



# US Chartbook

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Open source notes on US economic activity



## Notes

**Very early stage draft:**  
Contents not reliable



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\* Forthcoming

# Overall Economic Activity

This analysis of the United States economy begins with the most popular measure of economic activity, [Gross Domestic Product \(GDP\)](#). GDP estimates the production of goods and services in a given location during a given period of time. According to the Bureau of Economic Analysis, the seasonally-adjusted annualized value of goods and services produced in the US was \$23,992 billion in the fourth quarter of 2021, compared to an inflation-adjusted equivalent of \$23,261 billion in 2019 Q4 and \$10,575 billion in the first quarter of 1989.

The US population is growing by about sixth-tenths of a percent per year. GDP per capita (see —), adjusted for inflation to 2021 Q4 dollars, had increased to \$70,662 in 2019 Q4 from \$43,307 in 1989 Q1, and is currently \$72,309, as of the fourth quarter of 2021.

**GDP per capita**  
in 2021 Q4 dollars



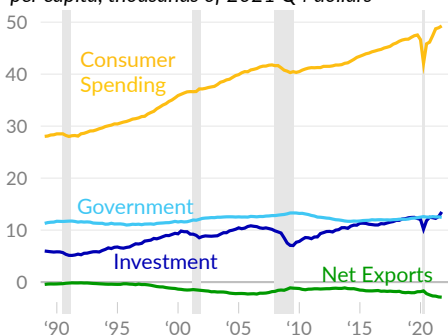
Source: Bureau of Economic Analysis

## Types of Economic Activity

GDP calculated using the [expenditures approach](#) is the sum of major types of domestic spending on finished goods and services: consumer spending, private investment, and government spending and investment. To capture only domestic production, foreign spending on US produced goods and services is added, while imports (spending on non-US-produced goods and services) are subtracted.

### Expenditure Types

per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Much of the increase in real GDP per capita over the past 30 years comes from consumer spending. Domestic consumer spending (see —) is equivalent to \$49,270 per person in 2021 Q4, a price-adjusted increase of \$21,240 since 1989. Gross private domestic investment (see —) is equivalent to \$13,498 per person in 2021 Q4, and government spending and investment (see —) totals \$12,442 per person. Net exports equivalent to \$2,901 per person are subtracted to reflect only domestic production (see —).

### Expenditure Types

per capita, annualized, 2021 Q4 dollars

|                                      | 2021 Q4  | 2019 Q4 | 2000 Q1 | 1989 Q1 |
|--------------------------------------|----------|---------|---------|---------|
| — Gross Domestic Product             | \$72,309 | 70,663  | 55,703  | 44,763  |
| — Consumer Spending                  | 49,270   | 47,531  | 35,876  | 28,030  |
| — Gross Private Domestic Investment  | 13,498   | 12,228  | 9,288   | 5,978   |
| — Government Spending and Investment | 12,442   | 12,390  | 11,565  | 11,295  |
| — Net Exports                        | -2,901   | -1,852  | -1,355  | -449    |
| Exports                              | 8,026    | 8,603   | 5,258   | 2,746   |
| Less: Imports                        | 10,927   | 10,018  | 6,424   | 3,006   |

Source: Bureau of Economic Analysis

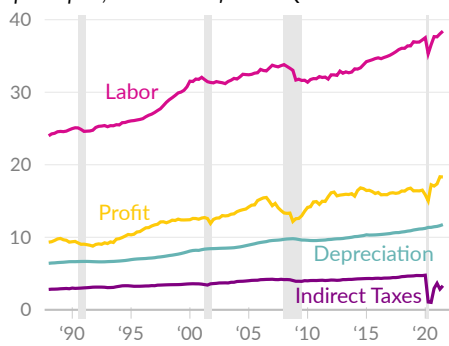
The less-discussed **income approach** calculates the level of overall economic activity from the sum of income payments from production and certain expenses incurred in production. Income from production is the payout to labor and capital. Income for labor is referred to as “compensation of employees, paid” in the national accounts and includes wages and salaries as well supplements to wages and salaries such as employer-paid health insurance premiums and retirement account contributions. Income received as profit is referred to as the “net operating surplus” in national accounts and includes interest payments, rental profits, business proprietor profits, and corporate profits.

Additionally some income does not get paid out to these groups. Taxes on imports and production, such as tariffs, sales tax, property tax, and licensing fees are tracked separately. If the government provides subsidies, which are income payments for production that did not occur, they must be subtracted from income measures of production. Lastly, a growing portion of potential income goes toward replacing and maintaining buildings and equipment used in production. This expense is recorded as “consumption of fixed capital” in the national accounts and referred to as depreciation below.

The Bureau of Economic Analysis [report](#) seasonally-adjusted and annualized **Gross Domestic Income** (GDI) of \$23,804 billion in 2021 Q3, compared to an inflation-adjusted equivalent of \$22,910 billion in 2019 Q4. Real GDI per capita was \$71,804 in 2021 Q3 and \$69,597 in 2019 Q4.

### Income Types

per capita, thousands of 2021 Q3 dollars



Source: Bureau of Economic Analysis

Gross labor income per capita is equivalent to \$38,421 in 2021 Q3 (see —) and \$37,213 in 2019 Q4, on an annualized, seasonally-adjusted, and inflation-adjusted basis. Profits per person total \$18,314 in 2021 Q3 (see —) and \$16,501 in 2019 Q4, following the same adjustments. Indirect taxes less subsidies per capita total \$3,317 in 2021 Q3 (see —) and \$4,719 in 2019 Q4. Lastly, depreciation per capita is \$11,752 in 2021 Q3 (see —) and \$11,163 in 2019 Q4.

### Income Types

per capita, annualized, 2021 Q3 dollars

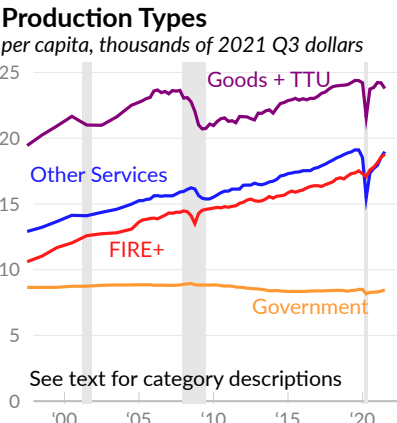
|                                 | 2021 Q3  | 2019 Q4 | 2000 Q1 | 1989 Q1 |
|---------------------------------|----------|---------|---------|---------|
| Gross Domestic Income           | \$71,804 | 69,597  | 55,619  | 43,875  |
| — Labor                         | 38,421   | 37,213  | 31,522  | 24,600  |
| Wages and Salaries              | 31,581   | 30,355  | 26,059  | 20,301  |
| Supplements                     | 6,839    | 6,858   | 5,463   | 4,299   |
| — Profit                        | 18,314   | 16,501  | 12,420  | 9,840   |
| — Indirect Taxes                | 3,317    | 4,719   | 3,579   | 2,900   |
| Taxes on Production and Imports | 4,991    | 4,984   | 3,825   | 3,123   |
| Less: Subsidies                 | 1,675    | 265     | 247     | 223     |
| — Depreciation                  | 11,752   | 11,163  | 8,099   | 6,536   |

Source: Bureau of Economic Analysis

The **production approach** to GDP identifies how individual industries contribute to domestic production by calculating the **value added** by each industry during the production process. The value added by an industry or sector group is its sales or gross output minus any **intermediate inputs** used in production. The Bureau of Economic Analysis [report](#) GDP by industry, which is summarized briefly in this subsection by grouping the various private industries into broad categories.

The first category combines private goods producing industries: agriculture, forestry, fishing, and hunting (1.1 percent of GDP in 2021 Q3); mining (1.2 percent of GDP); construction (4.1 percent); and manufacturing (11.1 percent), with trade, transportation, and utilities (TTU, combined 16.4 percent of GDP). The second category is finance, insurance, and real estate (FIRE, 21.2 percent of GDP in 2021 Q3) combined with the information industry (5.6 percent of GDP), labeled as FIRE+.

The remaining private services-providing industries include: professional and business services (13.0 percent of GDP in 2021 Q3); education, health care, and social services (8.4 percent of GDP); arts, entertainment, and recreation (3.8 percent). Separately, public-sector value added in production, at the federal, state, and local levels, is captured by the government category (12.1 percent of GDP).



Source: Bureau of Economic Analysis

In 2021 Q3, private goods producing industries and trade, transportation, and utilities combined value added per person is \$23,773, on an annualized basis, compared to \$24,380 in 2019 Q4 (see —). Private finance, insurance, real estate, and information industry services combined value added per person is \$18,782 in 2021 Q3 and \$17,516 in 2019 Q4 (see —).

All other private services-producing industries combined value added per person is \$18,972 in 2021 Q3 and \$19,106 in 2019 Q4 (see —). Government value added is \$8,464 per person in 2021 Q3 and \$8,503 in 2019 Q4 (see —).

**Production Types**  
per capita, annualized, 2021 Q3 dollars

|                         | 2021 Q3  | 2021 Q2 | 2019 Q4 | 2005 Q1 | 1997 (A) |
|-------------------------|----------|---------|---------|---------|----------|
| — Goods and TTU         | \$23,773 | 24,209  | 24,380  | 22,731  | 19,439   |
| Manufacturing           | 7,755    | 7,792   | 7,585   | 7,008   | 5,776    |
| Construction            | 2,869    | 2,981   | 2,918   | 3,850   | 3,615    |
| Retail Trade            | 4,160    | 4,324   | 4,415   | 4,159   | 3,274    |
| — FIRE+                 | 18,782   | 18,552  | 17,516  | 13,627  | 10,605   |
| — Other Services        | 18,972   | 18,550  | 19,106  | 15,248  | 12,907   |
| Education & Healthcare  | 5,859    | 5,816   | 6,005   | 4,611   | 3,963    |
| Professional & Business | 9,065    | 8,808   | 8,426   | 6,074   | 4,930    |
| Information             | 3,938    | 3,866   | 3,426   | 1,775   | 1,118    |
| — Government            | 8,464    | 8,368   | 8,503   | 8,854   | 8,652    |

Source: Bureau of Economic Analysis



## Household inputs to production

It's useful to consider household inputs when analyzing economic output. For example, is the population growing? Are more people working? Are people working more hours? Is the economy more productive in its use of labor? These questions all add important context to discussion of aggregate output.

The US population is increasing (see —), though at a slower rate than in the past. Over the past 30 years, the US has added 80 million people. This means the amount of goods and services produced needed to increase by 30 percent over the period to maintain a constant standard of living. Employment of any amount (see —) comes from around half of the population during the peak of an economic expansion as a tighter labor market and higher wages pull people into employment, and falls during a recession as people lose jobs. Hours worked per worker per week (see —) are also influenced by economic conditions. During an economic expansion, more hours of work are available to those who want them. During a recession and when demand for goods and services is relatively low, hours of work are cut.

### Population

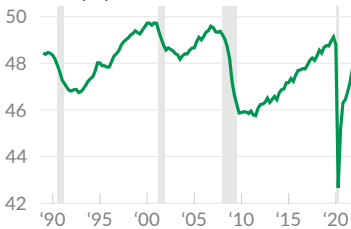
millions of people



Source: BEA

### Employment Rate

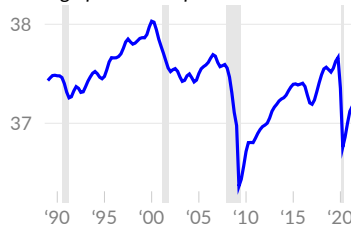
share of population



Source: CPS microdata

### Hours Worked

average per worker per week



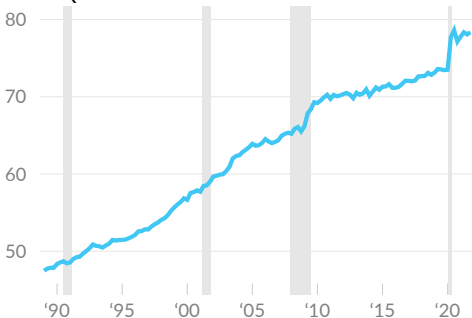
Source: CPS microdata

By multiplying the population, employment rate, and average hours worked, we approximate the aggregate hours worked in the US. We can then divide real GDP by aggregate hours worked to estimate GDP per hour of work, or productivity (see —). During a recession, economic theory suggests that productivity increases, in the short-run, as less-productive workers disproportionately lose jobs: less-productive firms close and existing firms lay off less-productive workers.

In 2021 Q4, real GDP was equivalent to roughly \$78.35 per hour of work, compared to \$78.07 in 2021 Q3, \$73.44 in 2019 Q4, \$71.16 in 2015 Q4, and \$47.48 in the first quarter of 1989. Comparing the latest data to the pre-COVID data covering 2019 Q4, annualized real GDP is \$23,992 billion in the latest data and \$23,261 billion in 2019 Q4. Aggregate hours worked total 306 billion in the latest quarter and 317 billion in 2019 Q4.

### GDP per hour of work

2021 Q4 dollars



Source: Author's calculations



## Economic Growth

Economists are concerned with changes in production. Decreased production can result in material hardship for ordinary people. This chartbook subsection covers changes in production measured as the rate of growth of overall economic activity, and also describes how the major categories of activities discussed in the previous sector contribute to overall growth.

GDP (see ■) increased at an annual rate of 6.9 percent during the fourth quarter of 2021, compared to an increase of 2.3 percent in the third quarter of 2021, and an increase of 6.7 percent in 2021 Q2. This annualized rate of quarterly growth averaged 2.5 percent over the three years from 2017–2019. Over the most recent three years, which include the COVID-19 pandemic, real GDP growth averaged 2.7 percent.

### Real Gross Domestic Product Growth

*quarterly growth at seasonally adjusted annual rate, percent*



Source: Bureau of Economic Analysis



### Notes on economic growth

GDP is not a tool for describing how goods and services are distributed in society. GDP is an aggregate measure, the sum of individual activities. As a result, the experiences of individuals can [differ](#) drastically from the overall outcome. For example, GDP can increase while the vast majority of people receive no additional goods or services.

Additionally, production (GDP) isn't a measure of inputs, it's a measure of outputs. In fact, production can increase without an increase in inputs, a situation economists call productivity growth. This is an important consideration given the aging US population and serious concerns over environmental impacts of increased production.

Also note that real (price-adjusted) GDP incorporates changes in quality. This means that real GDP can increase even if the quantity produced does not change. Distribution, productivity, and prices are discussed in later sections.

### A note on annualized rates

US statistical agencies traditionally report annualized data. For example, the level of GDP in a given quarter is reported as the production that would occur over an entire year at the rate of production in the quarter. When this concept is applied to quarterly growth rates, as in the previous chart, it indicates what the quarterly change in production would be if it were sustained for an entire year.

Because annual rates amplify short-term changes in production, some analysis has instead used quarterly rates when discussing changes in production during the COVID-19 pandemic. It's also worth noting that many other countries' statistical agencies report quarterly—not annualized—growth rates. However, to be consistent with reported data, the chartbook will generally use annualized rates.



## Components of Growth

The **expenditure approach** also gives insight into the sources of changes in overall economic activity. In the fourth quarter of 2021, consumer spending (see ■) contributed 2.25 percentage points to overall real GDP growth. Private domestic investment (see ■) contributed 5.15 percentage points to real GDP growth, government spending and investment (see ■) subtracted 0.51 percentage point, and net exports (see ■) did not contribute.

### Real GDP Growth by Expenditure Type

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

The **income approach** enables decomposing annualized production growth into gross labor income (see ■), profit (see ■), indirect taxes less subsidies (see ■), and depreciation (see ■).

In the third quarter of 2021, gross domestic income increased at an annual rate of 5.8 percent, following an increase of 4.3 percent in 2021 Q2 and an increase of 6.3 percent in 2021 Q1. In the latest quarter, labor income contributed 2.29 percentage points to overall growth, following a contribution of 2.54 percentage points in 2021 Q2. Profit income subtracted 0.07 percentage point in the third quarter of 2021 and contributed 5.74 percentage points in 2021 Q2. Changes in indirect tax revenue and surpluses contributed 2.71 percentage points to aggregate income growth in the latest quarter and subtracted 4.63 percentage points in 2021 Q2.

### Real Gross Domestic Income Growth

percentage point contribution to GDI growth



Source: Bureau of Economic Analysis



The **production approach** calculates GDP as the sum of value added–gross output minus intermediate inputs–in each sector. The broad groupings discussed above are used to identify contributions from: goods-producing sectors combined with trade, transportation, and utilities (see ■), finance, insurance, and real estate plus information (see ■), other service-providing sectors (see ■), and government (see ■).

In 2021 Q3, the combined contribution to GDP growth from private goods-producing industries and trade, transportation, and utilities is -2.4 percentage points, following a subtraction of 0.1 percentage point in 2021 Q2, and compared to a subtraction of 0.0 percentage point in 2019 Q4. The group of private service-providing industries that include finance, insurance, real estate, as well as the information industry contributed 1.4 percentage points in 2021 Q3, contributed 2.2 percentage points in 2021 Q2, and contributed 1.2 percentage points in 2019 Q4.

Other private services-providing industries, which are wide-ranging and described above, contributed 2.7 percentage points to real GDP growth in 2021 Q2, following a contribution of 4.1 percentage points in 2021 Q2, and compared to a contribution of 0.1 percentage point in 2019 Q4. Combined federal, state, and local government contributed 0.6 percentage point in 2021 Q3, contributed 0.4 percentage point the prior quarter, and contributed 0.6 percentage point in 2019 Q4, prior to the pandemic.

### Real GDP Growth by Industry Group

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

Changes to GDP can also be assigned to changes in **household inputs**: population (see ■), employment rates (see ■), average hours worked (see ■), and total economy productivity (see ■).

In 2021 Q4, population growth contributed 0.38 percentage point to annualized GDP growth, and, for comparison, added 0.56 percentage point in 2019 Q4. Changes in the employed share of the population contributed 5.04 percentage points in the latest quarter, and added 1.47 percentage points in the fourth quarter of 2019. Changes in average hours worked added 0.05 percentage point to GDP growth in the latest quarter and added 0.41 percentage point in 2019 Q4. Lastly, productivity contributed 1.42 percentage points to GDP growth in 2021 Q4, compared to a reduction of 0.56 percentage point in 2019 Q4.

### Real GDP Growth by Household Inputs

*percentage point contribution to GDP growth*



Source: Author's Calculations



## Components of Economic Growth

annualized percentage point contribution to real GDP/GDI growth

moving averages

|  | 2021<br>Q4 | '21<br>Q3 | '21<br>Q2 | '21<br>Q1 | '20<br>Q4 | 3-<br>year | 10-<br>year | 30-<br>year |
|--|------------|-----------|-----------|-----------|-----------|------------|-------------|-------------|
| <span style="color: red;">■</span> <b>Gross Domestic Product</b> | 6.9        | 2.3       | 6.7       | 6.3       | 4.5       | 2.7        | 2.5         | 2.6         |
| <span style="color: yellow;">■</span> Consumer Spending          | 2.25       | 1.35      | 7.92      | 7.44      | 2.26      | 1.93       | 1.72        | 1.88        |
| Durable Goods  | 0.14       | -2.52     | 1.01      | 3.50      | 0.10      | 0.66       | 0.52        | 0.49        |
| Non-durable Goods  | -0.02      | 0.30      | 1.98      | 2.19      | -0.17     | 0.74       | 0.47        | 0.39        |
| Services   | 2.12       | 3.57      | 4.93      | 1.75      | 2.34      | 0.54       | 0.74        | 1.00        |
| <span style="color: blue;">■</span> Gross Investment             | 5.15       | 2.05      | -0.65     | -0.37     | 4.01      | 0.95       | 0.93        | 0.75        |
| Non-residential  | 0.28       | 0.22      | 1.21      | 1.65      | 1.57      | 0.35       | 0.52        | 0.58        |
| Residential  | -0.03      | -0.38     | -0.60     | 0.60      | 1.34      | 0.19       | 0.20        | 0.08        |
| Change in inventories  | 4.90       | 2.20      | -1.26     | -2.62     | 1.10      | 0.41       | 0.21        | 0.10        |
| <span style="color: lightblue;">■</span> Government              | -0.51      | 0.17      | -0.36     | 0.77      | -0.09     | 0.27       | 0.10        | 0.21        |
| Federal  | -0.27      | -0.35     | -0.38     | 0.78      | -0.22     | 0.16       | 0.01        | 0.07        |
| State and Local  | -0.24      | 0.52      | 0.02      | -0.01     | 0.14      | 0.11       | 0.09        | 0.14        |
| <span style="color: green;">■</span> Net Exports                 | 0.00       | -1.26     | -0.18     | -1.56     | -1.65     | -0.43      | -0.28       | -0.23       |
| Exports  | 2.43       | -0.59     | 0.80      | -0.30     | 2.07      | -0.08      | 0.19        | 0.44        |
| Imports  | -2.43      | -0.68     | -0.99     | -1.26     | -3.73     | -0.35      | -0.48       | -0.67       |
| <span style="color: purple;">■</span> Goods and TTU              | -          | -2.39     | -0.11     | 2.28      | 0.65      | 0.30       | 0.66        | 0.87        |
| Manufacturing  | -          | -0.17     | 0.63      | 0.95      | 0.38      | 0.22       | 0.22        | 0.38        |
| Construction   | -          | -0.62     | 0.28      | 0.25      | 0.46      | 0.03       | 0.08        | 0.01        |
| Retail Trade   | -          | -0.91     | -0.97     | 0.96      | 0.01      | 0.03       | 0.11        | 0.18        |
| <span style="color: red;">■</span> FIRE+                         | -          | 1.36      | 2.23      | 2.11      | 1.55      | 1.05       | 0.76        | 0.78        |
| <span style="color: blue;">■</span> Other Services               | -          | 2.73      | 4.14      | 1.80      | 2.12      | 0.85       | 0.78        | 0.67        |
| Education & Healthcare   | -          | 0.28      | 0.52      | -0.09     | 0.48      | 0.17       | 0.18        | 0.19        |
| Professional & Business  | -          | 1.54      | 1.48      | 1.55      | 1.55      | 0.67       | 0.52        | 0.39        |
| Information  | -          | 0.44      | 1.30      | 0.79      | 0.12      | 0.43       | 0.35        | 0.27        |
| <span style="color: orange;">■</span> Government                 | -          | 0.60      | 0.42      | 0.12      | 0.15      | 0.13       | 0.05        | 0.10        |
| <span style="color: lightgreen;">■</span> Population             | 0.38       | 0.37      | 0.25      | 0.25      | 0.56      | 0.44       | 0.60        | 0.90        |
| <span style="color: green;">■</span> Employment Rate             | 5.04       | 3.41      | 3.07      | 1.22      | 9.95      | 0.31       | 0.66        | 0.14        |
| <span style="color: blue;">■</span> Average Hours                | 0.05       | -0.07     | 0.55      | 1.39      | 1.55      | -0.13      | 0.13        | 0.02        |
| <span style="color: lightblue;">■</span> Productivity            | 1.42       | -1.41     | 2.85      | 3.42      | -7.53     | 2.09       | 1.09        | 1.55        |
| <b>Gross Domestic Income</b>                                     | -          | 5.8       | 4.3       | 6.3       | 19.6      | 3.1        | 2.6         | 2.7         |
| <span style="color: magenta;">■</span> Labor                     | -          | 2.29      | 2.54      | -0.02     | 7.53      | 1.61       | 1.37        | 1.36        |
| <span style="color: yellow;">■</span> Profit                     | -          | -0.07     | 5.74      | 1.84      | -1.03     | 1.22       | 0.74        | 0.82        |
| <span style="color: teal;">■</span> Depreciation                 | -          | 0.92      | 0.63      | 0.33      | 0.63      | 0.51       | 0.42        | 0.43        |
| <span style="color: purple;">■</span> Indirect Taxes             | -          | 2.71      | -4.63     | 4.17      | 12.51     | -0.22      | 0.04        | 0.13        |

Source: Bureau of Economic Analysis and Author's Calculations

## Real GDP Growth by State

percentage point change in real GDP



Source: Bureau of Economic Analysis

\*For the year ending 2021 Q3, no states had real GDP growth of more than ten percent, 16 states had real GDP growth between five and ten percent, 35 states had less than five percent GDP growth, and no states had negative GDP growth.

