.546 billion in 2020. The \$46 million decrease reflected widespread declines in the private sector.

## Conclusion

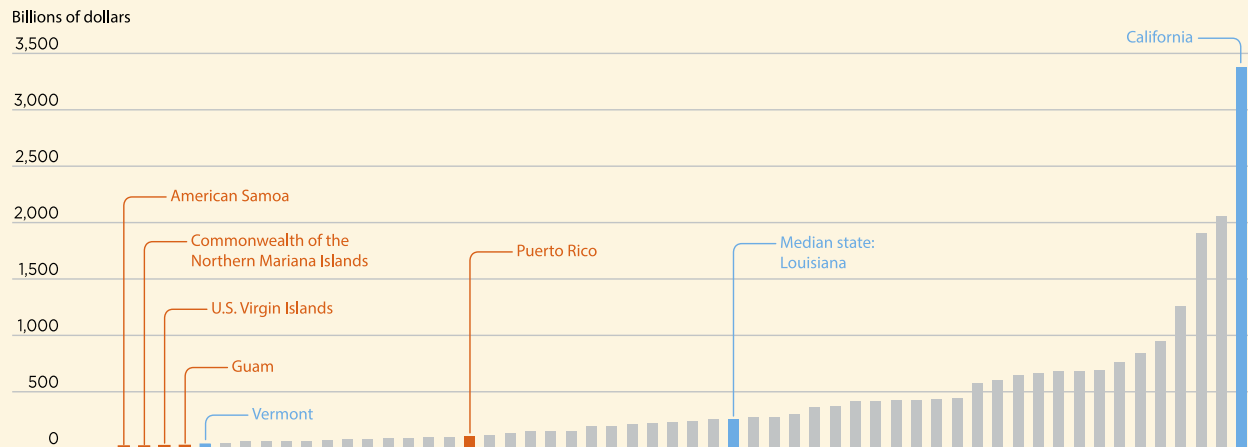
In 2021, the economies of American Samoa, Guam, and the U.S. Virgin Islands were in various stages of response and recovery to the COVID-19 pandemic. Real GDP increased in Guam and the U.S. Virgin Islands, while it decreased in American Samoa.

Across all three territories, there was a continued influx in 2021 of federal funds related to pandemic response and recovery, including funds for the territorial government and households. Real personal consumption expenditures increased, despite consumer price inflation. Exports of goods and services were major contributors to the changes in real GDP. Government spending accounted for a large share of GDP relative to the rest of the nation.

### American Samoa, Guam, and the U.S. Virgin Islands Are Small

It is important to note that American Samoa, Guam, and the U.S. Virgin Islands are small island areas with commensurately small economies. In 2021, the GDP levels for American Samoa, Guam, and the U.S. Virgin Islands were lower than all the U.S. states (chart III).

**Chart III. Gross Domestic Product for U.S. States, the District of Columbia, and Selected U.S. Territories, 2021**



Note. 2021 gross domestic product (GDP) estimates for the Commonwealth of the Northern Mariana Islands and Puerto Rico are not available as of June 2023; 2020 GDP statistics are shown for both territories.  
U.S. Bureau of Economic Analysis

## Technical Notes and Acknowledgments

These estimates are produced for each territory primarily using data from the territorial governments.

GDP for American Samoa, the CNMI, Guam, and the U.S. Virgin Islands is estimated using the expenditures approach, that is, as the sum of goods and services sold to final users. This methodology is similar to that used to estimate national GDP; in contrast, GDP for each of the 50 states and the District of Columbia is produced using an income-based approach. Each territory is estimated separately as a stand-alone entity with the methodology tailored to the economic data available for that territory. See [Summary of Methodologies: Gross Domestic Product for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands](#) on the BEA website for detailed methodological information.

### Updates to GDP and related estimates for prior years

Much of the source data that BEA uses to prepare the territorial GDP estimates is drawn from administrative or survey data that, over time, will provide more comprehensive or relevant information. As improved source data become available, BEA will incorporate the information and will release updated estimates once a year. Approximately every 5 years, BEA conducts a “comprehensive” update, which incorporates the most complete source data available and introduces major methodological changes. These comprehensive updates may affect the territorial GDP estimates for all years. By following this process, BEA ensures the estimates are as timely, consistent, and accurate as possible, given the availability of the data sources.

### Acknowledgments

BEA's territorial economic accounts for American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and the U.S. Virgin Islands are funded on an annual basis by the U.S. Department of the Interior Office of Insular Affairs.

BEA appreciates the data, information, and assistance provided by the following entities:

#### U.S. federal agencies

- Office of Insular Affairs, U.S. Department of the Interior
- Census Bureau, U.S. Department of Commerce
- Bureau of Labor Statistics, U.S. Department of Labor
- Energy Information Administration, U.S. Department of Energy
- Federal Emergency Management Agency, U.S. Department of Homeland Security

#### American Samoa

- American Samoa Office of the Governor
- American Samoa Department of Commerce
- American Samoa Department of Treasury
- American Samoa Tax Office, Department of Treasury
- American Samoa Customs, Department of Treasury
- American Samoa Budget Office
- American Samoa Telecommunications Authority
- American Samoa Power Authority

- LBJ Tropical Medical Center
- American Samoa Community College
- Office of Petroleum Management

#### The Commonwealth of the Northern Mariana Islands

- CNMI Office of the Governor
- CNMI Department of Commerce
- CNMI Commonwealth Ports Authority
- Marianas Visitors Authority
- CNMI Department of Finance
- Northern Marianas College
- CNMI Public School System
- Commonwealth Utilities Corporation
- Commonwealth Healthcare Corporation

#### Guam

- Guam Office of the Governor
- Guam Bureau of Statistics and Plans
- Guam Department of Administration
- Guam Department of Revenue and Taxation
- Guam Bureau of Budget and Management Research
- Guam Economic Development Authority
- Guam Office of Public Accountability
- Guam Visitors Bureau
- Guam Department of Labor
- Guam Port Authority

#### U.S. Virgin Islands

- U.S. Virgin Islands Office of the Governor
- U.S. Virgin Islands Bureau of Economic Research
- U.S. Virgin Islands Bureau of Internal Revenue
- U.S. Virgin Islands Office of Management and Budget
- U.S. Virgin Islands Department of Finance
- U.S. Virgin Islands Bureau of Labor Statistics, Department of Labor
- U.S. Virgin Islands Department of Labor



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## Footnotes

1. The publication of this article is funded by the U.S. Department of the Interior Office of Insular Affairs, which also funds the production of the territorial economic accounts for American Samoa, the Commonwealth of the Northern Mariana Islands (CNMI), Guam, and the U.S. Virgin Islands. For complete data tables for 2021 and other years, see the [U.S. Bureau of Economic Analysis \(BEA\) website](#). At the time of publication, CNMI GDP for 2021 was not yet available due to extended delays in a key source of data on CNMI territorial government spending, which is a critical component of CNMI GDP. CNMI GDP statistics for prior years are included in select charts in this article for comparison purposes. BEA's Puerto Rico GDP is produced under a different funding source, and data are included in select charts for comparison. BEA's Puerto Rico GDP estimates are available on the [BEA website](#).
2. Dánica Coto, "[USVI oil refinery to shutter indefinitely amid violations](#)," the Associated Press, June 21, 2021; Environmental Protection Agency, "[Refinery on St. Croix, U.S. Virgin Islands](#)," accessed on June 1, 2023.



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