## Real GDP Growth by State

quarterly growth at seasonally adjusted annualized rate

total growth, 2021 Q3

|                           | 2021<br>Q3 | '21<br>Q2 | '21<br>Q1 | '20<br>Q4 | '20<br>Q3 | 1-year* | 3-year | 10-year |
|---------------------------|------------|-----------|-----------|-----------|-----------|---------|--------|---------|
| <b>United States</b>      | 2.3        | 6.7       | 6.3       | 4.5       | 33.8      | 4.9     | 4.8    | 22.7    |
| <b>Pacific</b>            | 2.9        | 7.9       | 10.7      | 1.7       | 33.2      | 5.8     | 7.8    | 37.2    |
| Washington                | 2.7        | 8.2       | 8.9       | 3.5       | 30.8      | 5.8     | 10.4   | 47.7    |
| California                | 2.9        | 8.1       | 11.7      | 1.2       | 33.6      | 5.9     | 8.2    | 38.1    |
| Oregon                    | 3.5        | 6.0       | 7.4       | 2.5       | 35.9      | 4.8     | 5.0    | 29.9    |
| Hawaii                    | 6.0        | 8.9       | 5.2       | 4.4       | 34.5      | 6.1     | -5.8   | 7.0     |
| Alaska                    | -0.6       | 1.8       | -4.5      | 4.0       | 27.6      | 0.2     | -6.0   | -8.2    |
| <b>West South Central</b> | 2.6        | 5.8       | 3.4       | 5.3       | 36.0      | 4.2     | 4.5    | 28.4    |
| Texas                     | 3.5        | 6.4       | 3.9       | 5.6       | 35.6      | 4.8     | 6.2    | 36.2    |
| Oklahoma                  | 1.0        | 3.5       | -0.4      | 5.0       | 38.8      | 2.2     | -0.1   | 19.8    |
| Arkansas                  | 0.7        | 4.2       | 7.2       | 4.8       | 38.1      | 4.2     | 4.5    | 12.5    |
| Louisiana                 | -2.7       | 4.0       | 0.7       | 3.1       | 35.7      | 1.2     | -4.1   | -3.1    |
| <b>Mountain</b>           | 2.0        | 6.4       | 4.5       | 3.6       | 32.8      | 4.1     | 6.2    | 26.3    |
| Utah                      | 2.7        | 6.3       | 4.0       | 2.4       | 30.8      | 3.8     | 10.0   | 40.0    |
| Colorado                  | 2.3        | 7.2       | 7.3       | 5.3       | 29.0      | 5.5     | 7.2    | 35.3    |
| Idaho                     | -1.0       | 4.0       | 7.4       | 1.1       | 38.6      | 2.8     | 7.9    | 31.8    |
| Arizona                   | 3.2        | 5.6       | 0.8       | 3.5       | 32.5      | 3.2     | 6.5    | 26.2    |
| Nevada                    | 2.6        | 9.7       | 6.2       | 4.0       | 45.3      | 5.6     | 2.2    | 16.8    |
| Montana                   | -0.6       | 5.5       | 11.2      | 2.0       | 30.8      | 4.4     | 3.7    | 16.5    |
| New Mexico                | -0.5       | 5.3       | 0.8       | 3.3       | 30.8      | 2.2     | 4.9    | 9.3     |

continued on next page . . .

|                                    | 2021<br>Q3 | '21<br>Q2 | '21<br>Q1 | '20<br>Q4 | '20<br>Q3 | 1-year* | 3-year | 10-year |
|------------------------------------|------------|-----------|-----------|-----------|-----------|---------|--------|---------|
| continued from previous page . . . |            |           |           |           |           |         |        |         |
| Wyoming                            | -1.5       | 2.3       | 3.7       | 1.2       | 28.9      | 1.4     | -3.2   | -7.0    |
| <b>South Atlantic</b>              | 2.9        | 6.2       | 6.1       | 4.4       | 31.3      | 4.9     | 4.8    | 20.9    |
| Florida                            | 3.7        | 6.7       | 7.5       | 3.4       | 32.6      | 5.3     | 6.5    | 29.4    |
| Georgia                            | 3.3        | 6.0       | 6.9       | 4.1       | 30.4      | 5.1     | 5.6    | 29.3    |
| South Carolina                     | 1.6        | 6.1       | 5.1       | 4.4       | 39.1      | 4.3     | 5.9    | 24.6    |
| North Carolina                     | 2.4        | 6.2       | 9.5       | 5.5       | 34.8      | 5.9     | 5.7    | 19.4    |
| District of Columbia               | 3.9        | 7.2       | -1.6      | 5.5       | 18.6      | 3.7     | 2.5    | 13.7    |
| Maryland                           | 1.8        | 6.1       | 8.9       | 4.2       | 27.8      | 5.2     | 1.5    | 12.2    |
| Virginia                           | 2.8        | 5.8       | 1.4       | 5.2       | 29.2      | 3.8     | 3.6    | 11.6    |
| West Virginia                      | -0.6       | 7.3       | 1.1       | 4.1       | 33.3      | 3.0     | -1.0   | 2.9     |
| Delaware                           | 4.7        | 2.8       | -3.6      | 8.1       | 27.1      | 2.9     | 4.7    | 2.5     |
| <b>West North Central</b>          | 0.8        | 6.2       | 5.8       | 6.7       | 35.4      | 4.8     | 4.3    | 17.5    |
| North Dakota                       | -3.3       | 5.5       | 10.1      | 4.6       | 26.9      | 4.1     | 2.2    | 39.9    |
| Nebraska                           | 0.8        | 2.9       | 6.4       | 11.8      | 37.1      | 5.4     | 7.5    | 22.4    |
| Iowa                               | 0.5        | 7.7       | 8.6       | 9.3       | 38.1      | 6.5     | 5.9    | 21.1    |
| Kansas                             | -0.3       | 6.1       | 3.5       | 6.2       | 39.2      | 3.8     | 4.0    | 17.4    |
| Minnesota                          | 1.8        | 6.5       | 5.3       | 5.6       | 33.9      | 4.8     | 2.3    | 16.9    |
| South Dakota                       | -0.8       | 4.2       | 6.3       | 5.9       | 33.1      | 3.9     | 4.9    | 14.4    |
| Missouri                           | 1.6        | 6.7       | 4.7       | 5.3       | 34.7      | 4.5     | 4.7    | 11.3    |
| <b>Middle Atlantic</b>             | 2.5        | 7.2       | 6.2       | 6.1       | 31.3      | 5.5     | 3.7    | 16.2    |
| New York                           | 2.2        | 8.1       | 7.1       | 6.8       | 28.9      | 6.0     | 4.2    | 19.2    |
| Pennsylvania                       | 2.2        | 5.9       | 3.0       | 5.2       | 34.8      | 4.1     | 2.2    | 13.0    |
| New Jersey                         | 3.7        | 6.4       | 7.9       | 5.1       | 33.3      | 5.8     | 4.2    | 12.6    |
| <b>East South Central</b>          | 1.8        | 5.3       | 7.3       | 5.6       | 43.8      | 5.0     | 4.3    | 15.4    |
| Tennessee                          | 3.1        | 5.6       | 13.4      | 7.6       | 51.2      | 7.4     | 6.2    | 24.5    |
| Kentucky                           | 1.1        | 6.5       | 5.5       | 4.7       | 40.8      | 4.4     | 4.3    | 12.4    |
| Alabama                            | 1.3        | 4.1       | 2.4       | 3.5       | 36.0      | 2.8     | 1.8    | 9.6     |
| Mississippi                        | 0.2        | 4.5       | 2.0       | 5.0       | 43.1      | 2.9     | 2.6    | 6.0     |
| <b>New England</b>                 | 2.6        | 7.1       | 3.8       | 3.5       | 35.2      | 4.2     | 3.2    | 13.5    |
| Massachusetts                      | 3.7        | 8.0       | 6.1       | 1.4       | 35.2      | 4.8     | 5.1    | 20.5    |
| New Hampshire                      | -3.3       | 5.6       | 2.5       | 5.3       | 40.0      | 2.5     | 3.3    | 15.6    |
| Maine                              | 1.7        | 5.5       | 1.3       | 3.8       | 37.2      | 3.1     | 5.6    | 14.4    |
| Rhode Island                       | 2.2        | 7.5       | -2.9      | 6.0       | 31.6      | 3.1     | 1.7    | 3.3     |
| Vermont                            | 0.4        | 6.5       | 0.9       | 3.6       | 43.0      | 2.8     | 0.7    | 3.3     |
| Connecticut                        | 2.7        | 5.9       | 1.8       | 6.8       | 33.0      | 4.3     | -0.8   | 3.3     |
| <b>East North Central</b>          | 0.8        | 6.4       | 5.2       | 5.1       | 36.9      | 4.4     | 2.1    | 13.3    |
| Indiana                            | 0.2        | 6.1       | 9.4       | 5.0       | 43.1      | 5.2     | 4.5    | 17.9    |
| Ohio                               | 0.9        | 5.2       | 3.5       | 5.5       | 35.7      | 3.8     | 3.4    | 14.9    |
| Michigan                           | -0.3       | 8.3       | 2.8       | 5.0       | 39.8      | 3.9     | 0.2    | 14.2    |
| Wisconsin                          | -0.2       | 5.7       | 1.2       | 3.6       | 38.8      | 2.6     | 1.4    | 11.5    |
| Illinois                           | 1.9        | 6.8       | 7.7       | 5.6       | 32.9      | 5.5     | 1.5    | 10.3    |

Source: Bureau of Economic Analysis

# Financial Accounts

The Federal Reserve [reports](#) transactions and levels of financial assets and liabilities in the US **financial accounts**. This includes balance sheets for households, businesses, and governments. Sector-specific data are covered in the section of the chartbook that corresponds to the sector and overall financial activities of the US are discussed in this section.

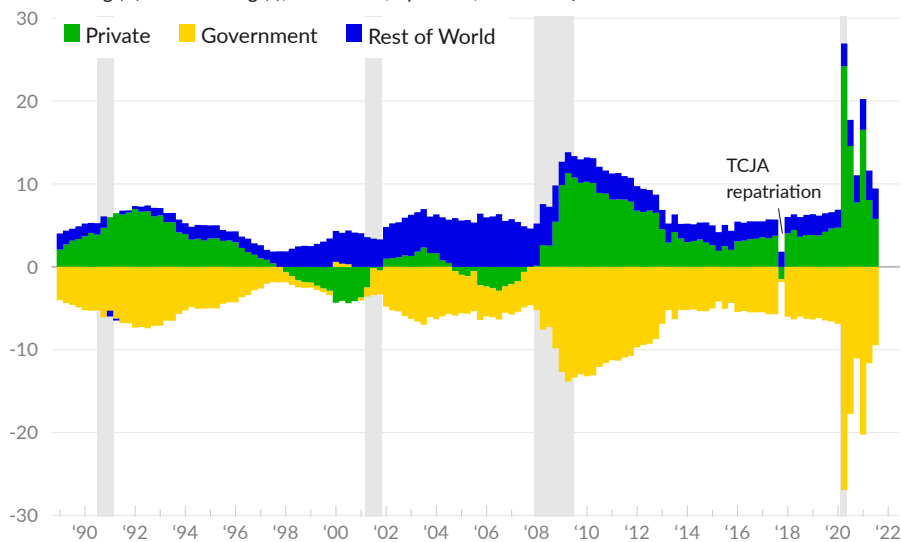
## Sectoral Balances

A high-level overview of US financial activities can be provided by dividing the world into three sectors: the US private sector (see ■), the US government (see ■), and the rest of the world (see ■), then examining the net lending and borrowing between the groups, which must sum to zero at an aggregate level. That is, if one sector is running a deficit, another sector must be running a surplus.

A sector runs a surplus in a given accounting period when its aggregate income is higher than its outlays. When this occurs the sector becomes a lender of the savings created by having more income than expenses. Likewise, if a sector spends more than it takes in, it borrows the difference. Therefore, when the government sector runs a deficit and is a net borrower, it is creating a surplus for other sectors because it is taking in less income through taxes than it is creating through spending.

### Sectoral Financial Balance

*net lending (+) or borrowing (-), NIPA basis, by sector, as share of GDP*



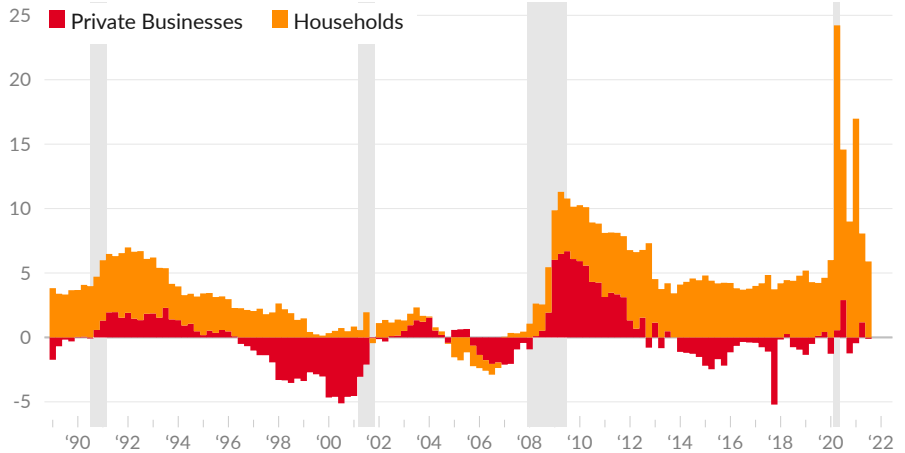
Source: Bureau of Economic Analysis

In 2021 Q3, the US private sector was a net lender (running a surplus) of the equivalent of 5.8 percent of GDP, substantially above the 4.1 percent surplus in 2019. The rest of the world was a net lender to the US to the equivalent of 3.7 percent of GDP in 2021 Q3, compared to 2.3 percent in 2019. Balancing these transactions, the government (federal, state, and local combined) was a net borrower (running a deficit) of the equivalent of 9.5 percent of GDP in 2021 Q3, compared to 6.4 percent in 2019.

Breaking out the two main categories in the private sector, households were net lenders (ran a surplus) of the equivalent of 5.9 percent of GDP in 2021 Q3 (see ■), while private businesses—corporate and noncorporate—were net borrowers of the equivalent of 0.1 percent of GDP (see ■). In 2019, households were net lenders of 4.4 percent, and private businesses were net borrowers of 0.3 percent.

### Domestic Private Sector Financial Balance

*net lending (+) or borrowing (-), NIPA basis, by sector, as share of GDP*



Source: Bureau of Economic Analysis



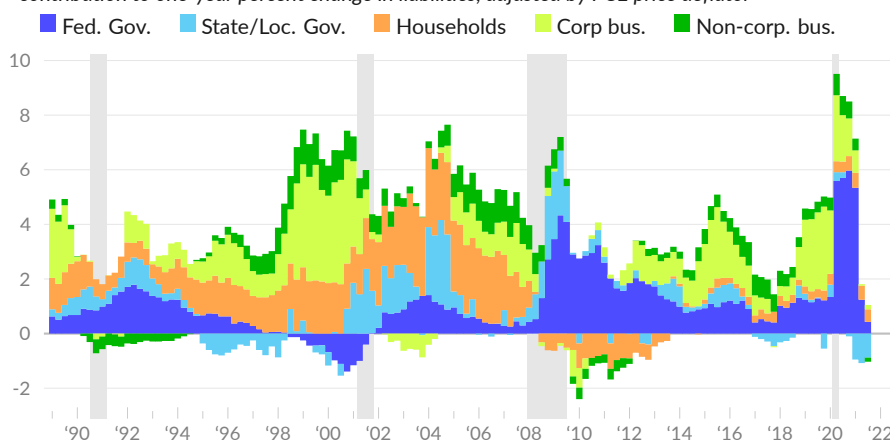
## Liabilities

Calculating the contribution of different sectors to the **total change in borrowing** can highlight risks to economic activity. For example, the tech bubble of the late 1990s and early 2000s shows up as a large increase in corporate borrowing. The housing bubble from the 1990s to 2007 shows up as an increase in household borrowing. Government borrowing increased following the collapse of the housing bubble, in an effort to compensate for the massive fall in wage income. Keep in mind, however, that the vast majority of liabilities in the domestic economy are to other domestic parties.

Total domestic liabilities were virtually unchanged over the year ending 2021 Q3, after adjusting for inflation. Federal government borrowing contributed 0.4 percentage point to the total (see ■), while the state and local government subtracted 0.9 percentage point to the total (see ■). Households and nonprofits contributed 0.5 percentage point to total annual growth (see ■), corporate businesses contributed 0.2 percentage point (see ■), and non-corporate businesses subtracted 0.1 percentage point (see ■).

### Real Debt Growth

contribution to one-year percent change in liabilities, adjusted by PCE price deflator



Source: Federal Reserve, Bureau of Economic Analysis

### Real Debt Growth

contribution to one-year real growth

|                          | 2021  | '21   | '21   | '20   | '20   | moving averages |             |             |
|--------------------------|-------|-------|-------|-------|-------|-----------------|-------------|-------------|
|                          | Q3    | Q2    | Q1    | Q4    | Q3    | 3-<br>year      | 10-<br>year | 30-<br>year |
| Total                    | 0.02  | 0.74  | 6.19  | 8.40  | 8.70  | 4.83            | 3.38        | 3.89        |
| Corporate Business       | 0.16  | 0.06  | 0.82  | 1.38  | 1.70  | 1.66            | 1.26        | 1.07        |
| Debt Securities          | -0.12 | -0.14 | 0.46  | 0.68  | 0.66  | 0.28            | 0.36        | 0.35        |
| Loans                    | -0.05 | -0.29 | -0.14 | 0.34  | 0.40  | 0.36            | 0.19        | 0.09        |
| Non-corporate Business   | -0.15 | -0.00 | 0.43  | 0.62  | 0.70  | 0.40            | 0.38        | 0.45        |
| Commercial Mortgages     | -0.02 | -0.03 | 0.03  | 0.07  | 0.08  | 0.05            | 0.05        | 0.07        |
| Household & Nonprofit    | 0.46  | 0.51  | 0.55  | 0.53  | 0.39  | 0.38            | 0.09        | 0.89        |
| Home Mortgages           | 0.29  | 0.27  | 0.38  | 0.40  | 0.31  | 0.23            | -0.11       | 0.58        |
| Consumer Credit          | 0.03  | 0.00  | -0.07 | -0.07 | -0.04 | 0.08            | 0.17        | 0.21        |
| State & Local Government | -0.88 | -1.08 | -0.95 | -0.10 | 0.21  | -0.15           | 0.07        | 0.37        |
| Federal Government       | 0.43  | 1.24  | 5.34  | 5.97  | 5.70  | 2.54            | 1.59        | 1.11        |

Source: Federal Reserve, Bureau of Economic Analysis

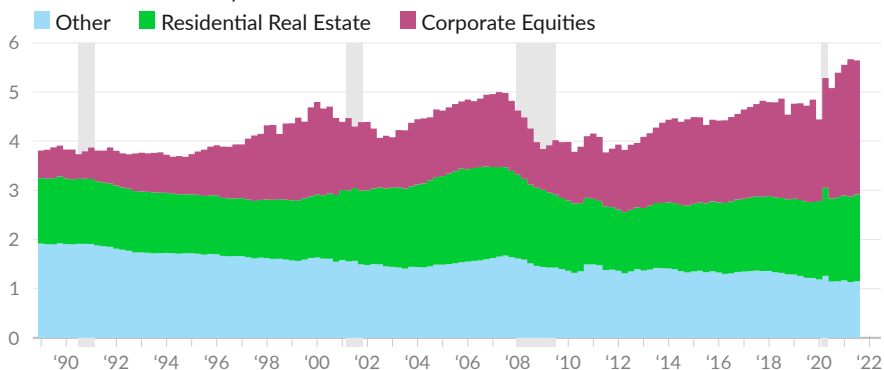


## Wealth

**Total US wealth** is the tangible assets of all non-corporate sectors of the US, plus the market value of domestic corporate equities, less US financial obligations to the rest of the world. The ratio of US total wealth, excluding public lands, to GDP increased to 5.64 in 2021 Q3 from 3.81 in 1989 Q1. The market value of corporate equities (see ■) increased to a 2.73 multiple of GDP in 2021 Q3 from 0.56 in 1989 Q1. The market value of residential real estate (see ■) increased to 1.76 times GDP from 1.33 in 1989. The other category (see ■), which includes tangible assets other than residential real estate less US financial obligations to the rest of the world, decreased to 1.15 from 1.92 in 1989.

### Total US Wealth to GDP Ratio

*total US wealth divided by GDP*



Source: Federal Reserve



## Investment

Investment is the exchange of a liquid asset, such as cash, for a less-liquid asset, such as a building.

Economic data use varying definitions of asset, for purposes of measuring investment. **Gross private fixed investment**, as measured in the national accounts, includes residential fixed investment, such as the construction and improvement of houses, apartment buildings, and other residential property (see ■), but does not include spending on durable goods, such as automobiles, appliances, or furniture.

Non-residential private fixed investment includes the construction and improvement of offices, warehouses, factories, and other commercial and industrial property (see ■), as well as purchases of equipment, software, and intellectual property products.

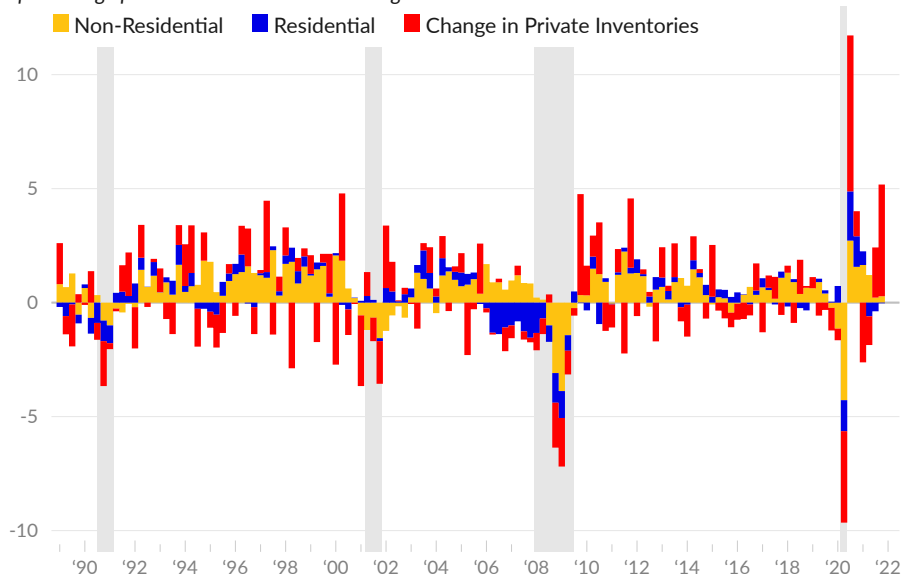
Additionally, the change in private inventories (see ■) at the end of the accounting period, whether intentional or unintentional, affects GDP growth in the period. Inventory investment is grouped in the national accounts with gross private investment, but is not fixed investment.

In the fourth quarter of 2021, private fixed investment, which does not include inventory investment, totals \$4.3 trillion, equivalent to 17.7 percent of GDP. Non-residential (business) fixed investment totals \$3.1 trillion, or 13.1 percent of GDP, while residential fixed investment totals \$1,108.5 billion (4.6 percent of GDP).

During the quarter, private fixed investment contributed 0.25 percentage point to real GDP growth. Non-residential fixed investment contributed 0.28 percentage point, while residential fixed investment subtracted 0.03 percentage point. The change in private inventories contributed 4.90 percentage points.

### Private Gross Investment

*percentage point contribution to real GDP growth*



Source: Bureau of Economic Analysis



# Households

This section covers the household sector of the economy, including demographics, personal income and outlays, residential investment, household balance sheets, home ownership, housing, and poverty.

## Demographics and Household Formation

The **total US population** is 329 million. The Census divides the population into those living in households (about 97 percent of the total) and those living in **group quarters**, such as prisons (1.5 million people), jails (750,000 people, of which 480,000 are pre-trial), nursing homes (1.3 million people), barracks (around 300,000), dormitories (around 2.6 million), group homes (300,000), and shelters (200,000). The numbers for group quarters populations are likely low estimates, as they are derived from older sources than the population estimate. The 2020 Census will provide detailed information on the exact share of each population in each category of living arrangement.

Among those living in **households**, roughly 74 million are children under the age of 18, 198 million are age 18 to 64, and 53 million are age 65 or older. These numbers and the group quarters populations do not sum to the total population because of differences in sources as well as some overlap between the two categories, particularly for those in school dormitories.

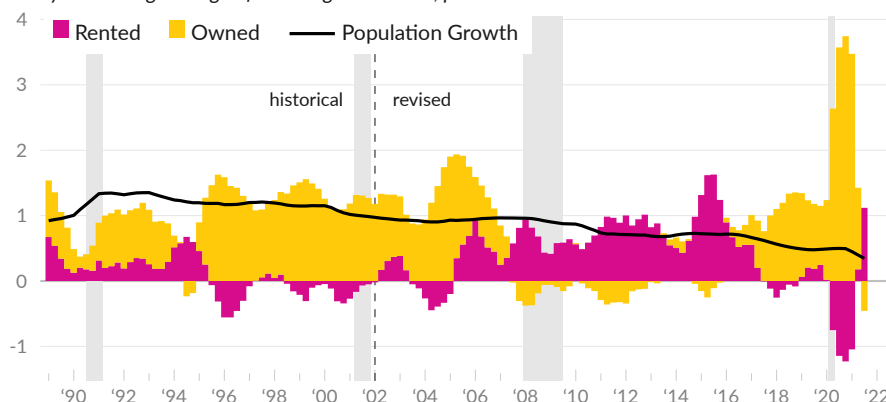
## Household Formation

Household formation measures the change in occupied housing units, and should keep pace with population growth, all else equal. During the housing bubble, the homeownership rate increased and household formation exceeded population growth. Following the collapse of the housing bubble, household formation was often below population growth and home ownership decreased as foreclosures converted homeowners into renters.

As of 2021 Q3, there are 126.9 million total occupied housing units in the US, of which 44.0 million (34.6 percent) are rented, and 82.9 million (65.4 percent) are owner-occupied. There was an average annual net total increase of 820 thousand housing units over the year ending 2021 Q3, the result of 1.4 million net new renter households and 598,000 net fewer owner-occupied households. Over the year ending 2021 Q3, the total number of occupied housing units increased by 0.7 percent, compared to an increase of 1.4 percent in 2021 Q2. Owner-occupied units subtracted 0.5 percent from total household formation on average over the year (see ■), compared to a contribution of 1.1 percent from rented units (see ■).

### Household Formation by Type

one-year moving average of annual growth rates, percent



Source: Census Bureau, Housing Vacancies and Homeownership



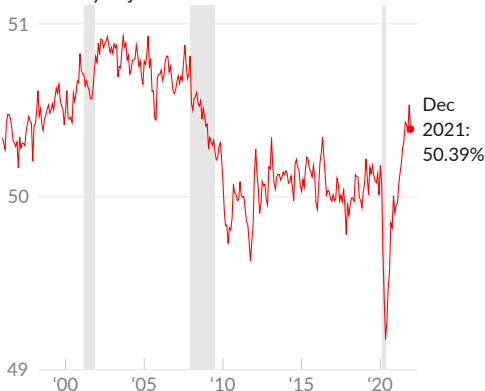
## Headship Rate

Individual decisions about starting a household or living with family are influenced by economic conditions. The ratio of households to people age 16 or older is referred to as the [aggregate headship](#) rate.

Headship fell substantially following the collapse of the housing bubble and dropped rapidly during the COVID-19 pandemic as people moved in with family. The headship rate reached a low of 49.18 percent during May 2020, and is currently 50.39 percent, as of December 2021. In February 2020, the headship rate was 50.07 percent.

### Aggregate Headship Rate

people age 16 or older, percent  
seasonally adjusted



Source: Author's Calculations from CPS



## Age

In discussions on demographics, **aging** is often described as a serious headwind to economic growth in major advanced economies. The increased share of many countries' population that is of retirement age means a smaller share are working and borrowing and a larger share are receiving pension benefits and lending to the financial system. These trends can be overcome by a workforce that is more efficiently able to provide goods and services. In part due to a shorter life-expectancy in the US, this problem is more pronounced in Japan and western Europe, but is still an important issue for the US.

### Age

share of population, percent



Source: Author's Calculations from CPS

The CPS civilian non-institutionalized population is 325 million in the year ending December 2021, with growth of 0.2 percent over the past year, though other Census population growth estimates are around 0.6 percent. By age, 22.3 percent are under the age of 18 and 17.3 percent are age 65 or older. In 1989, the US population was 244 million, with 26.3 percent under 18 and 12.0 percent 65 or older. The pre-retirement age (45-64) share of the population has increased to 25.0 percent in the year ending December 2021 from 18.9 percent in 1989.

Mapping American Community Survey data to commuter zones gives insight on the age of the population in local labor markets. In 2019, among commuter zones with a population of at least 100,000, the commuter zone (listed by largest city) with the highest share of its population under 18 is Provo, UT (32.6 percent), followed by Laredo, TX (31.9 percent), and Brownsville, TX (31.1 percent). The commuter zones with lowest share of the local population under 18 were Sarasota, FL (15.3 percent), Ocala, FL (16.4 percent), and State College, PA (16.7 percent).

The age 65 or older population is disproportionately concentrated in Florida. The commuter zone with the highest share of its population over 64 is Sarasota, FL (34.2 percent), followed by Ocala, FL (33.6 percent), and Cape Coral, FL (30.4 percent). The commuter zones with lowest local over-64 population share were Provo, UT (8.4 percent), Laredo, TX (10.1 percent), and Odessa, TX (10.3 percent).

## Age Group Share of Commuter Zone Population, 2019

Age 0 to 17



Age 65+



Source: American Community Survey, Dorn



## Education

Education is central in many discussions of the future of the US economy. Though very expensive in forgone years of earnings and often also expensive in tuition and other costs, education typically provides individuals with higher earnings. In response to changing job opportunities from globalization and other policy decisions, household spending on education has increased considerably, resulting in a much **more educated population**.

Over the year ending December 2021, 84.3 million people over the age of 25, or 37.6 percent of the total, have at least a bachelor's degree, with 31.9 million of those, or 14.2 percent of the total, holding an advanced degree such as a master's degree, medical or law degree, or PhD. An additional 56.7 million people have some college coursework but no degree or have an associate degree. A total of 63.2 million have a high school diploma but no college, while 20.0 million have no high school diploma.

### Highest Level of Education

age 25+ population, in millions, December 2021



Source: Author's Calculations from CPS



The share of the population with a bachelor's degree or advanced degree increased by 11.7 percentage points since 2000. The increase is even more pronounced among those who are employed; 44.0 percent have a college degree or advanced degree in December 2021, an increase of 13.1 percentage points since 2000.

Increased household spending on education may be a response to a weak labor market and lack of worker bargaining power. Behind the increase in education is a large increase in student debt. The burden of this debt is severe for many, as the more-educated workforce is not necessarily receiving the historical wage premium from education.

### Education Distribution

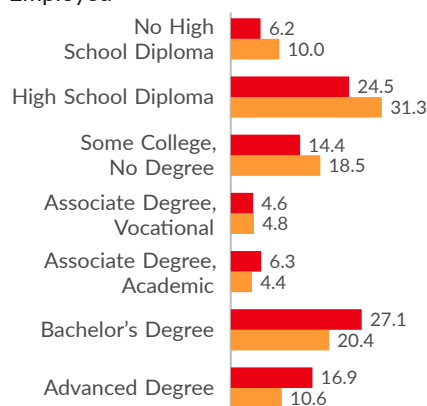
share of age 25+ population, percent

Total



■ December 2021 ■ 2000

Employed



Source: Author's Calculations from CPS



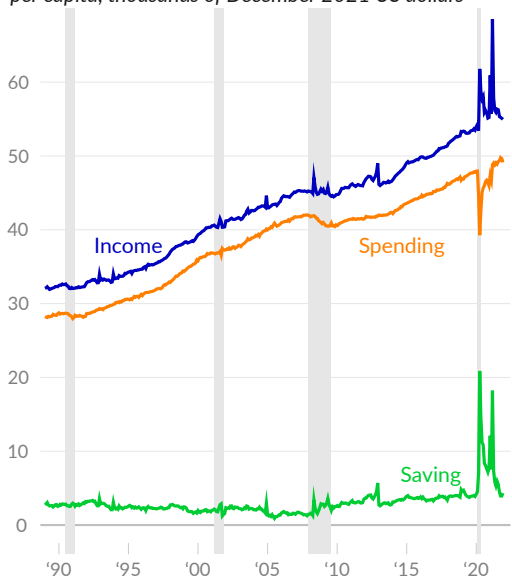
## Income, Spending, and Saving

The next subsections cover household and personal income, spending, and saving. This subsection offers an overview, with mean and median per capita measures.

Disposable personal income, or after-tax income to persons, totals \$18.2 trillion, on an annualized basis, in December 2021, equivalent to \$54,960 per person (see —). Personal consumption expenditures, or consumer spending, totals \$16.3 trillion in December 2021, or \$49,131 per person (see —). Saving, calculated as after-tax income minus consumer spending, totals \$1.4 trillion, or \$4,324 per person (see —).

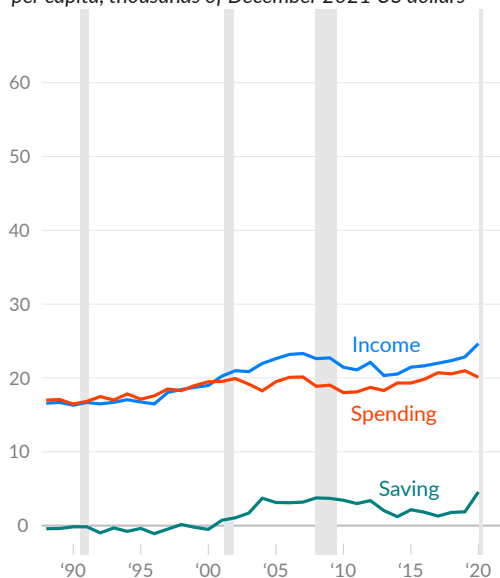
The Consumer Expenditure Survey provides data on typical income, spending, and saving, measured as the median rather than the average. Median income, spending, and saving are not affected by the activities of the highest income families, which skew mean or average data. Saving is calculated as after-tax income minus spending, excluding spending on pensions (which count as saving). The middle quintile, or 20 percent, of households, by total money income, have average per person after-tax income of \$24,656 in 2020 (see —). Spending for these households is \$20,098 per person (see —), and saving is \$4,558 per person (see —).

**Average Income, Spending, and Saving**  
per capita, thousands of December 2021 US dollars



Source: Bureau of Economic Analysis

**Median (Middle Quintile Average)**  
per capita, thousands of December 2021 US dollars



Source: Consumer Expenditure Survey

**Average Income, Spending, and Saving**  
per capita, annualized, December 2021 US dollars

|                        | Dec '21 | Nov '21 | Oct '21 | Sep '21 | Dec '20 | Dec '18 |
|------------------------|---------|---------|---------|---------|---------|---------|
| Personal income        | 63,234  | 63,322  | 63,407  | 63,456  | 62,535  | 60,281  |
| Personal current taxes | 8,274   | 8,221   | 8,185   | 8,128   | 7,321   | 6,963   |
| — After-tax income     | 54,960  | 55,101  | 55,222  | 55,327  | 55,215  | 53,318  |
| — Consumer spending    | 49,131  | 49,653  | 49,776  | 49,357  | 45,999  | 46,699  |
| — Personal saving      | 4,324   | 3,941   | 3,934   | 4,461   | 7,756   | 4,821   |

Source: Bureau of Economic Analysis

## Distribution by Income

Income varies massively by household. While some spending is non-discretionary, spending increases with income. The bottom 40 percent of households, by total money income, have expenses exceeding after-tax income. This includes retirees who are dissaving and low-income families taking on debt to cover expenses. Meanwhile, the top ten percent of households save nearly half of their income.

In 2020, after-tax household income (see ■) ranges from \$15,100 for the bottom 20 percent to \$223,900 for the top 10 percent. Spending, excluding pensions, (see ■) ranges from \$28,300 for the bottom 20 percent by income, to \$113,600 for the top 10 percent income group.

### Household Income and Spending, by Income Percentile

thousands of 2020 dollars



Income is after taxes; spending does not include spending on pensions

Source: Consumer Expenditure Survey



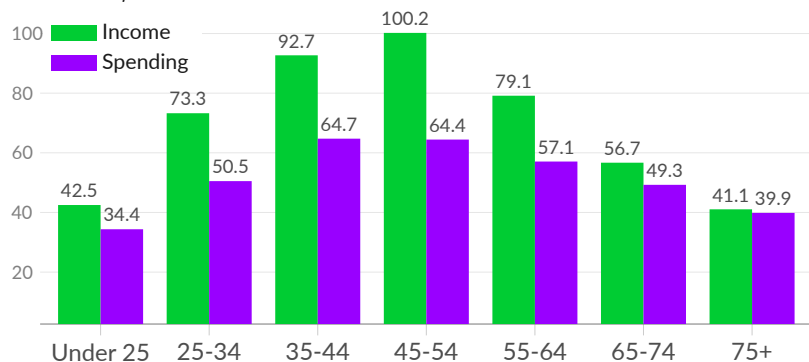
## Distribution by Age

Income and consumer spending both vary by age and peak around age 45 to 54. The oldest age group, households where the reference person is 75 or older, have income below their expenses. Likewise, the youngest group, with the reference person younger than 25, have income around or below expenses.

In 2020, after-tax household income (see ■) ranges from \$41,100 for the oldest age group to \$100,200 for the 45-54 age group. Spending, excluding pensions, (see ■) ranges from \$34,400 for the youngest age group to \$64,700 for the 35-44 age group.

### Household Income and Spending, by Age of Reference Person

thousands of 2020 dollars



Income is after taxes; spending does not include spending on pensions

Source: Consumer Expenditure Survey





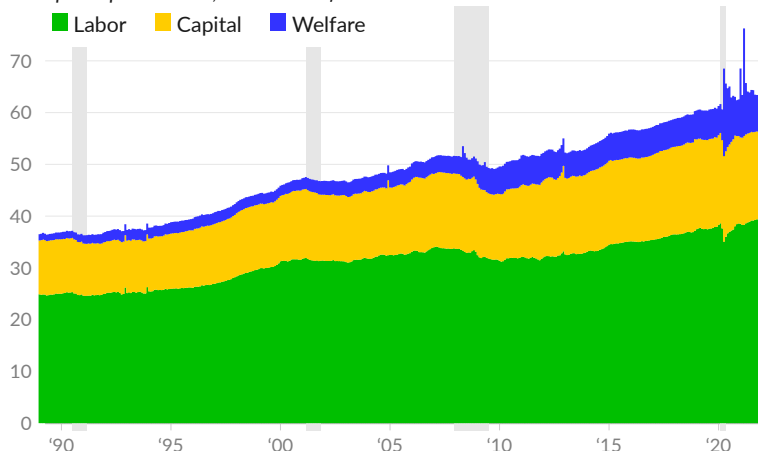
## Income to Persons

**Personal income** includes labor income (see ■), measured as compensation of employees, capital income (see ■), measured as the sum of proprietor income, rental income, and dividend and interest income, and welfare income (see ■), measured primarily as government social benefits less contributions to social insurance.

In December 2021, annualized personal income is \$63,234 per capita. Labor income totals \$39,415 per person; capital and proprietor income is \$16,850 per person; and welfare or transfer income is \$6,969 per person.

### Personal Income

real per capita income, thousands of US dollars



Source: Bureau of Economic Analysis; Author

### Personal Income by Source

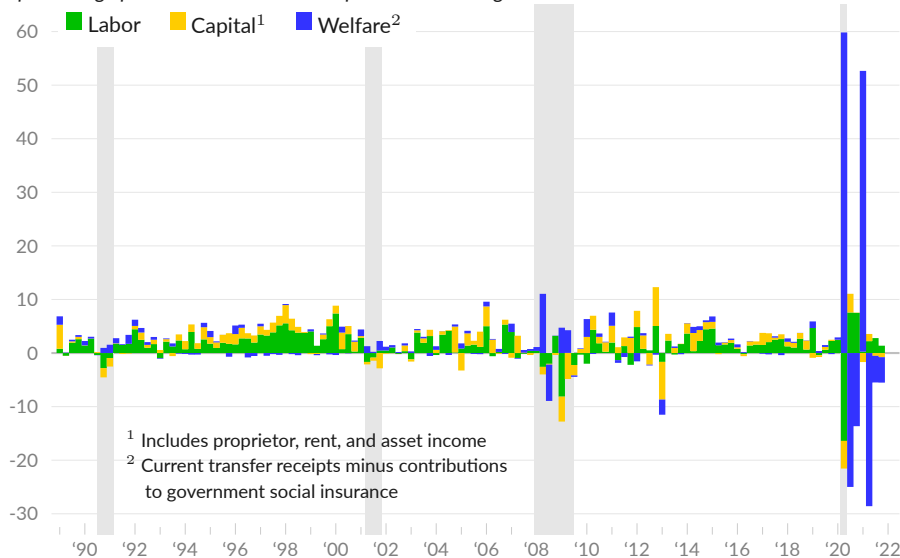
per capita, annualized, December 2021 US dollars

|                            | Dec '21 | Nov '21 | Oct '21 | Sep '21 | Dec '20 | Dec '18 |
|----------------------------|---------|---------|---------|---------|---------|---------|
| Personal income            | 63,234  | 63,322  | 63,407  | 63,456  | 62,535  | 60,281  |
| ■ Labor                    | 39,415  | 39,351  | 39,384  | 39,285  | 38,586  | 37,141  |
| Wages and salaries         | 32,472  | 32,405  | 32,418  | 32,305  | 31,560  | 30,169  |
| Supplements                | 6,943   | 6,946   | 6,965   | 6,981   | 7,026   | 6,972   |
| ■ Capital                  | 16,850  | 16,936  | 16,990  | 17,009  | 16,894  | 17,726  |
| Proprietors' income        | 5,523   | 5,630   | 5,666   | 5,706   | 5,165   | 5,408   |
| Rental income              | 2,279   | 2,271   | 2,266   | 2,264   | 2,249   | 2,278   |
| Personal interest income   | 5,008   | 5,009   | 5,018   | 5,016   | 5,158   | 5,504   |
| Personal dividend income   | 4,040   | 4,026   | 4,041   | 4,023   | 4,322   | 4,536   |
| ■ Welfare                  | 6,969   | 7,035   | 7,033   | 7,161   | 7,055   | 5,414   |
| Social security            | 3,389   | 3,410   | 3,443   | 3,432   | 3,481   | 3,270   |
| Medicare                   | 2,582   | 2,566   | 2,557   | 2,553   | 2,617   | 2,522   |
| Medicaid                   | 2,394   | 2,400   | 2,405   | 2,406   | 2,171   | 1,961   |
| Unemployment insurance     | 92      | 113     | 138     | 297     | 1,019   | 92      |
| Veterans' benefits         | 518     | 512     | 508     | 504     | 480     | 411     |
| Other                      | 2,762   | 2,797   | 2,751   | 2,728   | 1,932   | 1,579   |
| Less welfare contributions | -4,970  | -4,964  | -4,970  | -4,960  | -4,835  | -4,598  |

Source: Bureau of Economic Analysis

## Personal Income

percentage point contribution to real personal income growth



Source: Bureau of Economic Analysis

Aggregate real personal income decreased at an annualized rate of 4.15 percent in 2021 Q4. Labor income contributed 1.37 percentage points overall growth, capital income subtracted 0.77 percentage point, and welfare income subtracted 4.75 percentage points.

## Personal Income by Source

percentage point contribution to real personal income growth

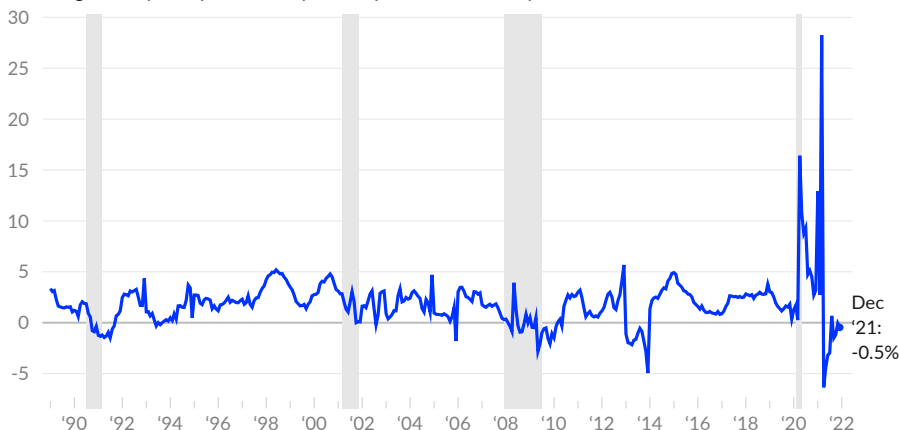
|                            | 2021<br>Q4 | '21<br>Q3 | '21<br>Q2 | '21<br>Q1 | '20<br>Q4 | moving averages |             |             |
|----------------------------|------------|-----------|-----------|-----------|-----------|-----------------|-------------|-------------|
|                            |            |           |           |           |           | 3-<br>year      | 10-<br>year | 30-<br>year |
| Personal income            | -4.15      | -2.71     | -25.02    | 50.98     | -6.10     | 3.93            | 3.15        | 2.97        |
| ■ Labor                    | 1.37       | 2.79      | 2.22      | 0.27      | 7.50      | 1.20            | 1.56        | 1.59        |
| Wages and salaries         | 1.53       | 2.75      | 2.36      | 0.08      | 6.64      | 1.17            | 1.37        | 1.31        |
| Supplements                | -0.16      | 0.03      | -0.14     | 0.19      | 0.86      | 0.03            | 0.19        | 0.28        |
| ■ Capital                  | -0.77      | -0.52     | 1.34      | -1.68     | 0.05      | -0.15           | 0.65        | 0.75        |
| Proprietors' income        | -0.85      | -0.10     | 1.74      | -0.77     | -0.74     | 0.07            | 0.15        | 0.29        |
| Rental income              | 0.18       | 0.06      | -0.19     | 0.00      | -0.14     | 0.00            | 0.08        | 0.17        |
| Personal interest income   | -0.14      | -0.46     | -0.27     | 0.11      | 0.13      | -0.15           | 0.11        | 0.04        |
| Personal dividend income   | 0.05       | -0.02     | 0.07      | -1.02     | 0.79      | -0.08           | 0.30        | 0.25        |
| ■ Welfare                  | -4.75      | -4.97     | -28.58    | 52.39     | -13.65    | 2.89            | 0.94        | 0.63        |
| Social security            | -0.15      | -0.13     | -0.23     | 0.17      | 0.09      | 0.11            | 0.15        | 0.15        |
| Medicare                   | 0.15       | 0.01      | -0.19     | -0.35     | -0.16     | 0.07            | 0.11        | 0.15        |
| Medicaid                   | 0.09       | 0.66      | 0.38      | 0.27      | -0.29     | 0.22            | 0.17        | 0.14        |
| Unemployment insurance     | -4.45      | -4.05     | -1.53     | 6.27      | -9.27     | 0.48            | 0.10        | 0.05        |
| Veterans' benefits         | 0.08       | 0.07      | 0.03      | 0.03      | 0.03      | 0.06            | 0.05        | 0.03        |
| Less welfare contributions | -0.13      | -0.28     | -0.23     | -0.44     | -0.73     | -0.21           | -0.28       | -0.20       |

Source: Bureau of Economic Analysis

The Bureau of Economic Analysis [reports](#) an inflation-adjusted one-year change in after-tax income per person (see —) of -0.5 percent in December 2021, -0.1 percent in November 2021, and 3.2 percent in December 2020. Over the past year, the measure has averaged 2.1 percent. During the three years before the COVID-19 pandemic, per capita after-tax income grew at an average annual rate of 2.3 percent.

### After-Tax Income Growth

annual growth, per capita real disposable personal income, percent



Source: Bureau of Economic Analysis



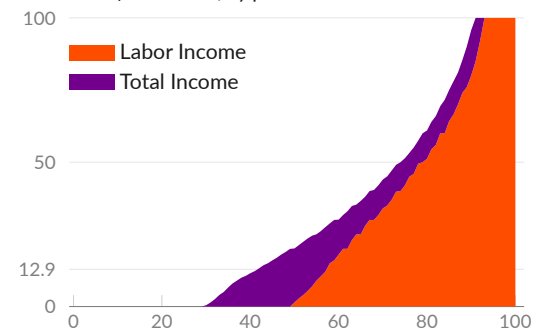
### Distribution of Personal Income

Labor income, which includes wages and salaries as well as self-employment income, is the vast majority of personal income. Over calendar year 2020, 51 percent of people have any labor income (see ■). Only 43 percent of people have labor income above the single-person poverty threshold of \$12,880.

Total income (see ■) reaches 73 percent of people in 2019. Total income includes after-tax labor income plus welfare and capital income. People who did not receive any income by the total income measure typically live with people who receive income.

### Distribution of Personal Income, 2020

thousands of US dollars, by percentile



Source: CPS ASEC



## Contributions to Personal Income Growth

Annual data on personal income [detail](#) the number of people receiving various categories of income and the average payment. As a result, it is possible to match changes in aggregate personal income from changes in payments and changes in who is receiving payments.

In 2020, aggregate pre-tax personal income decreased by 1.2 percent after adjusting for changes in prices. Compared to 2019, many fewer people received earnings from work, while mean earnings fell as many were unemployed for part of the year. These changes were partially offset by unemployment insurance payments, as well as larger property income amounts.

### Sources of Personal Income Growth, 2020

percentage point contribution to aggregate growth



Source: Census Bureau

## Household Income

Given massive variance in personal income, with half of the population receiving no market income, many people rely on the income of other members of their household for survival. Next, we discuss household income, which measures the combined income of all people in a given housing unit. Like personal income, household income is distributed very unevenly in the US.

### Real Median Household Income

thousands of 2020 US dollars



Source: Census Bureau

Black median household income in 2020 was \$45,870 (see —), compared to an inflation adjusted equivalent of \$46,005 in 2019. White, non-Hispanic median household income was \$71,230 (see —) compared to \$73,105 in 2019. Hispanic (any race) median household income in 2020 was \$55,321 (see —) compared to \$56,814 in 2019. Asian median household income was \$94,906 in 2020 (see —) and \$99,400 in 2019.

Two values are shown for 2013 and 2017 to mark revisions to the survey design (2013) and the processing of survey data (2017). These data are not perfectly comparable over time.

## Household Spending and Saving

The previous subsection examines money coming into households while this section covers money leaving households. **Consumer spending** includes household purchases of goods and services, certain spending for households, such as Medicare and Medicaid, and estimates for services furnished without payment. As an example of a special estimate, homeowners are considered to rent their homes to themselves.

Over the past 30 years, increased consumer spending represents the majority of economic growth. Consumer spending usually increases when households have more income and falls when households have less income. This effect is visible in both the long-run and during the course of a business cycle, with consumer spending generally falling or slowing during a recession. During the COVID-19 pandemic, some categories of spending were lower as a result of business closures and restrictions.

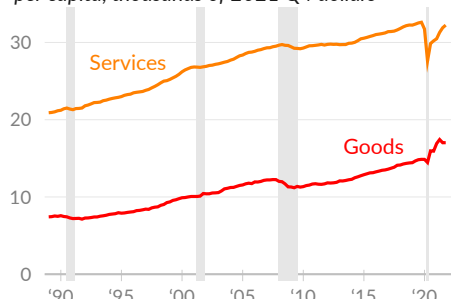
**Personal saving** occurs when households have income in excess of their expenses. Savings are invested, often providing additional income, and are used for future expenses, such as costs incurred during retirement.

### Spending

Consumer spending is comprised of two broad expenditure types: goods and services. Spending on goods includes durable goods (goods with a useful life of at least three years), such as cars, furniture, or recreational goods, and nondurable goods, such as groceries, clothing, and gasoline. Spending on services includes housing, health care, restaurants and bars, transportation services, financial services, and other services.

#### Expenditure Types

per capita, thousands of 2021 Q4 dollars

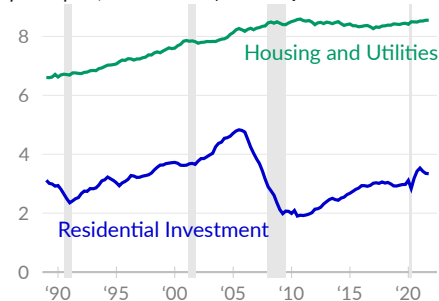


Source: Bureau of Economic Analysis

Total consumer spending is \$16.3 trillion in 2021 Q4, compared to a price-adjusted \$16.2 trillion in 2021 Q3 and \$15.6 trillion in 2019 Q4. On a per person basis, consumer spending is \$49,270 in 2021 Q4, of which \$17,026 are spent on goods (see —) and \$32,244 on services (see —). In the fourth quarter of 2019, before the pandemic, consumer spending on goods was \$14,869 per person, and spending on services was \$32,615 per person, after adjusting for inflation.

#### Shelter Costs

per capita, thousands of 2021 Q4 dollars



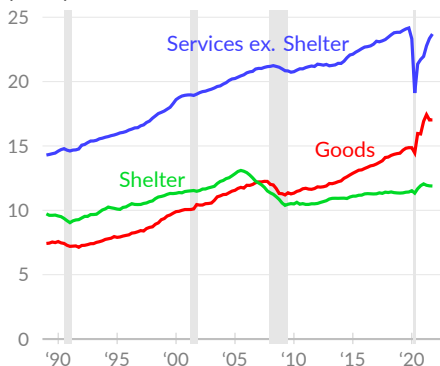
Source: Bureau of Economic Analysis

Within consumer spending on services, housing and utilities spending totals \$8,548 on an annualized and per person basis in 2021 Q4 (see —) and \$8,448 in 2019 Q4. Construction or improvement of housing is considered residential fixed investment, not consumer spending, but can be combined with spending to analyze patterns in shelter costs. In 2021 Q4, residential investment totals \$3,341 per person (see —), compared to \$2,975 in the pre-COVID data covering 2019 Q4.

The combined categories from the previous two charts cover spending on goods, spending on services other than shelter, and spending on housing, utilities, and residential construction. Including residential construction with other housing costs provides a more broad overview of household sector expenses.

### Expenditure Types

per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Consumer spending on services other than housing and utilities totals \$23,696 per person, on an annualized basis, in 2021 Q4 (see —), compared to \$23,351 in 2021 Q3, and \$24,166 in 2019 Q4. Spending on non-housing services has decreased 1.9 percent since 2019 Q4. Shelter costs, which combine housing, utilities, and residential fixed investment, are \$11,889 per person in 2021 Q4 (see —), \$11,901 in 2021 Q3, and \$11,424 in 2019 Q4. Shelter spending peaked at \$13,099 per person in the third quarter of 2005, during the housing bubble.

### Expenditure Types

per capita, annualized, 2021 Q4 dollars

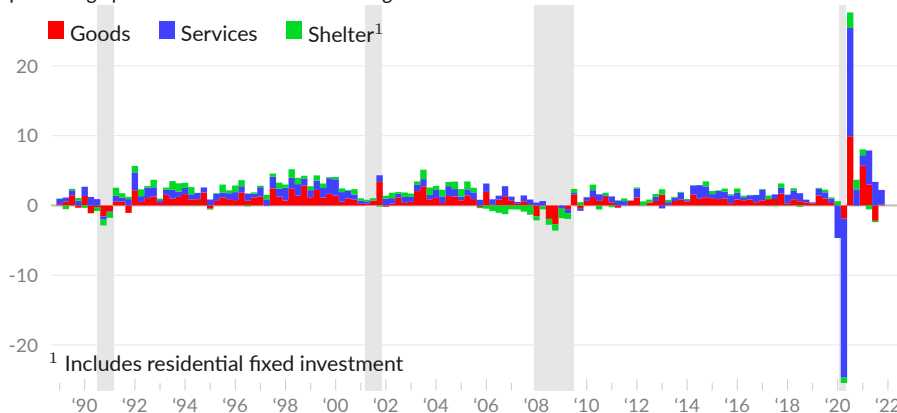
|                                | 2021 Q4         | 2019 Q4       | 2000 Q1       | 1989 Q1       |
|--------------------------------|-----------------|---------------|---------------|---------------|
| <b>Total</b>                   | <b>\$49,270</b> | <b>47,531</b> | <b>35,877</b> | <b>28,030</b> |
| — Goods                        | 17,026          | 14,869        | 9,897         | 7,426         |
| Motor Vehicles and Parts       | 2,095           | 2,005         | 1,722         | 1,296         |
| Furniture and HH Equipment     | 1,426           | 1,224         | 588           | 407           |
| Recreational Durable Goods     | 1,786           | 1,302         | 271           | 79            |
| Groceries                      | 3,823           | 3,461         | 2,933         | 2,913         |
| Clothes and Shoes              | 1,450           | 1,211         | 889           | 660           |
| — Services ex. Shelter         | 23,696          | 24,166        | 18,600        | 14,296        |
| Health Care Services           | 7,926           | 8,002         | 5,275         | 4,776         |
| Transportation                 | 1,484           | 1,629         | 1,420         | 986           |
| Recreational                   | 1,680           | 1,924         | 1,508         | 1,076         |
| Food and Accommodations        | 3,331           | 3,356         | 2,609         | 2,396         |
| Financial and Insurance        | 3,926           | 3,781         | 3,807         | 2,256         |
| — Shelter                      | 11,889          | 11,424        | 11,326        | 9,725         |
| Housing Services and Utilities | 8,548           | 8,448         | 7,603         | 6,608         |
| Residential Fixed Investment   | 3,341           | 2,975         | 3,723         | 3,117         |

Source: Bureau of Economic Analysis

Next, we examine how changes in consumer spending on goods (see ■), services excluding housing and utilities (see ■), and shelter (see ■, calculated as housing and utilities plus residential fixed investment), affect GDP growth. These categories contributed 2.2 percentage points to GDP growth in 2021 Q4 and contributed 1.4 percentage points in 2021 Q3, compared to an addition of 1.1 percentage points in 2019 Q4, before the pandemic.

### Consumer Spending and Residential Investment

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

In the the fourth quarter of 2021, household spending on goods contributed 0.1 percentage point to GDP growth, household spending on services other than housing and utilities added 2.1 percentage points, and shelter spending and investment did not contribute.

### Consumer Spending and Residential Investment

percentage point contribution to real GDP growth

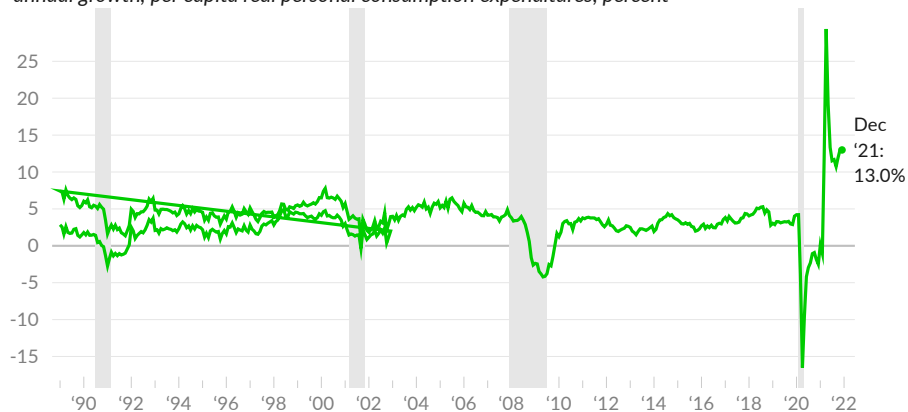
|                                | moving averages |        |        |        |        |        |         |         |
|--------------------------------|-----------------|--------|--------|--------|--------|--------|---------|---------|
|                                | 2021 Q4         | '21 Q3 | '21 Q2 | '21 Q1 | '20 Q4 | 3-year | 10-year | 30-year |
| Total                          | 2.25            | 1.35   | 7.92   | 7.44   | 2.26   | 1.93   | 1.72    | 1.88    |
| ■ Goods                        | 0.13            | -2.21  | 2.99   | 5.69   | -0.07  | 1.39   | 0.99    | 0.88    |
| Motor Vehicles and Parts       | -0.20           | -2.18  | 0.48   | 1.36   | 0.06   | 0.06   | 0.11    | 0.10    |
| Furniture and HH Equipment     | -0.12           | -0.24  | 0.00   | 0.82   | -0.12  | 0.13   | 0.12    | 0.10    |
| Recreational Durable Goods     | 0.28            | -0.16  | 0.29   | 0.84   | 0.01   | 0.33   | 0.21    | 0.23    |
| Groceries                      | -0.07           | -0.02  | 0.18   | 0.92   | -0.18  | 0.22   | 0.14    | 0.10    |
| Clothes and Shoes              | -0.05           | -0.01  | 0.66   | 0.59   | 0.06   | 0.16   | 0.08    | 0.09    |
| ■ Services (ex. Shelter)       | 2.09            | 3.38   | 4.89   | 1.51   | 2.30   | 0.40   | 0.66    | 0.80    |
| Health Care Services           | 0.79            | 0.53   | 1.10   | -0.50  | 1.50   | 0.21   | 0.29    | 0.27    |
| Transportation                 | 0.38            | 0.77   | 0.73   | 0.09   | 0.09   | 0.00   | 0.05    | 0.06    |
| Recreational                   | 0.43            | 0.52   | 0.73   | 0.49   | 0.10   | -0.05  | 0.03    | 0.06    |
| Food and Accommodations        | 0.08            | 0.55   | 2.25   | 1.13   | -0.19  | 0.10   | 0.12    | 0.09    |
| Financial and Insurance        | 0.35            | 0.22   | -0.17  | 0.27   | 0.33   | 0.08   | 0.03    | 0.13    |
| ■ Shelter                      | 0.00            | -0.19  | -0.56  | 0.84   | 1.38   | 0.32   | 0.27    | 0.28    |
| Housing Services and Utilities | 0.03            | 0.19   | 0.04   | 0.24   | 0.04   | 0.13   | 0.08    | 0.20    |
| Residential Fixed Investment   | -0.03           | -0.38  | -0.60  | 0.60   | 1.34   | 0.19   | 0.20    | 0.08    |

Source: Bureau of Economic Analysis

Consumer spending is also [reported](#) on a monthly basis. Inflation- and population-adjusted consumer spending increased 13.0 percent over the year ending December 2021 (see —), far above the previous year rate (a decrease of 2.5 percent over the year ending December 2020).

### Consumer Spending Growth

annual growth, per capita real personal consumption expenditures, percent



Source: Bureau of Economic Analysis

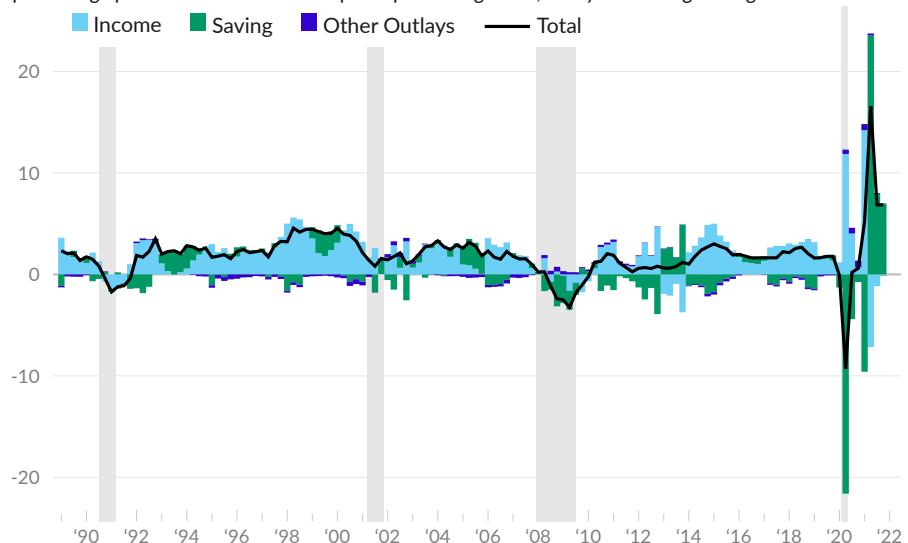


Changes to consumer spending (see —) are largely the result of changes to income (see ■) and changes to the rate at which income is saved (see ■). Changes to other outlays (see ■) reflect changes in interest payments, fines and fees, and charitable giving.

Real per capita consumer spending increased at an average rate of 6.9 percent over the four quarters ending 2021 Q4. Changes to disposable income subtracted 0.1 percentage point, changes to saving added seven percentage points, and changes to other outlays didn't affect the total. During 2019, real per capita consumer spending increased at an average rate of 1.7 percent. Increased income contributed two percentage points, and a slight increase in saving subtracted 0.2 percentage point.

### Contributions to Consumer Spending

percentage point contribution to real per capita PCE growth, one-year moving average



Source: Bureau of Economic Analysis





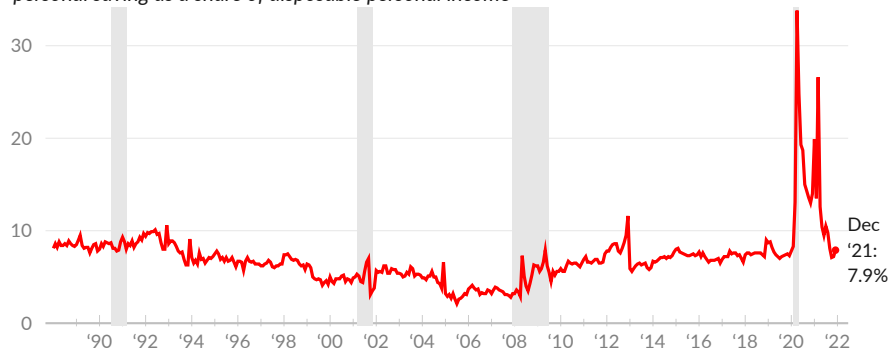
## Saving

The portion of after-tax income that is not spent by households is considered **personal saving**, from an economic accounting perspective. Personal saving as a share of disposable personal income is the *personal saving rate*. Households use savings for investment and because income can be more volatile than expenses. However, economists also point out that aggregate personal saving is a direct reduction in corporate profits, as it represents income to persons that was at some point a business expense, but that does not get returned to businesses as revenue through consumer spending.

As of December 2021, the Bureau of Economic Analysis [report](#) a personal saving rate of 7.9 percent (see —). Since February 2020, the personal saving rate decreased by a total of 0.4 percentage point.

### Personal Saving Rate

*personal saving as a share of disposable personal income*



Source: Bureau of Economic Analysis

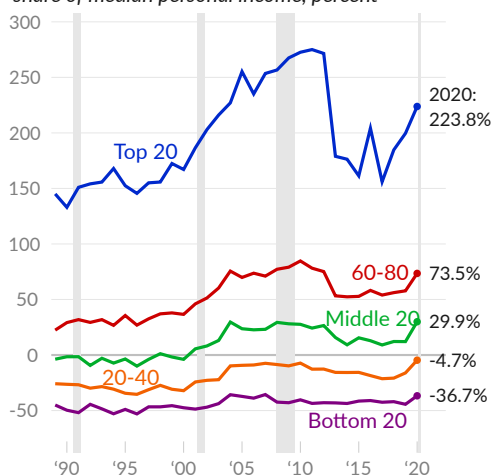


## Distribution of saving

The [Consumer Expenditure Survey](#) (CE) provides data on consumer spending and income. Saving can be estimated from these data as after-tax income minus spending (other than spending on pensions).

### Saving Rate by Income Quintile

*share of median personal income, percent*



Source: Author's calculations from CE



The bottom quintile, or fifth of households, by total money income, are estimated to dissave in 2020, equivalent to more than a third of a median salary (see —). This is a combination of people going into debt and retirees dissaving. Households in the top 20 percent of the population by income save more than two typical incomes, on average in 2020 (see —).

The middle fifth of households, which includes the 40th to 60th percentiles by total money income, saves an amount equivalent to a fairly high portion of a median salary (see —). Relative to data from the Bureau of Economic Analysis, the CE data undercount income. Still, the distribution of saving rates is very wide.



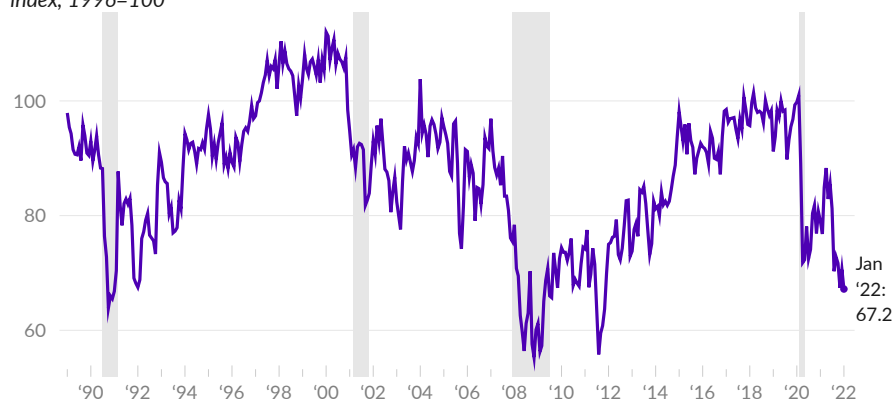
## Consumer Sentiment

The University of Michigan conducts a monthly [survey](#) of **consumer sentiment** (see —). The survey asks about personal finances, business conditions, and buying conditions. An increase in consumer sentiment means individuals feel more confident about economic conditions and are more willing to make large purchases or take on debt.

As of January 2022, the latest value of the consumer sentiment index is 67.2, following 70.6 in December 2021 and compared to 79.0 one year prior, in January 2021. As a pre-COVID baseline, the index average value was 97.3 during the year ending February 2020; the consumer sentiment index is currently 30.9 percent below this level.

### Consumer Sentiment

index, 1996=100



Source: University of Michigan



## Household Balance Sheets

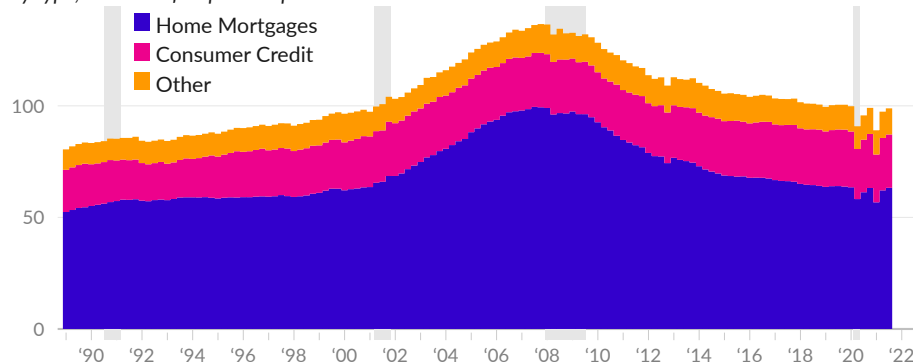
### Liabilities

The Federal Reserve [report](#) household and nonprofit liabilities total \$17.97 trillion in 2021 Q3. The vast majority—\$11.50 trillion or 64.0 percent of the total—are home mortgages (see ■). Consumer credit liabilities (see ■) which include auto loans, credit card debt, student loans, and other personal loans, total \$4.34 trillion (24.2% of the total). The remaining liabilities (see ■) are primarily attributable to nonprofits.

The ratio of household and nonprofit debt to disposable personal income has fallen to 98.9 percent in 2021 Q3 from its housing-bubble peak of 136.6 percent in 2007 Q4. Over the past three years, nominal household and nonprofit debt has increased 13.2 percent while nominal disposable personal income has increased 14.3 percent. As a result, the ratio of household and nonprofit debt to disposable personal income has fallen by 2.1 percentage points.

### Household and Nonprofit Debt

by type, as share of disposable personal income

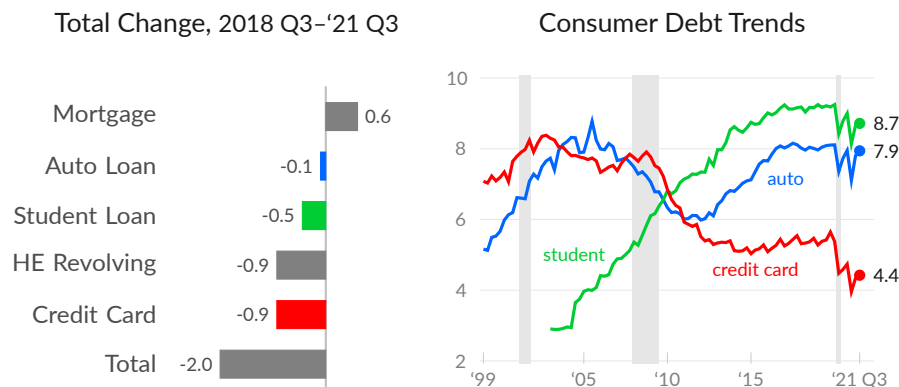


Source: Federal Reserve, Bureau of Economic Analysis

Federal Reserve Bank of New York (FRBNY) [analysis](#) of Equifax data shows \$15.2 trillion in total consumer debt in 2021 Q3, which is equivalent to 83.9 percent of disposable personal income. Over the past three years, total consumer debt has increased by \$1.73 trillion compared to an increase of \$2.28 trillion in disposable personal income. As a result, the ratio of total consumer debt to disposable personal income fell two percentage points over this period.

### Mortgages and Consumer Credit

share of disposable personal income, percent



Source: Federal Reserve Bank of New York and Bureau of Economic Analysis

Trends in **household debt** over the past three years, measured in both the US Financial Accounts and the New York Fed Consumer Credit Panel, show mortgages growing in line with income while consumer credit debt falls relative to income. Minor discrepancies between the two data sources arise because the Financial Accounts include debt of nonprofit institutions and the Consumer Credit Panel does not include people without a social security number.

According to the same FRBNY data, mortgage debt, including home equity lines of credit, totalled \$10,989 billion in 2021 Q3, equivalent to 60.5 percent of disposable personal income (DPI). Student loans totalled \$1,584 billion, or 8.7 percent of DPI; auto loans totalled \$1,443 billion (7.9 percent of DPI); and credit card debt totalled \$804 billion (4.4 percent of DPI).

Over the past three years, the ratio of total mortgage debt to disposable personal income fell by 0.3 percentage points, compared to a decrease of 0.5 percentage point for student loans, a decrease of 0.1 percentage point for auto loans, and a decrease of 0.9 percentage point for credit card debt

### Household Debt Outstanding

trillions of US dollars

|                             | 2021 Q3  | 2021 Q2  | share of disposable personal income |           |           |           |           |
|-----------------------------|----------|----------|-------------------------------------|-----------|-----------|-----------|-----------|
|                             |          |          | '21<br>Q3                           | '21<br>Q2 | '18<br>Q3 | '13<br>Q1 | '03<br>Q1 |
| Financial Accounts Total*   | \$17.97T | \$17.66T | 98.9                                | 97.4      | 100.9     | 112.8     | 109.3     |
| ■ Mortgage Debt Total       | \$11.50T | \$11.27T | 63.3                                | 62.1      | 64.5      | 76.7      | 74.8      |
| ■ Consumer Credit           | \$4.34T  | \$4.26T  | 23.9                                | 23.5      | 25.0      | 23.6      | 24.0      |
| ■ Other                     | \$2.13T  | \$2.14T  | 11.7                                | 11.8      | 11.4      | 12.5      | 10.5      |
| Consumer Credit Panel Total | \$15.24T | \$14.96T | 83.9                                | 82.5      | 85.9      | 90.8      | 87.2      |
| Mortgage Debt Total         | \$10.99T | \$10.76T | 60.5                                | 59.3      | 60.8      | 68.6      | 62.5      |
| Mortgage                    | \$10.67T | \$10.44T | 58.7                                | 57.6      | 58.1      | 64.1      | 59.6      |
| Home Equity Revolving       | \$0.32T  | \$0.32T  | 1.7                                 | 1.8       | 2.7       | 4.5       | 2.9       |
| Consumer Credit             | \$4.25T  | \$4.19T  | 23.4                                | 23.1      | 25.1      | 22.2      | 24.7      |
| ■ Auto Loan                 | \$1.44T  | \$1.42T  | 7.9                                 | 7.8       | 8.0       | 6.4       | 7.7       |
| ■ Credit Card               | \$0.80T  | \$0.79T  | 4.4                                 | 4.3       | 5.4       | 5.3       | 8.3       |
| ■ Student Loan              | \$1.58T  | \$1.57T  | 8.7                                 | 8.7       | 9.2       | 8.0       | 2.9       |
| Other                       | \$0.42T  | \$0.42T  | 2.3                                 | 2.3       | 2.5       | 2.5       | 5.8       |

Source: Federal Reserve, Federal Reserve Bank of New York, Bureau of Economic Analysis

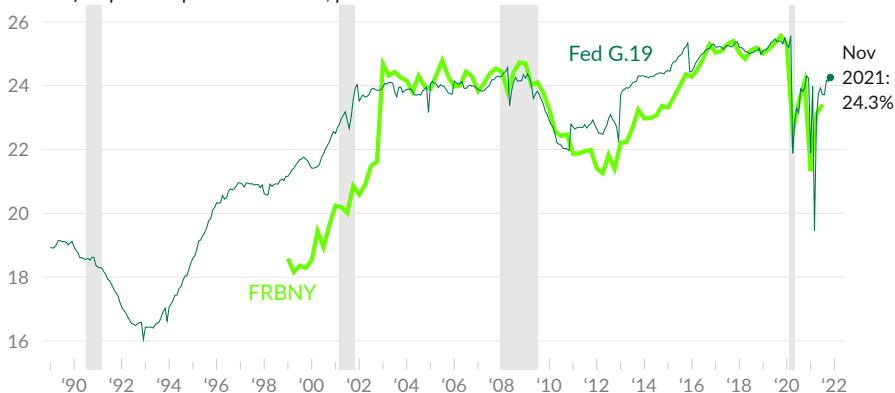
## Consumer Credit

The Federal Reserve also [report](#) consumer credit on a monthly basis. In the monthly measure, consumer credit totals \$4.41 trillion US dollars on a seasonally-adjusted and annualized basis in November 2021. Over the past year, consumer credit increased by 5.8 percent, while after-tax income increased by 5.6 percent. As a result, the ratio of consumer credit to disposable income was virtually unchanged. In November 2021, total consumer credit is equivalent to 24.3 percent of annualized November 2021 disposable income (see [—](#)).

The latest comparable figure from the FRBNY data discussed in the previous section, which covers 2021 Q3, shows consumer credit is equivalent to 23.4 percent of one year of disposable personal income (see [—](#)). Over the past year, the ratio decreased by a total of 0.1 percentage point.

### Consumer Credit

share of disposable personal income, percent



Source: Federal Reserve; FRBNY



## Financial Obligations

Payments to service debt, along with rent, auto lease payments, homeowner's insurance, and property tax are considered financial obligations. The Federal Reserve [report](#) financial obligations as a share of disposable personal income. The ratio of debt service payments and financial obligations to income gives insight into the aggregate debt and financial burden on households.

As of 2021 Q3, the financial obligations ratio is 13.8 percent (see [—](#)), and the debt service ratio is 9.2 percent (see [—](#)). The financial obligations ratio peaked at 18.1 percent in 2007 Q4, during the housing bubble.

### Financial Obligations and Debt Service Ratios

share of disposable personal income, percent



Source: Federal Reserve



## Assets

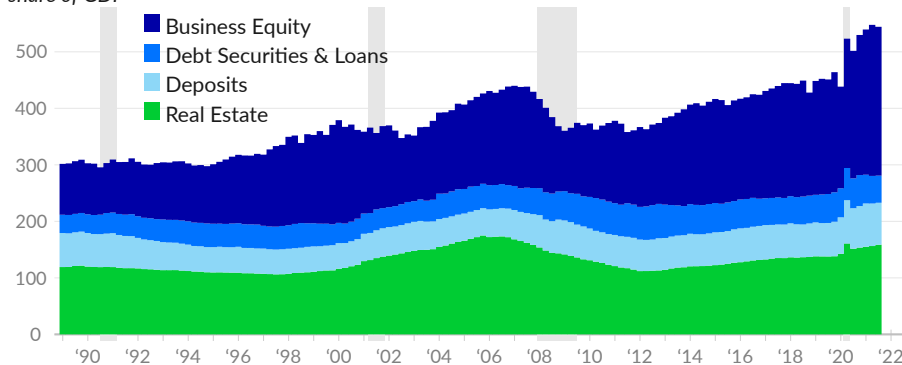
Assets of households and nonprofits were valued at \$162.7 trillion in 2021 Q3, equivalent to 701 percent—or 7.01 years—of GDP. Of this, \$48.6 trillion, or 29.9 percent of the total, are tangible assets and \$114.1 trillion, or 70.1 percent, are financial assets.

Tangible, or non-financial, assets include peoples' homes as well as consumer durable goods, such as cars, furniture, and appliances. The market value of owner-occupied real estate is \$36.8 trillion in 2021 Q3, equivalent to 1.59 years of GDP (see ■). Consumer durable goods have a replacement value of \$7.0 trillion, or 0.3 years of GDP. Tangible assets are reported for the combined household and nonprofit sector and include real estate and equipment belonging to nonprofits, which totals \$4.8 trillion in 2021 Q3.

Financial assets include equity in businesses—corporate and non-corporate—with a market value of \$61.1 trillion, or 2.6 years of GDP (see ■), in 2021 Q3. Debt securities and loan assets total \$11.1 trillion, or 0.48 years of GDP (see ■). Cash and deposits, including money market accounts, total \$17.2 trillion, or 0.74 years of GDP (see ■). All other financial assets total \$24.6 trillion.

### Selected Household and Nonprofit Assets

share of GDP

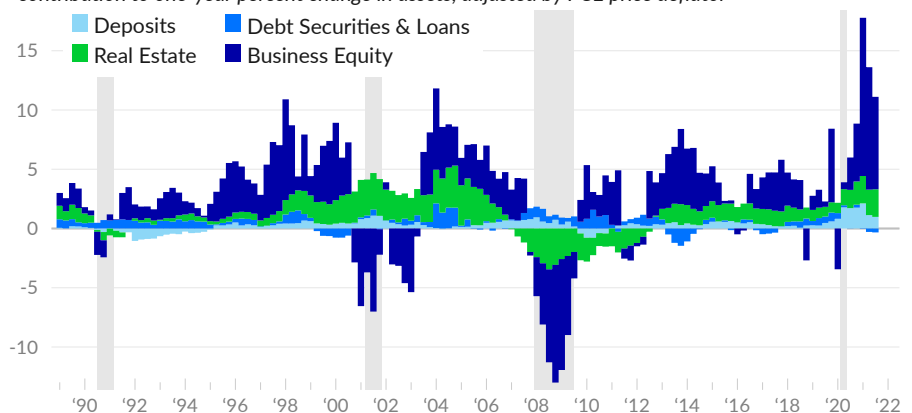


Source: Federal Reserve, Bureau of Economic Analysis

Household and nonprofit assets grew by 11.6 percent over the year ending 2021 Q3. Owner-occupied real estate contributed 2.3 percentage points to total growth, and business equity contributed 7.8 percentage points.

### Contributions to Real Growth in Household and Nonprofit Assets

contribution to one-year percent change in assets, adjusted by PCE price deflator



Source: Federal Reserve, Bureau of Economic Analysis

## Household and Nonprofit Assets

| various measures:            | trillions of USD | share of GDP |         | real annual growth rate |            |         |
|------------------------------|------------------|--------------|---------|-------------------------|------------|---------|
|                              | 2021 Q3          | 2021 Q3      | 2020 Q3 | One-year                | Three-year | 20-year |
| Total Assets                 | \$162.7          | 701.1        | 661.1   | 11.6                    | 7.0        | 3.8     |
| Non-financial assets         | 48.6             | 209.6        | 200.3   | 10.1                    | 6.5        | 2.8     |
| Owner-occupied real estate   | 36.8             | 158.7        | 151.6   | 10.2                    | 6.8        | 2.9     |
| Consumer durable goods       | 7.0              | 30.1         | 28.3    | 11.9                    | 6.0        | 1.9     |
| Nonprofit assets             | 4.8              | 20.8         | 20.4    | 7.7                     | 5.2        | 3.9     |
| Financial assets             | 114.1            | 491.6        | 460.9   | 12.3                    | 7.2        | 4.3     |
| Deposits, incl. money market | 17.2             | 74.3         | 71.7    | 9.0                     | 10.4       | 4.2     |
| Debt securities and loans    | 11.1             | 48.0         | 52.7    | -4.2                    | 0.6        | 3.4     |
| Business equity              | 61.1             | 263.4        | 225.7   | 22.8                    | 10.4       | 5.5     |
| Corporate equities           | 46.7             | 201.2        | 166.6   | 27.1                    | 11.8       | 6.5     |
| Noncorporate business equity | 14.4             | 62.2         | 59.1    | 10.8                    | 6.4        | 3.3     |

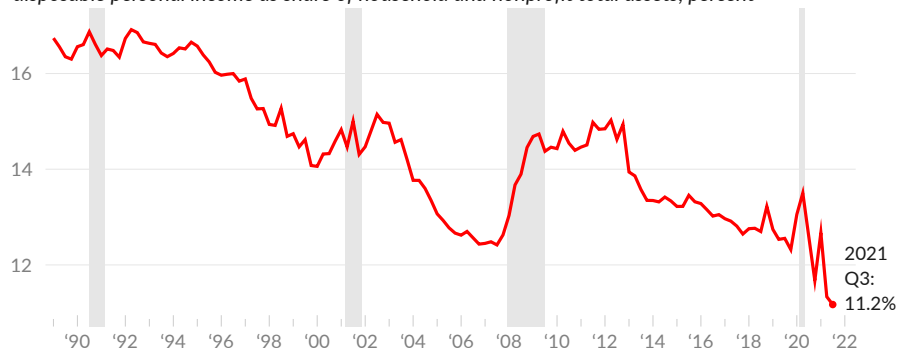
Source: Federal Reserve, Bureau of Economic Analysis

## Return on Assets

Asset prices rising faster than income can be viewed as a decrease in the expected rate of return on total household assets. This can be measured by disposable income as a share of household assets. As of 2021 Q3, disposable income was equivalent to 11.2 percent of total assets (see —), compared to an average rate of 16.0 percent during the 1990s.

## Return on Household Assets

disposable personal income as share of household and nonprofit total assets, percent



Source: Federal Reserve, Bureau of Economic Analysis



## Wealth/Net Worth

Wealth **varies** substantially by race and ethnicity. Net worth, measured as total assets minus total liabilities, captures the overall financial position—or wealth—of families. In 2019, white non-Hispanic families' average net worth was \$980,550, compared to \$142,330 for black non-Hispanic families, and \$165,540 for Hispanic families of any race. Additionally, the wealth of a typical (median) family is much lower than the average wealth of families, the result of a concentration of wealth among the wealthiest families.

### Racial Wealth Gap

net worth by race/ethnicity, thousands of US dollars, 2019



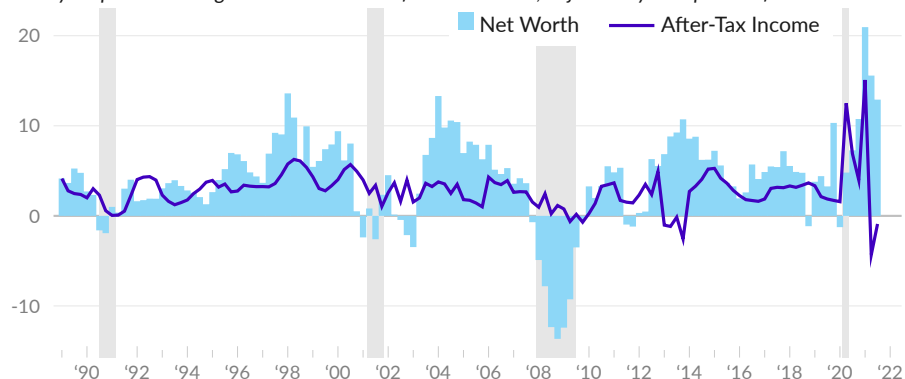
Source: Federal Reserve, Survey of Consumer Finances

The market value of household assets has risen much faster than the total level of household debt, resulting in a substantial increase in aggregate net worth. In 2021 Q3, household and nonprofit institution net worth was \$144.7 trillion, equivalent to 8.0 years of disposable personal income; the result of total assets of \$162.7 trillion and total liabilities of \$18.0 trillion.

In 2021 Q3, inflation-adjusted net worth increased by 12.9 percent (see ■), and inflation-adjusted after-tax income decreased by 0.9 percent (see —). Over the past three years, real net worth grew at an average rate of 7.4 percent, while real after-tax income grew at an average rate of 3.9 percent

### Net Worth and After-Tax Income Growth

one-year percent change in net worth and after-tax income, adjusted by PCE price deflator



Source: Federal Reserve, Bureau of Economic Analysis

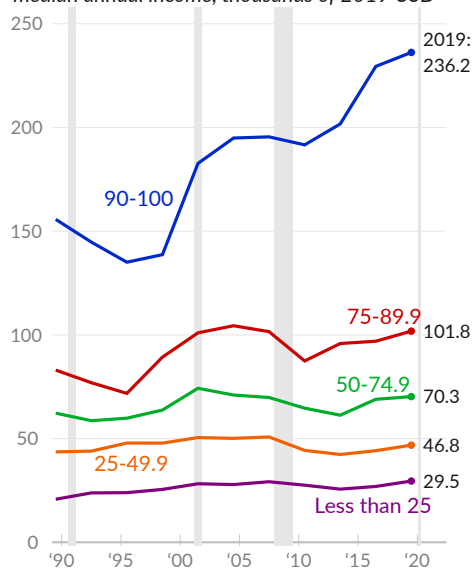


## Wealth and Income

Wealth, when measured as assets minus liabilities, can be a source of income, but does not correspond perfectly to income. For example, early-career professionals with student debt may have a negative net worth and a high income. That said, data on family income by wealth percentile show that income tends to increase with wealth.

Additionally, the before-tax income of the wealthiest ten percent of families (see —) has **increased** substantially more than the income of other groups. The top ten percent of families by wealth, percentiles 90 to 100 with a mean wealth of \$5.7 million and a median wealth of \$2.6 million in 2019, have a median annual income of \$236,203 in 2019 and \$155,693 in 1989, after adjusting for prices. Median income for the group increased \$80,510, or 51.7 percent, over the 30-year period.

**Before-Tax Income by Wealth Percentile**  
median annual income, thousands of 2019 USD



Source: Federal Reserve (SCF)

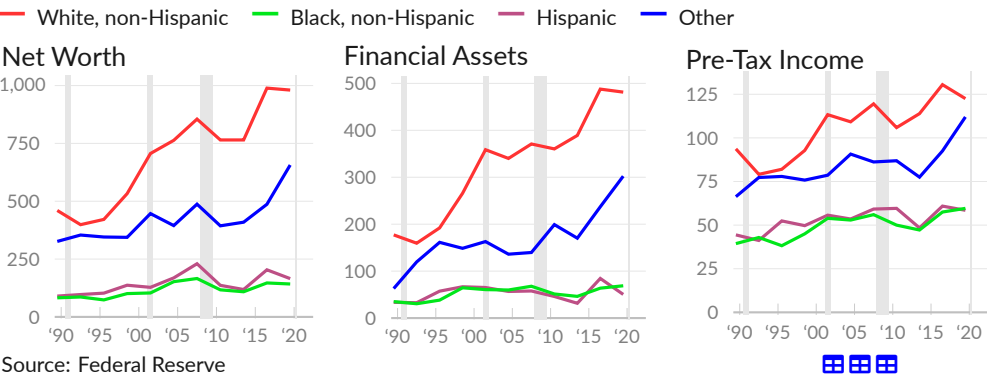
In contrast, families in the third quartile of wealth (50th to 74.9th percentiles, mean wealth of \$700,000 in 2019, see —) have a median income of \$70,250 in 2019 and \$62,277 in 1989, an increase of \$7,973 (12.8 percent).

Median income for families in the second quartile (25th to 49.9th percentiles, mean wealth of \$236,000 in 2019, see —) increased \$3,239 (7.4 percent) to \$46,833 in 2019, from \$43,594 in 1989.

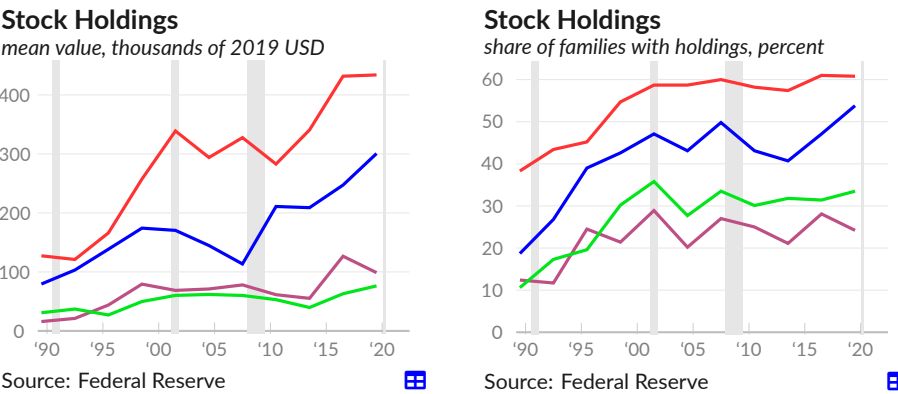
For the bottom quarter of families by wealth (see —), median income increased \$8,766 or 42.2 percent to \$29,525, over the 30 years ending 2019. The bottom quarter of families have a negative mean wealth in 2019 and a median wealth of virtually zero.

The US history of slavery and inter-generational white wealth show up in current data from the Survey of Consumer Finances. The racial wealth gap discussed above cannot be explained by borrowing or access to credit. White families have substantially more financial assets including stocks and are much more likely to receive inheritance. Income for black families is also substantially lower—about half of white family income. Persistent structural inequalities are seen in income data, but are also evident from measures of wealth and assets.

**Measures of Wealth and Income by Race or Ethnicity**  
*by family, mean, thousands of 2019 USD*



In 2019, among the 60.8 percent of white families who own stocks, the average value of stock holdings is \$433,900. The return on these assets is a supplement to labor income and the assets themselves provide cushion against unexpected expenses. Meanwhile, black families have relatively few financial assets; only 33.5 percent of black families own stocks, with median stock holdings of \$76,300.



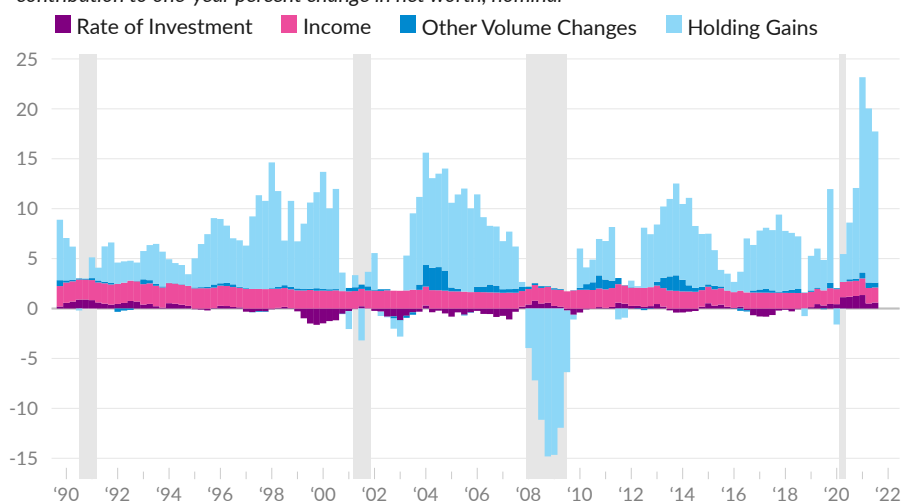
Changes in net worth come mostly from changes in the value of assets and other holding gains (see ■), but also from saving of income, and decisions about how much to spend.

Each period, households spend a portion of their income. The saved portion of income, after consumer spending and spending to cover depreciation of households assets, is considered net investment and increases net worth. Since 1989, household net investment has averaged 10 percent of disposable personal income.

In the chart, income invested at the historical-average rate (see ■) is visually separated from investment that is above or below trend (see ■). The separation distinguishes changes in disposable personal income from changes in decisions about how to use that income. Separately, changes in data sources or from natural disasters are identified as other volume changes (see ■).

### Net Worth Growth

*contribution to one-year percent change in net worth, nominal*



Source: Federal Reserve, Bureau of Economic Analysis



In the the third quarter of 2021, holding gains contributed 15.1 percentage points to the 17.7 percent change in net worth. Income invested at the 1989-onward average rate of 10.2 percent would have contributed 1.5 percentage points; an additional 0.6 percentage points were added as household net investment was 14.2 percent of disposable person income in 2021 Q3. Other volume changes contributed 0.5 percentage point.

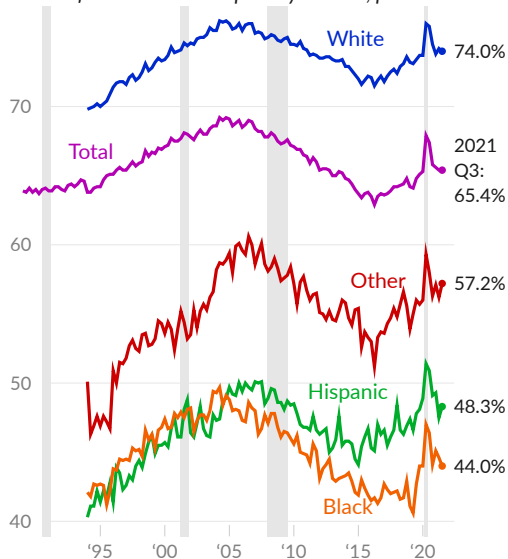
Over the past three years, net worth grew at an average rate of 9.5 percent. Holding gains contributed 7.1 percentage points to this total, on average; net investment of income contributed 2.1 percentage points; and other volume changes contributed 0.3 percentage point.

## Homeownership

The **homeownership rate** measures the percent of occupied housing units that are owner-occupied, as opposed to rented. In 2004, near to the peak of the housing bubble, the overall homeownership rate reached 69.2 percent. As of 2021 Q3, the Census Bureau [report](#) a homeownership rate of 65.4 percent (see —). Over the past three years, the overall US homeownership rate increased by a total of one percentage point.

### Homeownership Rate

share of households occupied by owners, percent



Source: Census Bureau

Census data also show large differences in homeownership rates by race and ethnicity. Around three-quarters (74.0 percent in 2021 Q3) of non-Hispanic white households own their home (see —), compared to fewer than half of black and Hispanic households.

During the housing bubble, the homeownership rate for black households increased by nearly ten percentage points, peaked at 49.7 percent in the second quarter of 2004, and fell to 40.6 percent in 2019 Q2. The current homeownership rate for black households is 44.0 percent, as of 2021 Q3 (see —). The rate for Hispanic households of any race is 48.3 percent in 2021 Q3, far below the 51.4 percent peak rate in the second quarter of 2020 (see —).

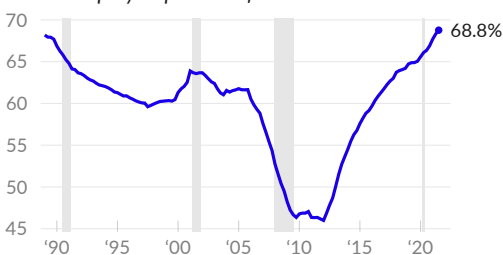
Use caution when interpreting homeownership rates affected by the COVID-19 pandemic. Individuals who are renters or homeowners are captured by the measure, but when an individual moves in with family and stops being a head of household, they are dropped from the measure. Therefore when renters move in with family the homeownership rate increases. Recent increases in homeownership rates reflect renters moving in with family.

As seen during the collapse of the housing bubble, it is possible for someone to be a homeowner but have no equity in their home, for example if the market price of the home falls below the principal remaining on the mortgage. Trends in owners' equity as a share of the market value of real estate show substantial improvement since the lows following the collapse of the housing bubble, when millions of homes were in foreclosure.

As of 2021 Q3, the Federal Reserve [report](#) owners' equity is 68.8 percent of residential real estate (see —). Over the past three years, the owners' equity share increased by a total of 4.7 percentage points. Over the past year, the share increased by a total of 2.4 percentage points. The current share is slightly above the 1989 average of 67.9 percent.

### Owners' Equity Share of Real Estate

owners' equity as percent of real estate



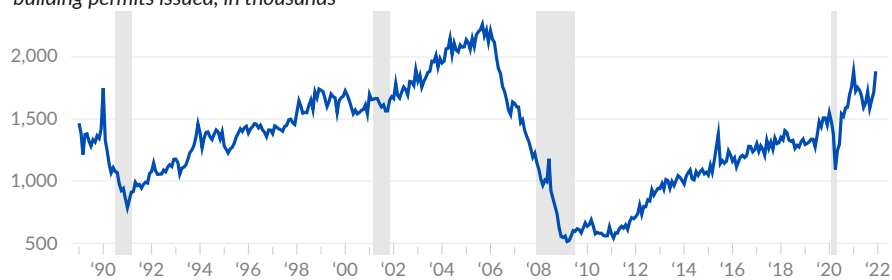
Source: Federal Reserve

## Housing Construction

The Census Bureau [tracks](#) the issuance of new residential building permits, which offer insight into planned residential construction. In December 2021, a seasonally-adjusted annual rate of 1,885,000 new residential housing units were authorized by building permits, the highest level since May 2006 (see —). Permits issued increased by 168,000 (9.8 percent) over the previous month, increased by 127,000 (7.2 percent) over last December, and increased by 633,000 (50.6 percent) total over the past five years.

### Residential Construction Permits

*building permits issued, in thousands*



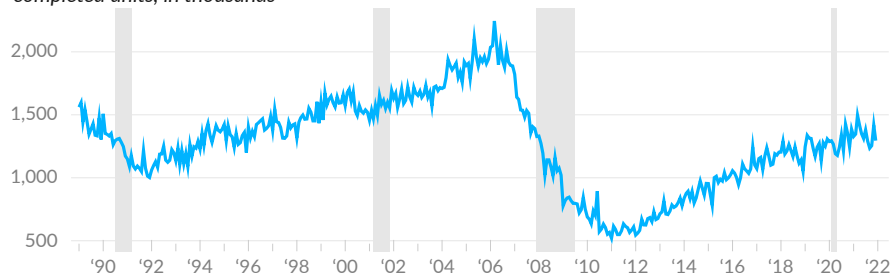
Source: Census Bureau



In addition to data on permits, the Census Bureau also report how many residential construction projects are started and completed. Not all permitted projects are built and completion can be affected by economic conditions. In December 2021, a seasonally-adjusted annual rate of 1,295,000 new residential units were completed (see —), compared to 1,418,000 in November and 1,255,000 in December 2020.

### Residential Construction Completions

*completed units, in thousands*



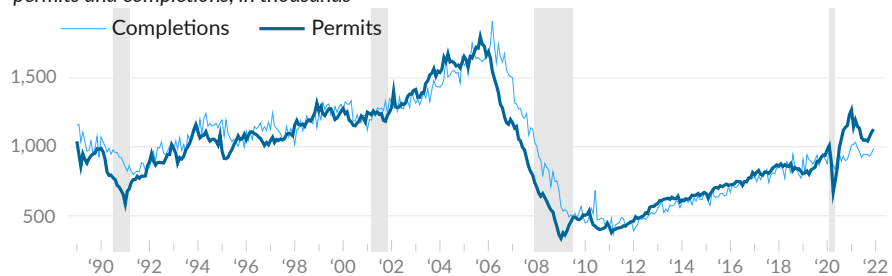
Source: Census Bureau



In December 2021, a seasonally-adjusted annual rate of 1,128,000 new single-family residential units were permitted and 990,000 were completed.

### Single-family units

*permits and completions, in thousands*



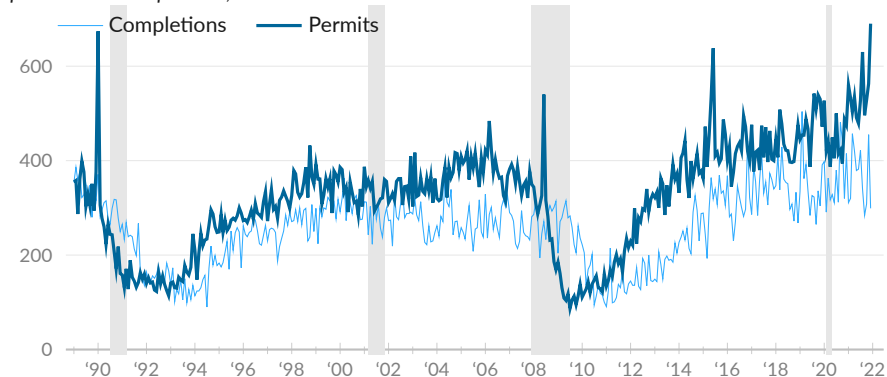
Source: Census Bureau



In December 2021, a seasonally-adjusted annual rate of 690,000 new multi-family residential units were permitted and 299,000 were completed.

### Multi-family units

permits and completions, in thousands



Source: Census Bureau

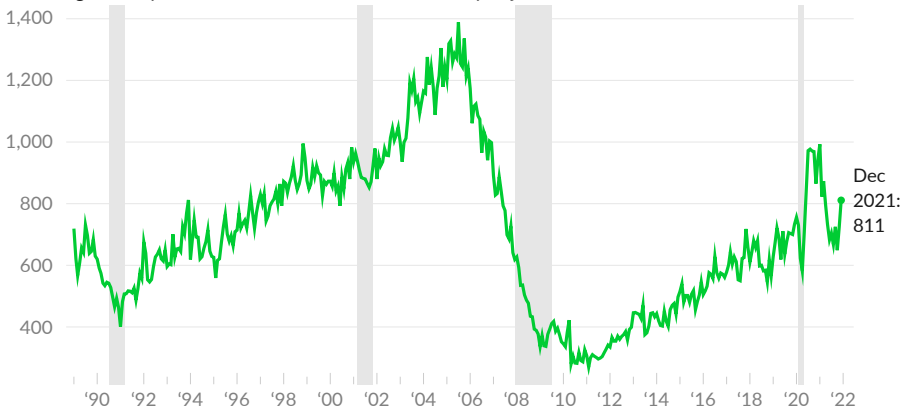


### Housing Sales

In December 2021, the Census Bureau [report](#) seasonally-adjusted single family new homes sales totaling 811,000 (see [green line](#)). Over the past year, new homes sales decreased 0.1 percent. Pre-COVID, in February 2020, the annualized rate of single family new home sales was 730,000. Since February 2020, new home sales have increased 11.1 percent.

### New Home Sales

new single family homes sold, in thousands, seasonally adjusted annual rate



Source: Census Bureau



## Housing Prices

The Federal Housing Finance Agency (FHFA) [housing price index](#) (see —) captures changes in the price of the same home. The index increased 17.5 percent over the year ending November 2021. Among Census Divisions, the fastest one-year housing price index growth rate in November 2021 was 22.8 percent in the Mountain Division, which includes Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming.

### House Price Index

seasonally adjusted index, one-year percent change



Source: Federal Housing Finance Agency

### Housing Price Growth

seasonally adjusted, one-year percent change

|                      | Nov '21 | Oct '21 | Sep '21 | Aug '21 | Nov '20 | Nov '19 | Nov '18 | '03-'05 Average | '09-'12 Average |
|----------------------|---------|---------|---------|---------|---------|---------|---------|-----------------|-----------------|
| Mountain             | 22.8    | 23.3    | 23.9    | 25.7    | 13.9    | 6.7     | 7.8     | 11.1            | -4.2            |
| South Atlantic       | 20.4    | 19.5    | 19.9    | 20.7    | 11.6    | 5.5     | 6.1     | 11.3            | -3.7            |
| East South Central   | 19.8    | 18.9    | 17.6    | 18.8    | 11.7    | 4.6     | 6.5     | 5.1             | -1.6            |
| Pacific              | 18.9    | 20.0    | 19.7    | 21.3    | 12.1    | 5.1     | 5.2     | 18.4            | -3.9            |
| West South Central   | 18.1    | 17.1    | 18.1    | 16.9    | 9.0     | 3.8     | 4.5     | 4.3             | 0.3             |
| <b>United States</b> | 17.5    | 17.4    | 17.8    | 18.6    | 11.2    | 5.2     | 5.7     | 9.2             | -2.5            |
| New England          | 15.4    | 15.6    | 18.3    | 18.7    | 12.9    | 5.1     | 4.7     | 10.3            | -2.2            |
| Middle Atlantic      | 14.0    | 14.2    | 14.3    | 15.6    | 11.1    | 4.5     | 5.3     | 11.3            | -2.3            |
| East North Central   | 13.9    | 14.0    | 14.7    | 15.2    | 10.6    | 5.9     | 5.7     | 4.3             | -2.4            |
| West North Central   | 13.3    | 13.5    | 13.9    | 14.9    | 10.0    | 5.1     | 5.1     | 5.4             | -1.1            |

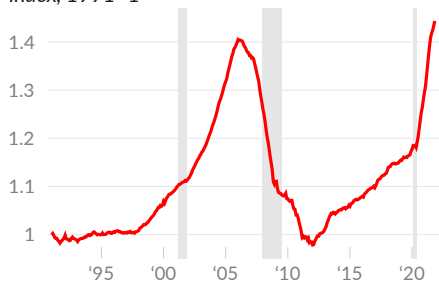
Source: Federal Housing Finance Agency

The purchase price of housing should move with the price of rent, the service that housing provides. When housing prices exceed the rental equivalent, it may suggest that housing is overvalued.

During the housing bubble that caused the great recession, housing prices reached more than 40 percent above the rental equivalent. As of November 2021, housing prices are 44.4 percent above the rental equivalent (see —).

### Housing Price to Rent Ratio

index, 1991=1



Source: FHFA; BLS

## Poverty

In 2020, income from labor and capital ownership, called *market income*, was below the Census Bureau threshold for poverty for 82.5 million people in the US, equivalent to 25.3 percent of the population. An adjusted measure called *disposable income* includes market income plus income from government programs and tax credits, and subtracts taxes paid. According to the Census Bureau Supplemental Poverty Measure (SPM), **29.8 million people are in poverty** based on their disposable income, equivalent to 9.1 percent of the population. Government programs and tax credits moved the income of 52.8 million people above the poverty threshold.

For purposes of program eligibility and economic data, poverty is defined by having income below a certain threshold. The processes for calculating poverty vary, with the Official Poverty Measure (OPM) based on three times a price-adjusted 1963 minimal food budget, and the SPM based on food, shelter, clothing, and utilities costs and additionally capturing program benefits and taxes, along with other adjustments.

While some fully-employed people are in poverty, **the vast majority of poor people are either children, elderly, disabled, caregivers, or students**. These groups represent 69.8 percent of those in poverty in 2020. If the missing labor income required to keep a person out of poverty is not supplied in the form of capital income or welfare income, the person will be poverty, by definition. As a result, these groups that are disproportionately work-limited in some way have much higher rates of poverty.

### In Poverty, 2020 millions of people



Source: CPS ASEC

### Poverty Measures, 2020



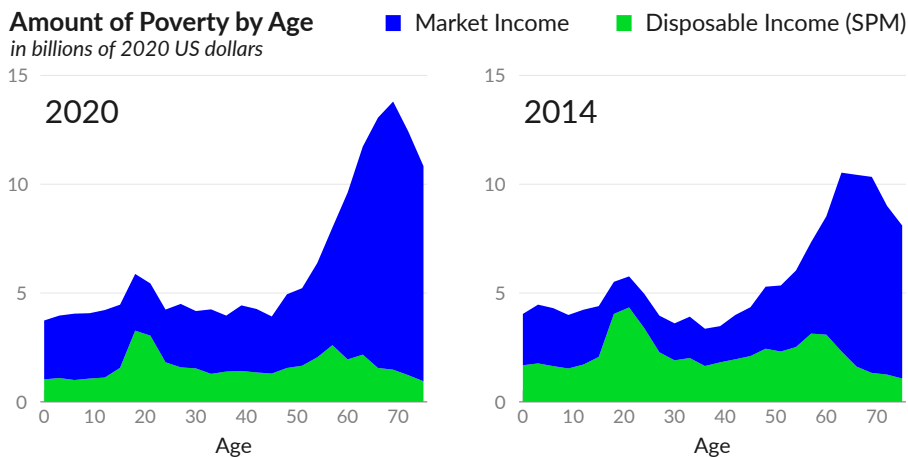
Source: CPS ASEC; Author's Replication of Bruenig, see [link](#)





The share of a group whose combined labor, capital, and welfare income is below the poverty line is the poverty rate for the group. In 2020, students, caregivers, and the disabled had the highest rates of poverty. Those fully-employed have a low rate of poverty.

By age, market income (see ■) leaves the elderly particularly vulnerable to poverty as they are not as likely to have labor income. After social benefits and taxes (disposable income [see ■]), the elderly have much lower rates of poverty than other age cohorts. Higher survivorship for the wealthy also has the effect of reducing poverty in very old ages. Disposable income still leaves young adults and those just below social security and medicare age (late 50s and early 60s) vulnerable to poverty, relative to other ages.

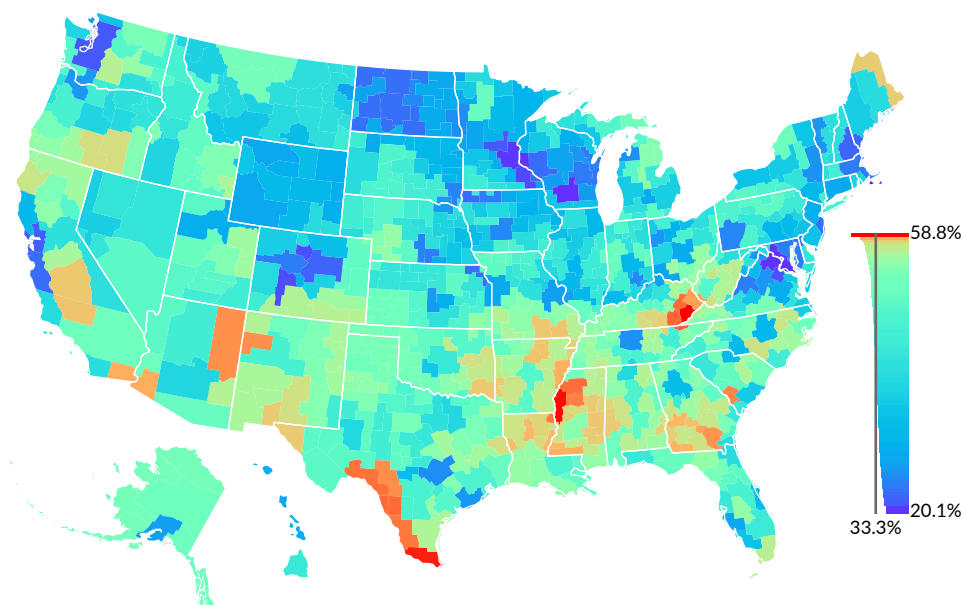


Source: CPS ASEC, 2014 adjusted for inflation with CPI-U-RS



### Share of local population in bottom third of housing-adjusted income, 2019

Share of commuting zone householders with after-housing-expense annual income below \$14,622



Source: American Community Survey, Author's Calculations

The Census Bureau [report](#) the number of people taken out of poverty (according to the supplemental poverty measure) by various government programs, along with how many people are put in poverty by various expenses. In 2020, Social Security payments lift income above the poverty line for 26.5 million people, by far the most effective program for reducing poverty.

Economic impact payments, for example from the CARES act, prevented 11.7 million people from being in poverty. Unemployment benefits removed 5.5 million people from poverty. Refundable tax credits, which often fail to reach the poorest people, would remove 5.3 million people from poverty if participation rates were 100 percent.

Several elements add to the number of people in poverty, medical expenses are the most significant, and cause the disposable income of five million people to fall below the poverty line. Work expenses additionally put two and a half million in poverty. Work expenses additionally put two and a half million people in poverty.

### Effect of Individual Elements on Poverty Headcount

*individual element effect on number of people in poverty, millions, 2020*



Source: Census Bureau Supplemental Poverty Measure

# Businesses

The factories, offices, and equipment that workers use to produce goods and services are all important to the economy. This section looks at the business sector, with data covering business investment, retail sales, industrial production, corporate profits, and the financial activities of businesses. While the US has some state-owned enterprises, such as the US Postal Service, the Tennessee Valley Authority, and Amtrak, the data contained in this section cover private businesses.

## Investment

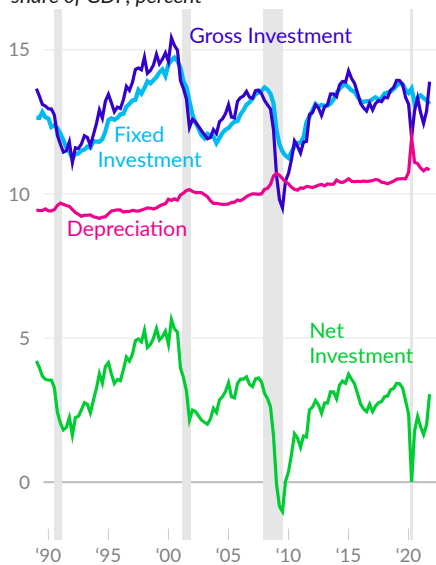
Production by private businesses requires capital goods, such as buildings, equipment, and software. When businesses purchase such items, defined as having a useful life of more than one year, it is considered **fixed investment**, or investment in fixed assets. From an accounting perspective, these transactions are considered an exchange of assets (cash in exchange for capital goods) rather than an expense.

Over time, these capital goods wear down, a process called consumption of fixed capital or depreciation. Depreciation is the expense related to capital goods from an accounting perspective. Businesses must decide whether to replace or add to the existing stock of capital goods, and their new purchases of capital goods and inventory investment are considered **gross investment**. Accordingly, net investment is gross investment minus depreciation, and measures whether the stock of capital goods is expanding.

Net investment is important for many reasons. In the short run, the production and installation of capital goods adds directly to GDP and increases the level of economic activity. In the long run, **investments in fixed assets make workers more productive**, as they allow businesses to produce more goods and services with the same hours of work.

### Investment and Depreciation

share of GDP, percent



Source: Bureau of Economic Analysis

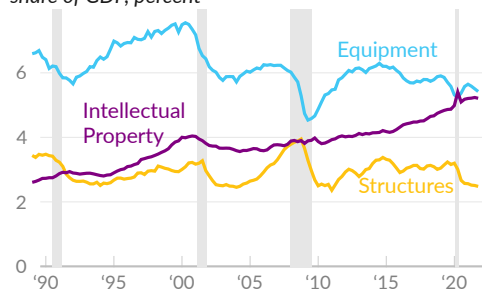
In the the fourth quarter of 2021, gross private business investment totals \$3,333 billion on a seasonally-adjusted annualized basis, equivalent to 13.9 percent of GDP (see —). Private business investment in fixed assets totals \$3,146 billion, or 13.1 percent of GDP (see —). Private business depreciation totals \$2,601 billion in the quarter, or 10.8 percent of GDP (see —). As a result, net investment is \$732 billion, or 3.1 percent of GDP (see —).

In 2019 Q4, prior to the COVID-19 pandemic, private business gross investment was \$2,896 billion. Since 2019 Q4, annualized gross investment increased 15.1 percent. Net investment was \$614 billion in 2019 Q4, and increased 19.3 percent from 2019 Q4 to 2021 Q4, as gross investment recovered from its pandemic lows.

Note that gross investment includes fixed investment and inventory investment, or the **change in private inventories**. Changes to private inventories capture the difference between sales and production. Reduced production of new inventory explains much of the overall reduction in gross investment during the COVID-19 pandemic.

Business investments in fixed assets are grouped into three categories: structures, equipment, and intellectual property (for example software and R&D). Investment in structures was \$595 billion in 2021 Q4, equivalent to 2.5 percent of GDP (see —). Equipment investment was \$1,301 billion or 5.4 percent of GDP (see —), and intellectual property investment was \$1,250 billion or 5.2 percent of GDP (see —).

**Business Fixed Investment by Type**  
share of GDP, percent



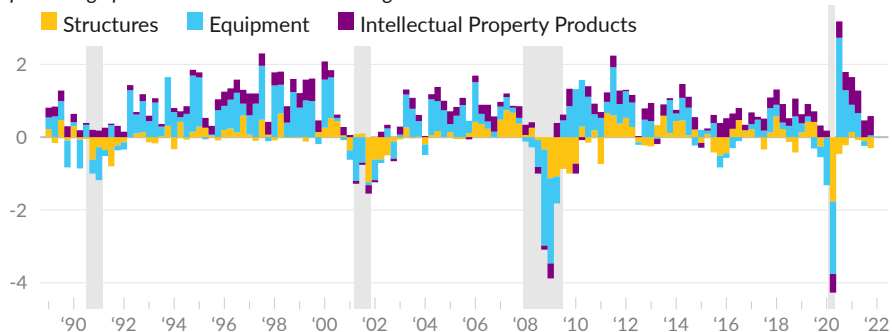
Source: Bureau of Economic Analysis

## Contribution to Growth

Business fixed investment contributed 0.28 percentage point to GDP growth in 2021 Q4, in line with the average contribution of 0.35 percentage point over the three years prior to the pandemic. In 2021 Q4, investment in structures subtracted 0.30 percentage point from GDP growth (see —), investment in equipment contributed 0.05 percentage point (see —), and investment in intellectual property products contributed 0.53 percentage point (see —).

## Business Fixed Investment

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

## Business Fixed Investment

percentage point contribution to real GDP growth

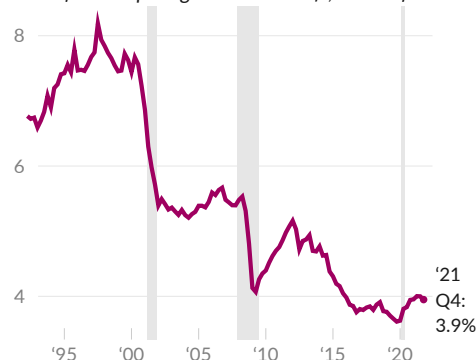
|                                | 2021 Q4 | '21 Q3 | '21 Q2 | '21 Q1 | '20 Q4 | moving averages |         |         |
|--------------------------------|---------|--------|--------|--------|--------|-----------------|---------|---------|
| Total                          | 0.28    | 0.22   | 1.21   | 1.65   | 1.57   | 3-year          | 10-year | 30-year |
| Structures                     | -0.30   | -0.11  | -0.08  | 0.14   | -0.22  | -0.19           | 0.01    | 0.01    |
| Equipment                      | 0.05    | -0.13  | 0.66   | 0.75   | 1.29   | 0.19            | 0.23    | 0.34    |
| Information processing         | 0.45    | -0.03  | -0.17  | 0.49   | 0.31   | 0.17            | 0.14    | 0.22    |
| Computers and peripherals      | 0.20    | 0.07   | -0.29  | 0.25   | 0.11   | 0.06            | 0.03    | 0.12    |
| Industrial equipment           | 0.19    | 0.08   | 0.35   | 0.08   | 0.21   | 0.06            | 0.04    | 0.04    |
| Transportation equipment       | -0.43   | -0.18  | 0.43   | 0.08   | 0.61   | -0.09           | 0.03    | 0.05    |
| Intellectual property products | 0.53    | 0.46   | 0.62   | 0.76   | 0.50   | 0.36            | 0.28    | 0.23    |
| Software                       | 0.27    | 0.20   | 0.29   | 0.52   | 0.21   | 0.20            | 0.16    | 0.14    |
| Research and development       | 0.17    | 0.18   | 0.28   | 0.25   | 0.27   | 0.15            | 0.11    | 0.08    |

Source: Bureau of Economic Analysis

Productive business investments also show up as **new orders for core capital goods**. The category excludes the more-volatile aircraft orders as well as defense-related orders, and is derived from a Census Bureau [survey](#) of shipments, inventories, and orders.

New orders for manufactured core capital goods excluding aircraft totalled \$79 billion in December 2021, equivalent to 3.9 percent of GDP (see —). New orders increased by 10.4 percent over the past year, and increased by 21.9 percent since February 2020.

**New Orders for Core Capital Goods**  
nondefense capital goods ex-aircraft, share of GDP



Source: Census Bureau



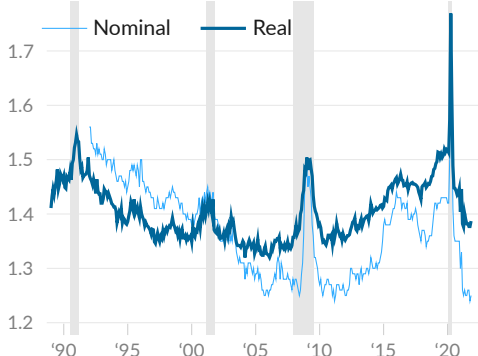
## Inventories

Changes in private inventories are often grouped with investment in national accounts. For purposes of flow measures such as GDP, inventory changes capture a situation where goods were produced but not sold and therefore are not included in consumption or investment. This situation can allow a drop in spending that was not predicted to be obscured in GDP growth figures. However, BEA [report](#) an inflation-adjusted ratio of inventories to sales in manufacturing and trade businesses (see —).

When thinking about the longer-term trends in these data, it's important to note that sales of businesses include services while inventories include only goods. Over the 30 years prior to COVID-19, sales shifted towards services, which reduced the inventories to sales ratio, all else equal. Following COVID-19, sales shifted back towards goods, increasing the inventories to sales ratio, all else equal, and affecting comparability of data over this period.

## Inventories to Sales Ratio

total business



Source: FRED, BEA



Census [report](#) the nominal ratio of inventories to sales for the total business sector (see —). In November 2021, the ratio of inventories to sales was 1.25, compared to 1.24 in October 2021, 1.35 in November 2020, and 1.42 in February 2020.

The inflation-adjusted version from BEA shows inventories at 1.39 times sales in November 2021, following a ratio of 1.24 in October 2021, and 1.44 one year prior, in November 2020. In 2019, real monthly inventories were 1.51 times real monthly sales, on average.

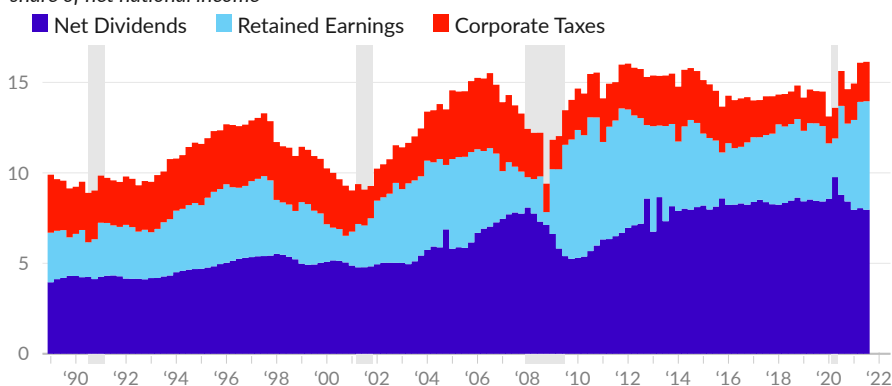
## Corporate Profits

The national accounts include detailed information on **aggregate corporate profits**. In the third quarter of 2021, corporate profits were \$2.92 trillion, equivalent to 16.1 percent of the income paid to US nationals after depreciation costs (net national income). Of this, \$1.44 trillion, equivalent to 8.0 percent of net national income, were paid out as dividends (see ■), \$1,084 billion were retained (corporate saving, see ■), and \$393 billion, 13.5 percent of corporate profits, went to corporate income tax (see ■).

In 2019, corporate profits were 14.4 percent of net national income. Dividends were equivalent to 8.5 percent, corporate savings were 4.1 percent, and corporate income taxes were 1.8 percent of net national income and 12.8 percent of corporate profits.

### Destination of Corporate Profits

share of net national income

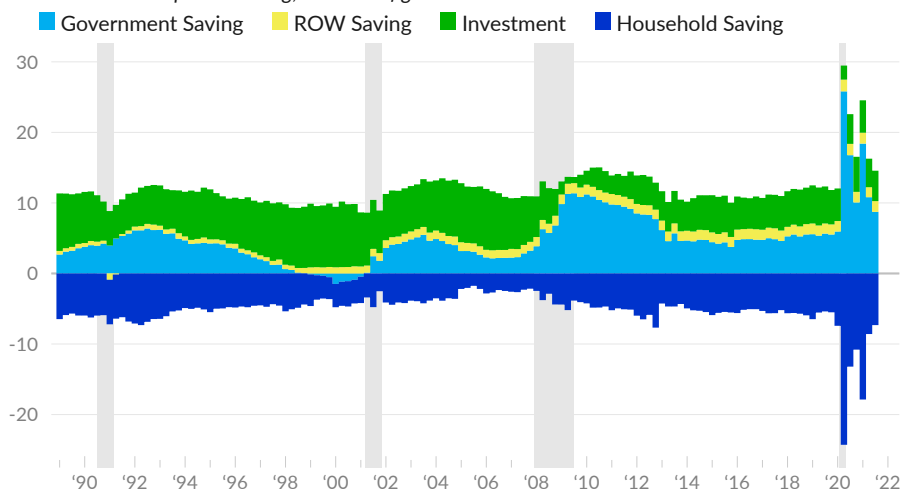


Source: Bureau of Economic Analysis

Aggregate corporate savings (corporate profits less dividends and corporate profit tax) are the result of net investment and non-business saving. Investment (see ■) is a source of aggregate profit because it is revenue for one party but not an expense for the other. Non-business saving, which includes household (see ■), government (see ■), and rest of world saving (see ■), necessarily reduces aggregate corporate profits because it is money that did not return to businesses as revenue.

### Sources of Corporate Saving

contribution to corporate saving, as share of gross national income



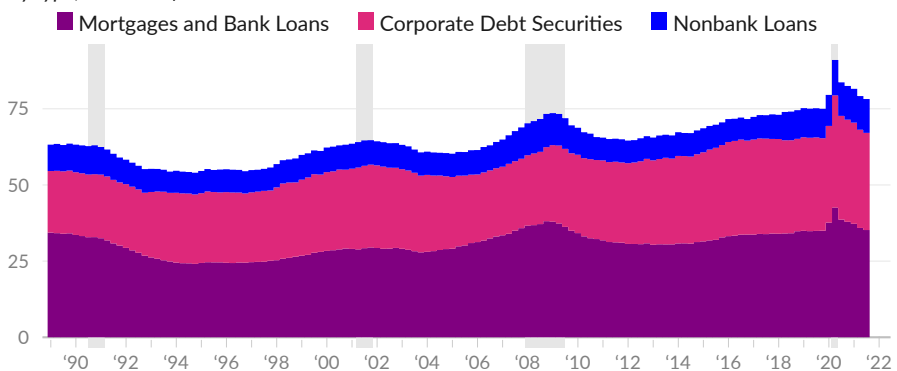
Source: Bureau of Economic Analysis

## Business Debt

As of 2021 Q3, nonfinancial business debt—the debt security and loan liabilities of nonfinancial businesses—both corporate and non-corporate—totals \$18,147 billion, with \$11,388 billion (62.8%) held by corporate businesses. Over the past three years, nonfinancial business debt has increased faster than overall economic activity. As a share of GDP, nonfinancial business debt increased by 4.1 percentage points to 78.2 percent in 2021 Q3 from 74.1 percent in 2018 Q3. The vast majority of the increase, 1.7 percentage points, comes from nonbank loans (see ■ ).

### Nonfinancial Business Debt

by type, as share of GDP



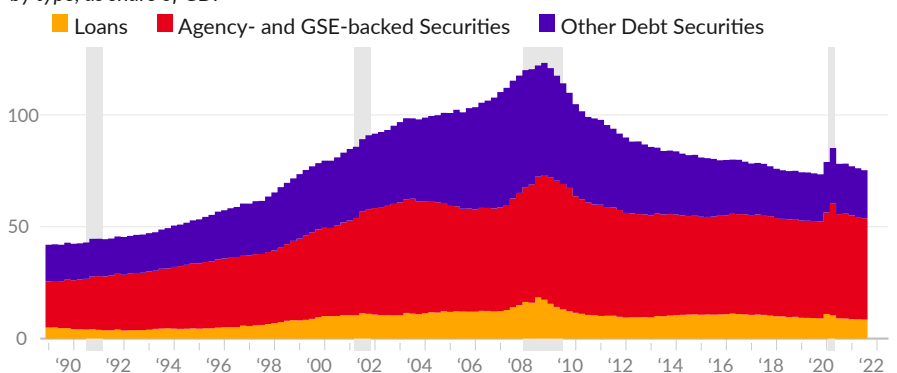
Source: Federal Reserve, Bureau of Economic Analysis

The debt of the domestic financial sector includes agency and government-sponsored enterprise (GSE) backed securities (see ■ ), corporate and foreign bonds, loans (see ■ ), and open market paper. The long-term increase in financial sector debt reflects the emergence and growth of various asset-backed securities. In addition to home mortgage-backed securities, the domestic financial sector issues debt securities based on commercial mortgages, auto loans, credit cards, student debt, and even restaurant revenue.

Domestic financial sector debt has fallen as a share of GDP to 75.3 percent in 2021 Q3 from a housing-bubble peak of 123.2 percent in 2008 Q4.

### Financial Sector Debt

by type, as share of GDP



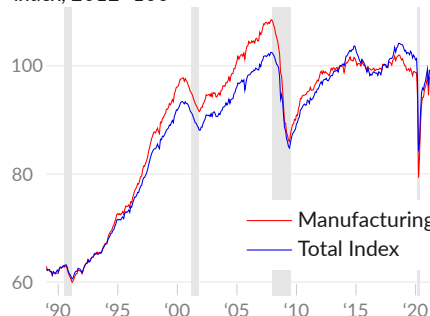
Source: Federal Reserve, Bureau of Economic Analysis

## Industrial Production

A monthly index produced by the Federal Reserve [shows](#) industrial production increased by 3.7 percent over the year ending December 2021, following an increase of 5.0 percent over the year ending November 2021. One-year growth in manufacturing production was 3.5 percent in December 2021, and manufacturing contributed 2.6 percentage points to the overall change in industrial production. Over the same period, mining contributed 1.6 percentage points to the overall change, and electric and gas utilities subtracted 0.4 percentage point.

By market group, production of consumer goods subtracted 0.1 percentage point from one-year industrial production growth in December 2021. Production of business equipment contributed 1.1 percentage points, production of nonindustrial supplies contributed 0.5 percentage point, and production of materials contributed 2.2 percentage points.

**Industrial Production**  
index, 2012=100



Source: Federal Reserve



## Industrial Production Growth

One-year growth

|                                      | contribution to total |         |         |         | rate, percent |         |         |         |
|--------------------------------------|-----------------------|---------|---------|---------|---------------|---------|---------|---------|
|                                      | Dec '21               | Nov '21 | Oct '21 | Dec '20 | Dec '21       | Nov '21 | Oct '21 | Dec '20 |
| Total index                          | 3.7                   | 5.0     | 4.8     | -3.3    | 3.7           | 5.0     | 4.8     | -3.3    |
| Manufacturing                        | 2.6                   | 3.3     | 3.3     | -1.7    | 3.5           | 4.5     | 4.5     | -2.2    |
| ■ Durable manufacturing              | 1.4                   | 1.7     | 1.9     | -0.9    | 3.8           | 4.6     | 5.0     | -2.4    |
| Motor vehicles & parts               | -0.3                  | -0.2    | -0.2    | 0.2     | -5.9          | -5.0    | -4.0    | 2.9     |
| ■ Nondurable manufacturing           | 1.2                   | 1.7     | 1.6     | -0.5    | 3.6           | 4.9     | 4.5     | -1.5    |
| ■ Mining                             | 1.6                   | 1.3     | 1.7     | -1.7    | 11.0          | 8.9     | 12.2    | -15.2   |
| ■ Utilities                          | -0.4                  | 0.4     | -0.1    | 0.1     | -3.4          | 3.8     | -0.8    | 1.3     |
| ■ Consumer goods                     | -0.1                  | 0.8     | 0.5     | 0.2     | -0.2          | 2.8     | 1.7     | 0.7     |
| Consumer durables                    | -0.1                  | 0.0     | 0.0     | 0.3     | -1.0          | 0.4     | 0.5     | 4.3     |
| Automotive products                  | -0.2                  | -0.2    | -0.1    | 0.2     | -6.4          | -4.7    | -3.8    | 5.3     |
| Consumer nondurables                 | 0.0                   | 0.8     | 0.4     | -0.1    | 0.0           | 3.6     | 2.0     | -0.4    |
| Foods and tobacco                    | -0.1                  | 0.0     | 0.1     | -0.0    | -0.8          | 0.4     | 1.1     | -0.0    |
| Chemical products                    | 0.3                   | 0.4     | 0.4     | 0.1     | 5.5           | 8.1     | 8.1     | 1.4     |
| Consumer energy products             | -0.2                  | 0.4     | -0.0    | -0.1    | -3.2          | 6.7     | -0.7    | -1.5    |
| ■ Equipment & nonindustrial supplies | 1.6                   | 1.8     | 1.8     | -1.5    | 5.7           | 6.6     | 6.5     | -5.3    |
| Equipment                            | 1.1                   | 1.1     | 1.3     | -1.0    | 8.4           | 8.9     | 9.9     | -8.2    |
| Industrial equipment                 | 0.3                   | 0.4     | 0.4     | -0.1    | 9.7           | 12.0    | 11.4    | -3.1    |
| Nonindustrial supplies               | 0.5                   | 0.7     | 0.6     | -0.5    | 3.4           | 4.7     | 3.8     | -2.9    |
| Construction supplies                | 0.2                   | 0.3     | 0.2     | 0.0     | 4.4           | 5.4     | 3.7     | 0.1     |
| Business supplies                    | 0.3                   | 0.5     | 0.4     | -0.5    | 2.8           | 4.4     | 3.8     | -4.3    |
| ■ Materials                          | 2.2                   | 2.4     | 2.5     | -1.9    | 4.9           | 5.3     | 5.6     | -4.5    |
| Consumer parts                       | -0.0                  | 0.0     | 0.0     | 0.1     | -1.1          | 0.1     | 0.9     | 2.4     |
| Equipment parts                      | 0.3                   | 0.3     | 0.3     | -0.1    | 5.6           | 6.2     | 7.1     | -1.4    |
| Chemical materials                   | 0.4                   | 0.3     | 0.3     | 0.2     | 6.9           | 6.1     | 6.1     | 3.2     |
| Energy materials                     | 1.2                   | 1.3     | 1.5     | -1.5    | 6.5           | 7.2     | 8.2     | -10.0   |

Source: Federal Reserve

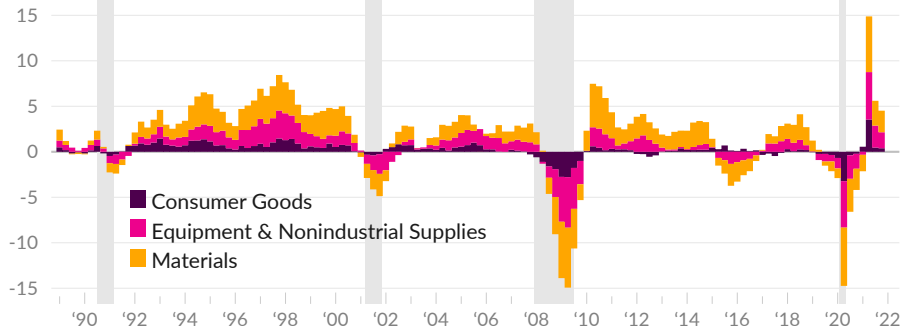




Market group data show the lack of growth in the production of consumer goods, equipment, and nonindustrial supplies over the past decade.

### Industrial Production Growth, Market Group

percentage point contribution to one-year growth



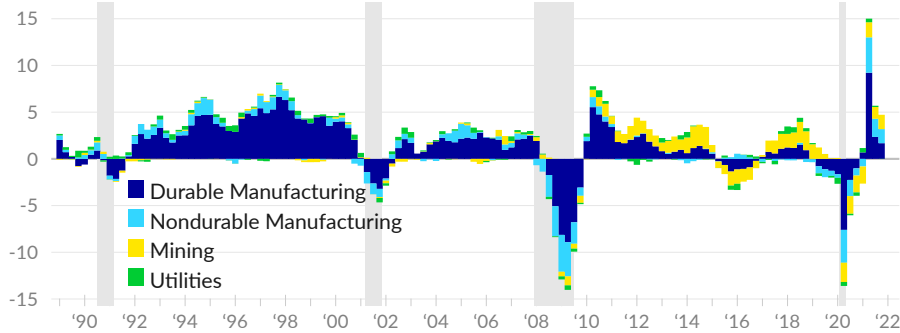
Source: Federal Reserve



Industry group data show a long-term change in the composition of new industrial activity, towards mining and away from manufacturing.

### Industrial Production Growth, Industry Group

percentage point contribution to one-year growth



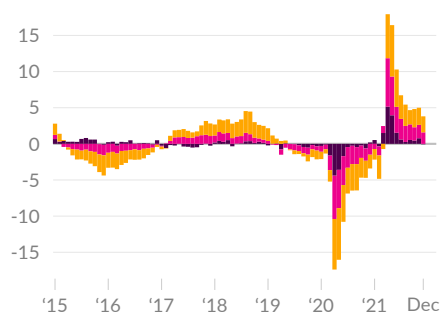
Source: Federal Reserve



Reduced production during the pandemic was broad-based. The monthly data are shown in detail below.

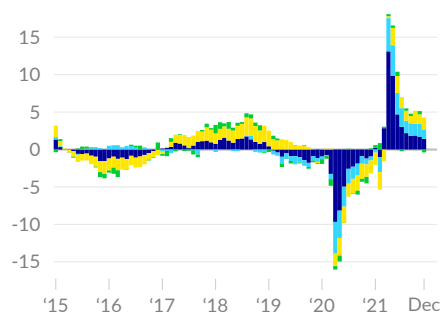
### Recent data in detail

#### Market Group



Source: Federal Reserve

#### Industry Group



As of December 2021, of a subset of 12 industries that contribute the majority of industrial production, seven increased **production** since February 2020, five decreased production, and none were unchanged (see ■). Since February 2020, aerospace & miscellaneous transportation equipment production decreased by 10.8 percent, production of computer & electronic products decreased by 9.0 percent, chemical production decreased by 7.9 percent, and motor vehicles & parts production increased by 6.5 percent.

Since February 2020, six of the 12 industries increased **capacity**, six decreased capacity, and none were unchanged (see ■). Production capacity for computer & electronic products decreased by 6.1 percent, electric & gas utilities capacity decreased by 5.1 percent, and chemical capacity increased by 1.8 percent.

## Industrial Production and Capacity

As of December 2021, percent change since February 2020



Source: Federal Reserve

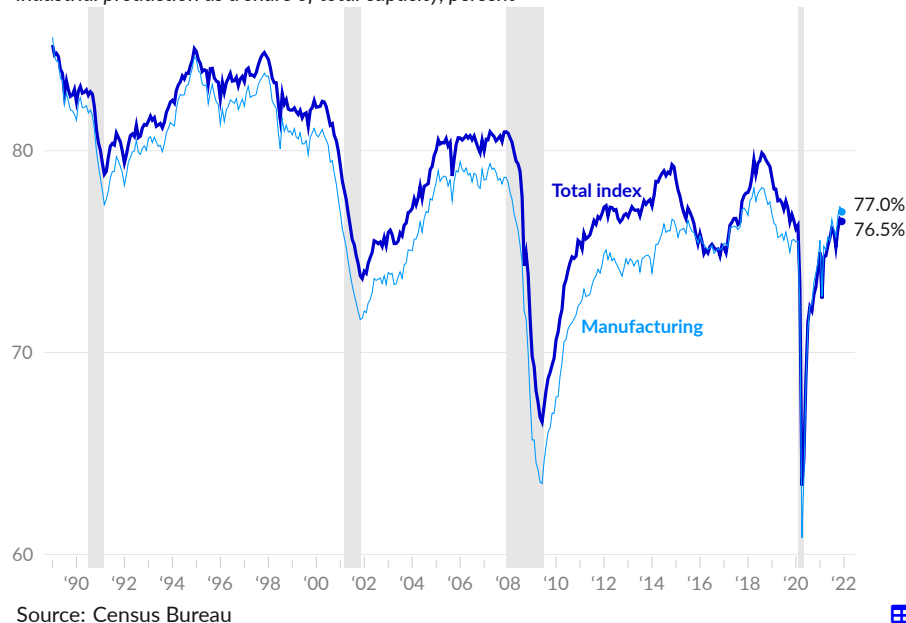


The Federal Reserve's monthly industrial production [report](#) also measures the economy's total industrial capacity. The extent to which the economy is using its industrial capacity is called **capacity utilization**, and calculated as industrial production as a share of total industrial capacity. Long-term, capacity utilization has fallen as many US factories and industrial production facilities closed.

In December 2021, the industrial capacity utilization rate was 76.5 percent (see —), and the manufacturing capacity utilization rate was 77.0 percent (see —). Total capacity utilization has fallen by 8.7 percentage points since January 1989.

### Capacity Utilization

*industrial production as a share of total capacity, percent*



## Energy Production and Use

The Energy Information Administration [report](#) a large increase in US **crude oil production**, from around five million barrels per day in 2007 to nearly 13 million barrels per day at the end of 2019. Much of the increase comes from Texas, New Mexico, North Dakota, and Colorado. During November 2021, the US produced 11.8 million barrels per day.

### Crude Oil Production

millions of barrels per day

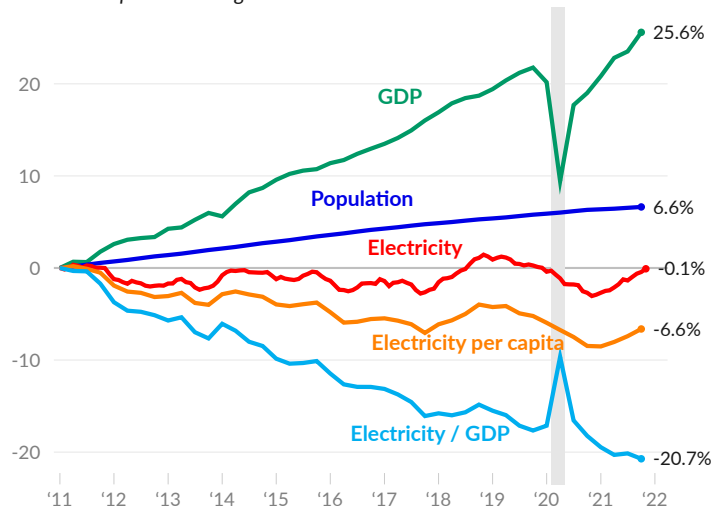


Source: Energy Information Administration

Since 2011, annualized total US **electricity generation** has remained fairly constant at around four trillion kilowatt hours. Over the same period, the US population has increased by 6.3 percent and real GDP has increased by 24.6 percent. During the 12 months ending November 2021, the US generated 4,123 billion kilowatt hours of electricity.

### Electricity Generation, Population, and Production

cumulative percent change since 2011

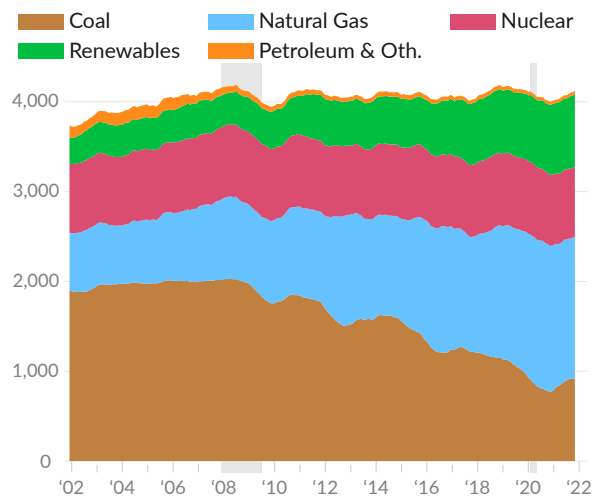


Source: EIA, BEA

Over the year ending November 2021, 1,577 billion kilowatt hours of electricity were generated using natural gas (see ■), 918 billion kilowatt hours were generated from coal (see ■), 779 billion from nuclear (see ■), and 812 billion from renewable sources (see ■).

### Electricity Generation by Source

billion kilowatt hours, 12-month moving sum



Source: Energy Information Administration

### Renewable Sources



Among renewable energy sources, over the year ending November 2021, 256 billion kilowatt hours of electricity were generated with conventional hydroelectric (see ■), 56 billion kilowatt hours were generated from biomass (see ■), 16 billion were generated from geothermal (see ■), 371 billion from wind (see ■), and 113 billion from solar (see ■).

Retail sales of electricity by sector show a decrease in electricity sales to commercial and industrial sectors during the pandemic, offset in part by increased electricity sales to the residential sector.

### Electricity Retail Sales by Sector

billion kilowatt hours, 12-month moving sum



Source: Energy Information Administration

## Retail Sales

According to the [Census Bureau](#), retail and food service sales total \$626.8 billion in December 2021, equivalent to 31.4 percent of GDP on an annualized basis. Over the past year, retail and food service sales increased by 16.9 percent, without adjusting for inflation (see —). Nonstore sales, which include online retailers, have increased by 10.7 percent over the same period, and total \$82.6 billion, or 4.1 percent of GDP. Nonstore sales growth is smoothed in the chart below by taking the three-month moving average (see —).

### Retail Sales and Food Services

annual growth, percent; nonstore is 3-month moving average



Source: Census Bureau

### Retail sales

share of disposable personal income



Source: Census Bureau, BEA

# Government

Public institutions are collectively referred to as the *public-sector* or the *government*. In the United States, the government has the authority to spend, tax, and create money, as well as to regulate economic and financial activity. The government also enforces and determines the ownership of property. These activities are all extremely important to production and distribution in the economy.

This chartbook section covers various government statistics, including contributions to current economic activity, receipts and expenditures, assets and liabilities, and government jobs.

## Current Economic Activity

The government has several roles in society and there are multiple ways to interpret its contribution to current economic activity. The contribution to overall economic activity from the government sector can be measured as: 1) the gross output of the sector minus intermediate inputs used in production (value added); 2) the government income payments to people and on behalf of people and taxes and social insurance contributions; or 3) the sum of government expenditures on final goods and services, including investment.

The value added in production by the government sector is composed primarily of the compensation of government employees. These employees provide all types of services: education, health care, transportation, utilities, sanitation, etc. Government value added also includes a residual term called [gross operating surplus](#), much of which reflects money spent replacing and maintaining government fixed assets.

**Value Added in Domestic Production**  
per capita, thousands of 2021 Q3 dollars



Source: Bureau of Economic Analysis



In the third quarter of 2021, the federal government value added in domestic production is \$886.4 billion, equivalent to \$2,674 per capita (see —). In 2019 Q4, federal government value added in production was equivalent to \$2,634 per capita, after adjusting for inflation.

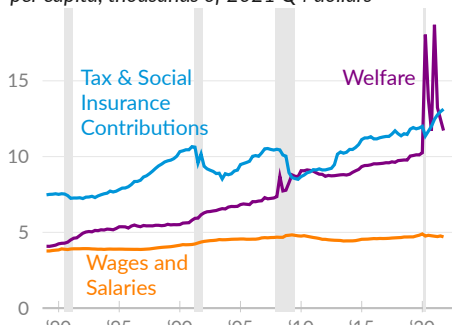
State and local government value added in domestic production is \$1,919.5 billion in 2021 Q3 and \$1,840.0 billion in 2019 Q4, equivalent to \$5,790 and \$5,867 per capita, respectively (see —).

Payments from the government to people include both the wages and salaries of government workers and transfer payments, also referred to as government social benefits or welfare. Welfare is critically important to society, yet the word is stigmatized in the US. It's worth noting that a huge portion of US welfare payments are not cash transfers to people but payments to businesses on behalf of people. For example, the US overpays for prescription drugs and medical services on behalf of people. Those over-payments benefit shareholders and doctors. The US also structures certain welfare payments as complex phased-in tax credits, paid the following year, which have very high private administrative costs (around ten percent goes to tax preparation services) and exclude the poorest people.

Over the past thirty years, welfare payments, including those made to businesses, have mostly kept pace with consumer spending, while tax collection lagged behind income growth. Increased welfare payments on a per capita basis reflect price protections for the medical industry, as well as a larger share of the population receiving social security benefits. During the COVID-19 pandemic, consumer spending on services collapsed as businesses were closed, while government transfer payments to people hit record highs. As a result, estimates show seven million people taken out of poverty.

### Personal Income and Outlays

per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

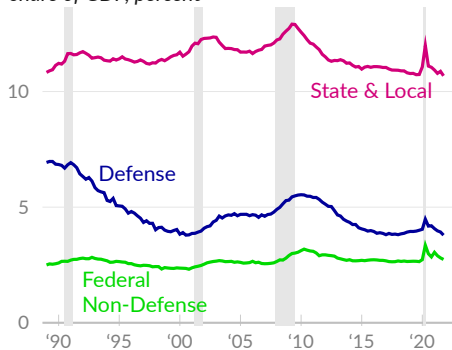
In 2021 Q4, government worker wages and salaries, not including benefits, were equivalent to \$4,701 per capita, following a price-adjusted \$4,812 in 2019 Q4 (see —). Welfare payments were equivalent to \$11,719 per capita in 2021 Q4, compared to \$10,114 per capita in 2019 Q4 (see —). In 1989 Q1, welfare payments were equivalent to \$4,081 per person.

Personal current taxes and social insurance contributions total \$13,128 per capita in 2021 Q4, \$11,888 in 2019 Q4, and \$7,477 in 1989 (see —).

Another approach to calculating the government sector effect on current economic activity is to add up spending on final goods and services. Government consumption and investment tends to be more stable than consumer spending or private investment, and thus tends to rise as a share of economic activity during recessions. This category does not include government transfer payments, which mostly become consumer spending.

### Consumption and Investment

share of GDP, percent



Source: Bureau of Economic Analysis

In 2021 Q4, federal non-defense spending and investment was \$657.0 billion, equivalent to 2.7 percent of GDP, compared to 2.6 percent of GDP in 2019 Q4 (see —). Federal spending on national defense was equivalent to 3.8 percent of GDP in the latest quarter and 4.0 percent in 2019 Q4 (see —). National defense spending was 6.9 percent of GDP in 1989 Q1.

In 2021 Q4, state and local government spending and investment was equivalent to 10.7 percent of GDP, compared to 10.7 percent in 2019 Q4 (see —).



## Government Spending and Investment

Government consumption expenditures and gross investment, which provide services and infrastructure, subtracted 0.51 percentage point from real GDP growth in 2021 Q4, far below the average contribution of 0.02 percentage point over the past year, and far below the average of 0.23 percentage point since 1989. In 2021 Q4, federal defense spending and investment (see ■) subtracted 0.22 percentage point, nondefense federal government spending and investment (see ■) subtracted 0.04 percentage point, and state and local government (see ■) subtracted 0.24 percentage point.

### Government Consumption and Investment

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

### Government Consumption and Investment

percentage point contribution to real GDP growth

|                          | 2021 Q4 | '21 Q3 | '21 Q2 | '21 Q1 | '20 Q4 | moving averages |         |         |
|--------------------------|---------|--------|--------|--------|--------|-----------------|---------|---------|
|                          |         |        |        |        |        | 3-year          | 10-year | 30-year |
| <b>Total</b>             | -0.51   | 0.17   | -0.36  | 0.77   | -0.09  | 0.27            | 0.10    | 0.21    |
| <b>Federal total</b>     | -0.27   | -0.35  | -0.38  | 0.78   | -0.22  | 0.16            | 0.01    | 0.07    |
| ■ National defense       | -0.22   | -0.07  | -0.04  | -0.25  | 0.22   | 0.07            | -0.04   | 0.01    |
| Consumption expenditures | -0.20   | -0.16  | -0.09  | -0.28  | 0.12   | 0.02            | -0.04   | 0.00    |
| Gross investment         | -0.02   | 0.09   | 0.05   | 0.03   | 0.10   | 0.05            | 0.00    | 0.01    |
| ■ Nondefense             | -0.04   | -0.29  | -0.34  | 1.02   | -0.44  | 0.09            | 0.05    | 0.06    |
| Consumption expenditures | -0.08   | -0.33  | -0.35  | 1.07   | -0.34  | 0.07            | 0.04    | 0.04    |
| Gross investment         | 0.04    | 0.04   | 0.01   | -0.05  | -0.10  | 0.02            | 0.01    | 0.02    |
| ■ State & local total    | -0.24   | 0.52   | 0.02   | -0.01  | 0.14   | 0.11            | 0.09    | 0.14    |
| Consumption expenditures | -0.12   | 0.60   | 0.28   | 0.22   | -0.05  | 0.12            | 0.09    | 0.12    |
| Gross investment         | -0.12   | -0.08  | -0.26  | -0.23  | 0.19   | -0.02           | 0.00    | 0.03    |

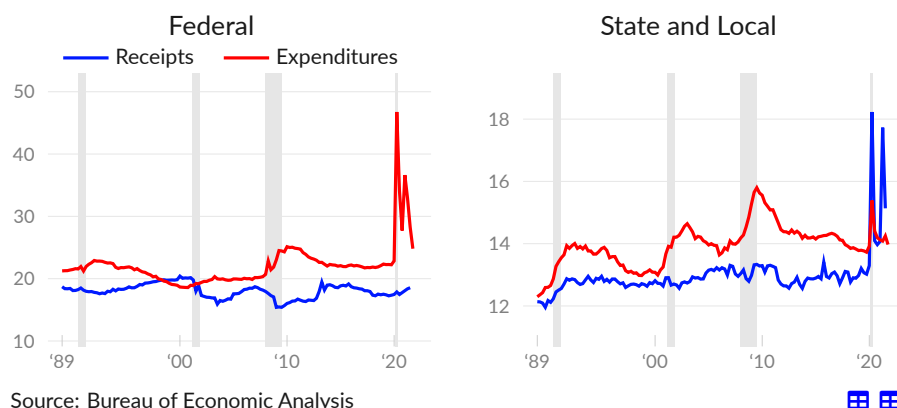
Source: Bureau of Economic Analysis

Government current expenditures include consumption and investment as well as transfers such as government social benefits to persons. Government spending provides services and income to people. Government current receipts come primarily from taxes. When government expenditures exceed receipts, it is referred to as a *government deficit*, and corresponds to a private sector surplus. A large government deficit, relative to GDP, means the government is increasing household income and corporate profits.

Federal government expenditures total \$6.0 trillion, or 24.8 percent of GDP, in 2021 Q4. BEA has not yet released receipts data for 2021 Q4, however, in 2021 Q3, federal government receipts total \$4.3 trillion, or 18.5 percent of GDP. In 2021 Q3, the federal government deficit was \$2,257 billion or 9.7 percent of GDP.

Combined state and local government expenditures total \$3.4 trillion, or 14.0 percent of GDP, in 2021 Q4. BEA has not yet released receipts data for 2021 Q4, however, in 2021 Q3, combined state and local government receipts total \$3.5 trillion, or 15.1 percent of GDP. In 2021 Q3, the combined state and local government surplus was \$206 billion or 0.9 percent of GDP.

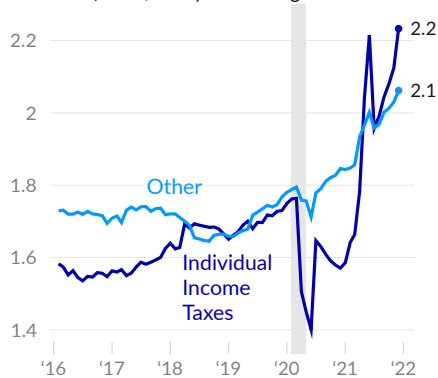
### Receipts and Expenditures as Share of GDP



Over the 12 months ending December 2021, Federal government receipts total \$4.3 trillion, of which \$2.2 trillion are from individual income taxes (see —). The remaining receipts (see —) are largely social insurance contributions and corporate income taxes.

### Federal Government Receipts

trillions of USD, one-year moving sum



## Government Jobs

Government employment is a major source of aggregate household income. Government jobs are also disproportionately likely to provide health insurance and retirement benefits.

### Government Employment

share of age 16+ population, percent



Source: Bureau of Labor Statistics



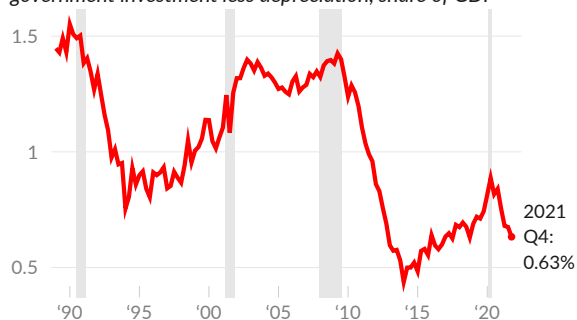
In December 2021, there were 21.9 million government jobs, equivalent to 8.4 for every 100 people in the age 16+ population (see —). The previous year, in December 2020, there were 21.5 million government jobs, equivalent to 8.2 percent of the age 16 or older population. Since February 2020, the US has lost 927,000 total government jobs.

## Government Net Investment

Government gross investment, less depreciation, is the government's net investment in the tangible assets that make the economy more productive. Government investment includes infrastructure, buildings, equipment, intellectual property, and other capital goods. In the latest data, covering 2021 Q4, government net investment is \$151.8 billion. Government net investment is equivalent to 0.63 percent of GDP in 2021 Q4 (see —), compared to 0.84 percent in 2020 Q4, and 0.74 percent in 2019 Q4.

### Government Net Investment

government investment less depreciation, share of GDP



Source: Bureau of Economic Analysis



## Government Balance Sheets

### Government Sector Net Worth

The combined US government sector has a net worth of \$-20.3 trillion, as of 2021 Q3, equivalent to -8.3 percent of national wealth (see —). Federal government net worth (not including land) is equal to -15.5 percent of national wealth (see —) while state and local government net worth is equivalent to 7.2 percent (see —).

### Government Share of US Wealth

government share of US net worth, percent



Source: Federal Reserve

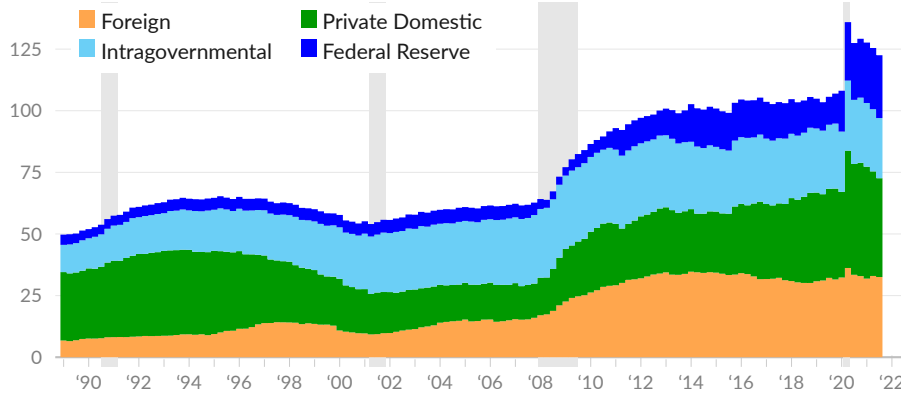


## Liabilities

In the third quarter of 2021, total **public debt** was \$28.4 trillion, equivalent to 122.5 percent of GDP. Of this, \$9.3 trillion, or 32.7 percent of the total, is held by private domestic investors (see ■). An additional \$7.5 trillion, or 26.6 percent of the total, is held by foreign investors (see ■). The remainder is held by the Federal Reserve (see ■) and various government agencies and trusts (see ■), such as the Social Security Trust Fund.

### Total Public Debt By Holder

percent of GDP



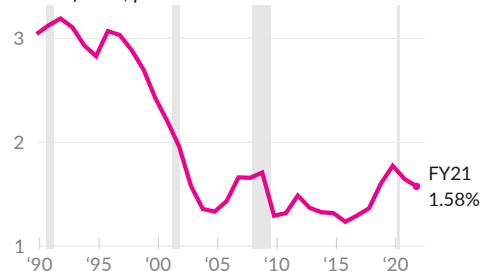
The ratio of public debt to GDP increased during the COVID-19 response, while the typical interest income from holding public debt fell because of lower interest rates. Treasuries and other government debt securities provide a safe asset for the balance sheets domestic households and businesses, and for foreign investors.

## Interest Expense

The Office of Management and Budget [report](#) federal interest outlays of \$352 billion in fiscal year 2021, compared to \$345 billion in fiscal year 2020. Put into the context of the size of the economy, federal interest outlays in fiscal year 2021 were equivalent to 1.58 percent of GDP (see —), following 1.65 percent of GDP in FY2020 and 1.77 percent in FY2019, and compared to an average of 2.9 percent in the 1990s, when interest rates were substantially higher.

### Federal Interest Outlays

share of GDP, percent



While debt levels are much lower for the consolidated state and local government sectors, interest rates on state and local government debt are typically higher. As a result, interest paid to investors can claim a larger share of government expenses at the state and local level.

## Assets

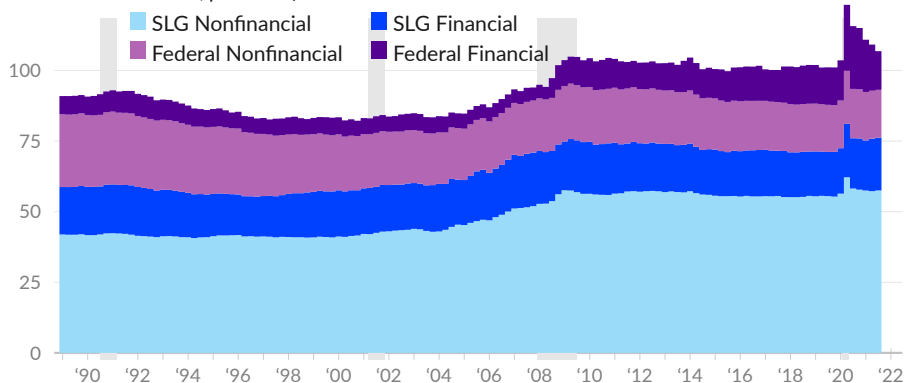
US government assets include financial assets but are mostly comprised of the non-financial assets of state and local governments (SLG), such as buildings and equipment. Land is not included in US measures of government assets.

In the third quarter of 2021, public/government assets excluding land are valued at \$24.8 trillion, equivalent to 106.8 percent of GDP. Of this, state and local government nonfinancial assets, such as buildings and equipment, are equivalent to 57.5 percent of GDP (see ■), and state and local government financial assets, such as insurance trust funds, are equivalent to 18.7 percent of GDP (see ■).

Federal government nonfinancial assets are equivalent to 16.9 percent of GDP in 2021 Q3 (see ■). Federal government financial assets have a market value equivalent to 13.7 percent of GDP (see ■).

### Government Assets

*does not include land, percent of GDP*



Source: Federal Reserve



# International Transactions

Transactions between the US and the rest of the world are recorded in the balance of payments as either current account transactions (which measure income) or capital and financial account transactions (which measure change in ownership of assets). This section discusses both types of transactions with a focus on the difference between payments from residents and payments to residents, referred to as the balance of payments. The section also covers trade in more detail and discusses trends in exchange rates.

## Balance of Payments

The **current account balance** captures international payments for goods and services as well as international transfers of money and net income received from ownership of foreign assets. It is the result of a set of payments to US residents, called current receipts, which are largely for exports of goods and services and returns on foreign assets, and a set of payments from US residents to the rest of the world, called current payments. Current payments are for goods and services imports, as well as transfers and payments for foreign ownership of US-based assets.

The current account balance can be decomposed into the balance on trade in goods (see ■), the balance on trade in services (see ■), the balance on primary income (such as wages or income from assets [see ■]), and secondary income (such as remittances and taxes [see ■]).

As of 2021 Q3, the US runs a current account deficit of 3.7 percent of GDP, primarily as the result of a trade deficit on goods of 4.8 percent of GDP. The initial GDP report for 2021 Q4 does not include the data needed to calculate the current account balance, however, the goods trade deficit for 2021 Q4 is equivalent to 4.8 percent of GDP.

### Current Account Balance

balance on individual current account component, as percent of GDP



Source: Bureau of Economic Analysis

US current payments exceed current receipts and the US runs a persistent current account deficit. As a result, the extra flow of income (including in the form of goods and services) is balanced by an outflow of assets. Economic theory suggests that investment flows towards countries with lower labor costs and less capital per worker, as they have higher marginal productivity from additional capital. However, in the case of the US the opposite is happening, as net investment is flowing from less-developed countries with lower wages into the US. In other words, the US is borrowing money from less-developed countries to balance out its trade deficit, as shown in the financial accounts.

## Components of Current Account

share of GDP, percent

|                         | 2021  | '21   | '21   | '21   | '20   | '20   | moving averages |         |
|-------------------------|-------|-------|-------|-------|-------|-------|-----------------|---------|
|                         | Q4    | Q3    | Q2    | Q1    | Q4    | Q3    | 3-year          | 10-year |
| Current receipts        | -     | 16.56 | 16.47 | 16.20 | 15.99 | 15.39 | -               | -       |
| Exports                 | 11.10 | 10.71 | 10.82 | 10.49 | 10.34 | 9.84  | 11.00           | 12.28   |
| Goods                   | 7.83  | 7.55  | 7.59  | 7.29  | 7.08  | 6.68  | 7.39            | 8.23    |
| Durable                 | 4.21  | 4.16  | 4.25  | 4.18  | 4.15  | 3.96  | 4.29            | 5.01    |
| Nondurable              | 3.62  | 3.39  | 3.34  | 3.12  | 2.93  | 2.73  | 3.10            | 3.21    |
| Services                | 3.27  | 3.17  | 3.23  | 3.20  | 3.26  | 3.15  | 3.61            | 4.05    |
| Income receipts         | -     | 5.10  | 4.89  | 4.91  | 4.86  | 4.71  | -               | -       |
| Transfer receipts       | 0.74  | 0.75  | 0.76  | 0.80  | 0.79  | 0.84  | 0.78            | 0.78    |
| Current payments        | -     | 20.28 | 20.01 | 19.85 | 19.26 | 18.53 | -               | -       |
| Imports                 | 15.11 | 14.79 | 14.70 | 14.45 | 14.06 | 13.27 | 14.28           | 15.33   |
| Goods                   | 12.61 | 12.32 | 12.40 | 12.24 | 11.83 | 11.21 | 11.79           | 12.61   |
| Durable                 | 7.96  | 7.87  | 8.11  | 8.13  | 7.98  | 7.43  | 7.64            | 7.94    |
| Nondurable              | 4.65  | 4.44  | 4.29  | 4.12  | 3.85  | 3.78  | 4.14            | 4.67    |
| Services                | 2.50  | 2.48  | 2.31  | 2.21  | 2.23  | 2.07  | 2.49            | 2.72    |
| Income payments         | -     | 3.95  | 3.88  | 3.84  | 3.69  | 3.64  | -               | -       |
| Transfer payments       | 1.40  | 1.53  | 1.43  | 1.56  | 1.52  | 1.62  | 1.51            | 1.45    |
| Current account balance | -     | -3.72 | -3.53 | -3.65 | -3.28 | -3.14 | -               | -       |

Source: Bureau of Economic Analysis

Financial account transactions include the net domestic acquisition of foreign assets and the net domestic incurrence of foreign liabilities. The US **financial account balance** (see ■) is the net lending or borrowing of the combined domestic sectors with the rest of the world. The timing of payments lead to a statistical discrepancy (see ■), but the financial and capital account balance and current account balance otherwise sum to zero.

Over the year ending 2021 Q3, net domestic acquisitions of foreign assets were equivalent to 5.8 percent of GDP, while net domestic incurrence of foreign liabilities was equivalent to 9.2 percent of GDP. As a result, domestic net borrowing totals 3.2 percent of GDP over the one-year period.

## Financial Account Balance

percent of GDP



Source: Bureau of Economic Analysis



## Trade

Transactions for goods and services between the US and foreign countries are [reported](#) monthly by the Census Bureau. Purchases of foreign goods and services by the US are imports (see —) and purchases of US goods and services by foreign countries are exports (see —). Trade in goods includes consumer goods, industrial equipment, and agricultural products. Trade in services includes travel and tourism, business services, and charges for the use of intellectual property, among other services.

### US Imports and Exports, Monthly

*billions of USD, seasonally adjusted*



Source: Census Bureau



US imports of goods and services totalled \$304.4 billion in November 2021, \$252.5 in November 2020, and averaged \$258.7 billion per month in 2019. Exports of goods and services were \$224.2 billion in November 2021, \$185.2 billion in November 2020, and \$185.2 billion per month in 2019.

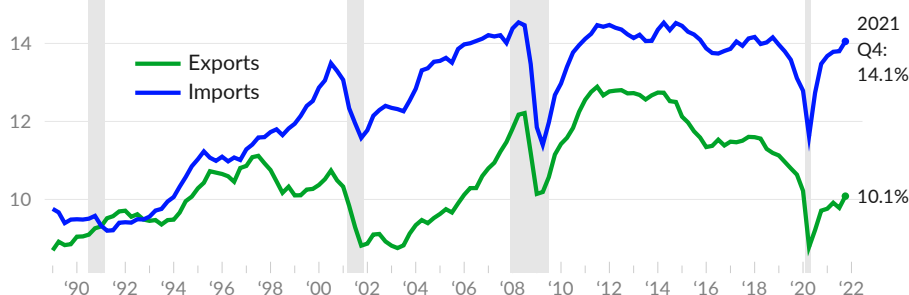
The trade balance, exports minus imports, shows a trade deficit of \$80.2 billion in November 2021, \$67.3 billion in November 2020, and \$48.0 billion per month in 2019. These values are seasonally adjusted but not adjusted for changes in prices or population.



Nonpetroleum goods and services imports (see —) were equivalent to 14.1 percent of GDP in the the fourth quarter of 2021, while exports of nonpetroleum goods and services (see —) were equivalent to 10.1 percent of GDP. In 2019 Q4, nonpetroleum imports were 13.1 percent of GDP, and exports were 10.6 percent.

### Imports and Exports, Nonpetroleum

*includes goods and services, but excludes petroleum products, share of GDP*



Source: Bureau of Economic Analysis

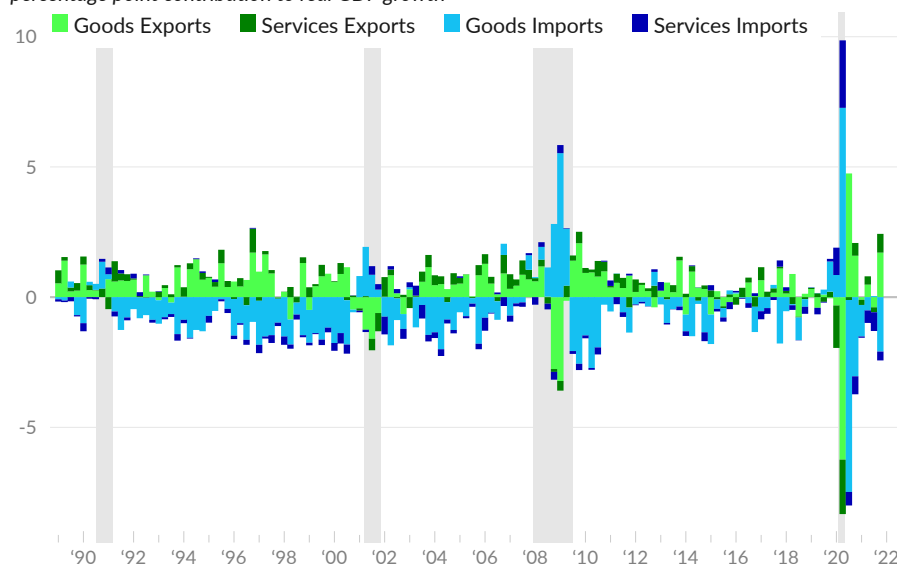
### Contribution to Overall Growth

The **trade balance** (exports of goods ■ and services ■ minus imports of goods ■ and services ■) acts as an adjustment to consumption and investment when calculating domestic production using the expenditure approach. A country with a positive trade balance, or trade surplus, produces more exports than its residents purchase in imports, therefore its trade balance is added to domestic purchases to calculate domestic production. The US runs a persistent trade deficit, which is subtracted from spending data to estimate domestic production.

Goods exports contributed 1.71 percentage points to GDP growth in the fourth quarter of 2021 while services exports contributed 0.72 percentage point. Good imports subtracted 2.09 percentage points from GDP growth and services imports subtracted 0.34 percentage point.

### International Trade

*percentage point contribution to real GDP growth*



Source: Bureau of Economic Analysis

Changes to the trade balance can come from many sources, such as changes in domestic or foreign preferences and income, changes in exchange rates, and changes in trade policy. The following table shows major categories of trade as a share of gross domestic product at various points over the past 30 years.

### Exports and Imports by Type

percentage point share of GDP

|                                  | period averages |           |           |       |             |             |             |             |
|----------------------------------|-----------------|-----------|-----------|-------|-------------|-------------|-------------|-------------|
|                                  | 2021<br>Q4      | '21<br>Q3 | '20<br>Q4 | 2016  | 2012<br>-13 | 2005<br>-06 | 1998<br>-99 | 1989<br>-93 |
| Exports of goods and services    | 11.10           | 10.71     | 10.34     | 11.94 | 13.61       | 10.31       | 10.41       | 9.42        |
| Exports of goods                 | 7.83            | 7.55      | 7.08      | 7.74  | 9.35        | 7.30        | 7.52        | 6.84        |
| Foods, feeds, and beverages      | 0.71            | 0.64      | 0.72      | 0.70  | 0.81        | 0.46        | 0.50        | 0.60        |
| Industrial supplies & materials  | 2.84            | 2.74      | 2.23      | 2.07  | 2.95        | 1.92        | 1.55        | 1.65        |
| Petroleum and products           | 1.01            | 0.93      | 0.63      | 0.53  | 0.90        | 0.28        | 0.11        | 0.12        |
| Capital goods, except automotive | 2.24            | 2.26      | 2.19      | 2.78  | 3.21        | 2.84        | 3.27        | 2.61        |
| Automotive vehicles, & parts     | 0.63            | 0.59      | 0.71      | 0.80  | 0.90        | 0.77        | 0.79        | 0.67        |
| Consumer goods, ex. food & auto  | 1.07            | 0.99      | 0.91      | 1.03  | 1.12        | 0.91        | 0.86        | 0.74        |
| Durable goods                    | 0.48            | 0.45      | 0.45      | 0.56  | 0.61        | 0.49        | 0.44        | 0.39        |
| Nondurable goods                 | 0.59            | 0.54      | 0.45      | 0.48  | 0.50        | 0.41        | 0.42        | 0.35        |
| Exports of services              | 3.27            | 3.17      | 3.26      | 4.20  | 4.26        | 3.01        | 2.90        | 2.58        |
| Transport                        | 0.28            | 0.26      | 0.25      | 0.44  | 0.54        | 0.46        | 0.49        | 0.59        |
| Travel                           | 0.38            | 0.29      | 0.22      | 1.03  | 0.98        | 0.71        | 0.93        | 0.90        |
| Intellectual property charges    | 0.46            | 0.47      | 0.57      | 0.60  | 0.67        | 0.50        | 0.40        | 0.29        |
| Other business services          | 2.05            | 2.05      | 2.12      | 2.00  | 1.92        | 1.19        | 0.92        | 0.60        |
| Imports of goods and services    | 15.11           | 14.79     | 14.06     | 14.65 | 16.73       | 15.99       | 12.65       | 10.38       |
| Imports of goods                 | 12.61           | 12.32     | 11.83     | 11.87 | 13.87       | 13.48       | 10.59       | 8.45        |
| Foods, feeds, and beverages      | 0.81            | 0.82      | 0.75      | 0.70  | 0.69        | 0.54        | 0.46        | 0.43        |
| Industrial supplies & materials  | 2.95            | 2.89      | 2.11      | 2.34  | 4.24        | 4.24        | 2.22        | 2.16        |
| Petroleum and products           | 1.06            | 0.99      | 0.58      | 0.85  | 2.49        | 2.15        | 0.65        | 0.87        |
| Capital goods, except automotive | 3.32            | 3.32      | 3.23      | 3.18  | 3.36        | 3.00        | 3.03        | 2.04        |
| Automotive vehicles, & parts     | 1.45            | 1.44      | 1.80      | 1.88  | 1.84        | 1.84        | 1.74        | 1.46        |
| Consumer goods, ex. food & auto  | 3.40            | 3.22      | 3.31      | 3.13  | 3.18        | 3.20        | 2.47        | 1.83        |
| Durable goods                    | 1.75            | 1.69      | 1.72      | 1.64  | 1.71        | 1.75        | 1.29        | 0.97        |
| Nondurable goods                 | 1.65            | 1.53      | 1.59      | 1.49  | 1.47        | 1.46        | 1.18        | 0.86        |
| Imports of services              | 2.50            | 2.48      | 2.23      | 2.78  | 2.87        | 2.51        | 2.06        | 1.93        |
| Transport                        | 0.53            | 0.49      | 0.35      | 0.49  | 0.59        | 0.60        | 0.54        | 0.55        |
| Travel                           | 0.33            | 0.30      | 0.14      | 0.58  | 0.55        | 0.57        | 0.63        | 0.61        |
| Intellectual property charges    | 0.19            | 0.22      | 0.22      | 0.22  | 0.21        | 0.18        | 0.13        | 0.06        |
| Other business services          | 1.31            | 1.32      | 1.38      | 1.32  | 1.32        | 0.91        | 0.57        | 0.38        |

Source: Bureau of Economic Analysis

## Import Penetration

Goods can be produced domestically or imported or some combination of the two. The import share of the total US demand for goods, measured as US produced goods and imported goods less exported goods, is also referred to as *import penetration*. This measure has risen considerably over the past thirty years. The majority of the long-term increase has been concentrated in consumer goods, while the decrease since 2011 has come primarily from petroleum and related products.

From 1989 to 2011, imports of consumer goods excluding petroleum increased by the equivalent of 5.7 percent of domestic consumption of goods; petroleum-related imports increased by the equivalent of 6.3 percent; and all other goods imports increased by the equivalent of 6.2 percent.

Since 2011, imports of consumer goods decreased by the equivalent of 1.1 percent of domestic goods demand; imports of petroleum products decreased by the equivalent of 5.5 percent; and other imports decreased by the equivalent of 0.2 percent.

As of 2021 Q4, imports of consumer goods excluding petroleum and petroleum products are equivalent to 15.3 percent of domestic consumption of goods (see ■). Petroleum-related imports claim 2.9 percent (see ■) and imports of all other goods, primarily capital goods, industrial supplies, and materials are equivalent to 15.9 percent (see ■).

## Import Share of Goods

*import share of domestic-produced and imported goods less exports, by category*



Source: Bureau of Economic Analysis



The US Census Bureau [report](#) monthly data on US trade in goods, including by partner country. In November 2021, trade with the top 25 trading partners (see table) comprises 87.8 percent of total US trade in goods.

### US Trade in Goods

*census basis, millions of USD,  
not seasonally adjusted*

November 2021

November 2020

|                      | Imports | Exports | Total   | Imports | Exports | Total   |
|----------------------|---------|---------|---------|---------|---------|---------|
| Total, All Countries | 259,402 | 156,391 | 415,793 | 212,674 | 126,614 | 339,289 |
| China                | 48,384  | 16,068  | 64,453  | 44,839  | 14,219  | 59,059  |
| Canada               | 33,752  | 27,630  | 61,383  | 24,087  | 22,431  | 46,518  |
| Mexico               | 34,621  | 24,089  | 58,710  | 29,864  | 19,256  | 49,121  |
| Japan                | 10,775  | 6,614   | 17,390  | 11,726  | 4,951   | 16,677  |
| Germany              | 11,782  | 5,321   | 17,104  | 9,843   | 4,859   | 14,703  |
| South Korea          | 8,051   | 5,510   | 13,562  | 6,871   | 3,901   | 10,773  |
| Vietnam              | 9,370   | 893     | 10,264  | 7,869   | 818     | 8,688   |
| United Kingdom       | 4,936   | 5,307   | 10,243  | 4,414   | 5,393   | 9,808   |
| India                | 6,527   | 3,531   | 10,059  | 4,917   | 2,661   | 7,578   |
| Taiwan               | 6,929   | 2,970   | 9,900   | 5,448   | 2,591   | 8,040   |
| Ireland              | 7,515   | 1,535   | 9,051   | 5,317   | 923     | 6,240   |
| Switzerland          | 6,977   | 1,348   | 8,325   | 4,966   | 1,984   | 6,951   |
| Netherlands          | 3,262   | 4,613   | 7,876   | 2,453   | 3,937   | 6,391   |
| Italy                | 5,462   | 1,679   | 7,142   | 5,083   | 1,628   | 6,712   |
| Brazil               | 2,862   | 4,001   | 6,864   | 1,947   | 3,063   | 5,011   |
| France               | 4,175   | 2,549   | 6,725   | 3,784   | 1,981   | 5,766   |
| Malaysia             | 4,451   | 1,305   | 5,756   | 4,068   | 1,065   | 5,133   |
| Singapore            | 2,460   | 2,964   | 5,424   | 1,988   | 2,187   | 4,176   |
| Thailand             | 4,176   | 1,100   | 5,276   | 3,376   | 995     | 4,372   |
| Belgium              | 1,765   | 2,770   | 4,536   | 1,973   | 2,534   | 4,508   |
| Indonesia            | 2,473   | 843     | 3,316   | 1,729   | 701     | 2,430   |
| Russia               | 2,767   | 523     | 3,291   | 1,547   | 431     | 1,979   |
| Australia            | 1,085   | 2,146   | 3,231   | 846     | 1,953   | 2,799   |
| Israel               | 1,886   | 1,165   | 3,051   | 1,317   | 837     | 2,155   |
| Spain                | 1,523   | 1,477   | 3,001   | 1,339   | 931     | 2,270   |

Source: Census Bureau

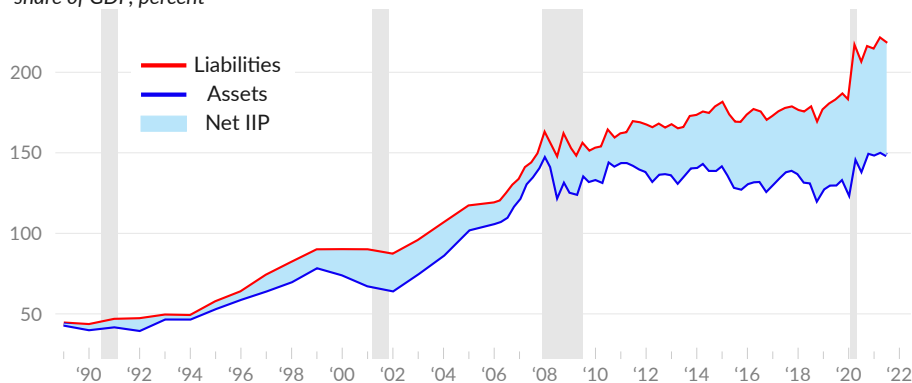
## International Investment Position

The US net international investment position (IIP) measures the difference between residents' foreign assets and liabilities. The Bureau of Economic Analysis [report](#) the US IIP data on a quarterly basis beginning in 2006, while prior data are annual.

In 2021 Q3, domestic holdings of foreign assets are equivalent to 148.5 percent of GDP (see —), compared to 106.4 percent in 2006 Q1. Domestic liabilities to the foreign sector total 217.8 percent of GDP in 2021 Q3 (see —), and 118.6 percent in 2006 Q1. As a result, net IIP, holdings of foreign assets minus liabilities, identifies the US as a net debtor to the rest of the world, to the equivalent of 69.3 percent of GDP in 2021 Q3 (see ■) and 12.2 percent of GDP in 2006 Q1.

### International Investment

share of GDP, percent



Source: Bureau of Economic Analysis



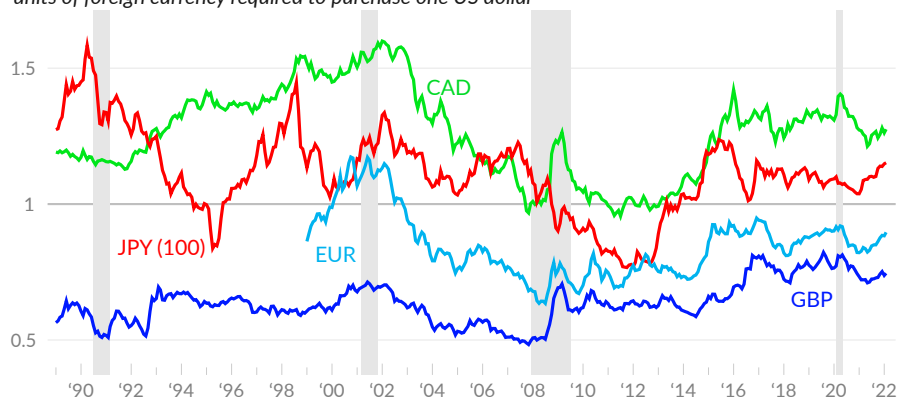
## Exchange Rates

Changes in the strength or weakness of the US dollar (USD) can affect trade and financial flows. The dollar is said to be relatively strong when more units of foreign currency, for example Japanese yen (JPY), British pounds (GBP), euros (EUR), or Canadian dollars (CAD), are required to buy one USD.

As of January 28, 2022, one US dollar buys approximately: 1.28 Canadian dollars (see —), 115 Japanese yen (see —), 0.90 euros (see —), and 0.75 British pounds (see —). Over the past three years, the nominal exchange rate between the US dollar and the Canadian dollar decreased by 0.2 percent, the USD-JPY rate increased by 10.7 percent, the USD-EUR rate increased by 8.4 percent, and the USD-GBP rate increased by 2.0 percent.

### Selected Exchange Rates

units of foreign currency required to purchase one US dollar



Source: Federal Reserve



### Broad Dollar Index

trade-weighted foreign exchange rate index  
January 2006=100



Source: Federal Reserve



Fed [trade-weighted dollar indices](#) show weighted-average foreign exchange rates with US trading partners, which simplify thinking about the overall role of foreign exchange rates on the US external sector. The Broad Dollar Index (see —), which starts in 2006, summarizes foreign exchange rates between the US and trading partners, weighting rates by the amount of trade in both goods and services.

The latest index value, as of January 28, 2022, is 116.1, an increase of 16.1 percent since inception in 2006. Over the past three years, the index value has averaged 115.5, compared to an average of 112.7 over the previous three-year period.

## Selected Exchange Rates

units of foreign currency required to buy one US dollar

|   | Jan 28,<br>2022 | 1-month<br>moving<br>average | 1-year<br>moving<br>average | 1-month<br>percent<br>change | 1-year<br>percent<br>change | 5-year<br>percent<br>change |
|---|-----------------|------------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|
|  EUR   | 0.896           | 0.883                        | 0.849                       | 1.5                          | 9.0                         | -2.4                        |
|  GBP   | 0.745           | 0.738                        | 0.727                       | 0.2                          | 0.8                         | -9.3                        |
|  JPY   | 115.2           | 114.8                        | 110.3                       | 0.3                          | 10.6                        | 10.5                        |
|  CAD   | 1.275           | 1.264                        | 1.254                       | -0.3                         | -0.1                        | -4.4                        |
|  MXN   | 20.83           | 20.51                        | 20.31                       | 0.8                          | 3.8                         | 12.7                        |
|  CNY   | 6.36            | 6.36                         | 6.44                        | -0.2                         | -1.8                        | -6.2                        |
|  CHF   | 0.930           | 0.918                        | 0.915                       | 1.3                          | 4.5                         | -6.5                        |
|  HKD   | 7.79            | 7.79                         | 7.77                        | -0.1                         | 0.5                         | 0.5                         |
|  INR   | 75.00           | 74.42                        | 73.98                       | 0.0                          | 2.0                         | 12.3                        |
|  AUD   | 1.429           | 1.390                        | 1.337                       | 3.4                          | 10.2                        | 9.3                         |
|  NZD   | 1.526           | 1.479                        | 1.420                       | 3.9                          | 9.6                         | 9.4                         |
|  BRL   | 5.39            | 5.56                         | 5.41                        | -4.4                         | -1.6                        | 73.2                        |
|  KRW   | 1209.0          | 1194.4                       | 1149.9                      | 1.9                          | 10.2                        | 7.0                         |
|  MYR   | 4.19            | 4.19                         | 4.15                        | 0.1                          | 3.4                         | 0.8                         |
|  DKK   | 6.67            | 6.57                         | 6.32                        | 1.6                          | 9.1                         | -2.3                        |
|  NOK   | 8.98            | 8.84                         | 8.62                        | 1.6                          | 5.4                         | 8.7                         |
|  SEK   | 9.43            | 9.13                         | 8.63                        | 3.7                          | 13.9                        | 5.7                         |
|  ZAR | 15.63           | 15.53                        | 14.82                       | 0.7                          | 0.9                         | 13.4                        |
|  SGD | 1.355           | 1.351                        | 1.345                       | -0.1                         | 2.0                         | -2.5                        |
|  TWD | 27.83           | 27.67                        | 27.92                       | 0.6                          | -0.6                        | -11.7                       |

Source: Federal Reserve



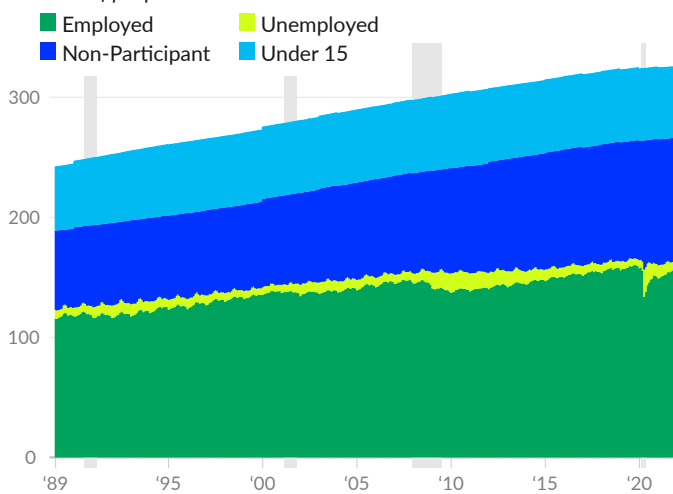
## Labor Markets

Labor is the primary source of income for US households and is essential to the production of goods and services. The portion of labor that is provided by a household member to others outside of the household or to other households is considered *employment*. As of December 2021, 156.2 million people are employed (including self-employment).

The number of people who are considered employed divided by the total population is the employment rate or employment-to-population ratio, which is 47.9 percent as of December 2021. Note that these values are not seasonally adjusted and include children, while BLS published values refer to those 16 or older.

### Labor Force Status of Population

millions of people



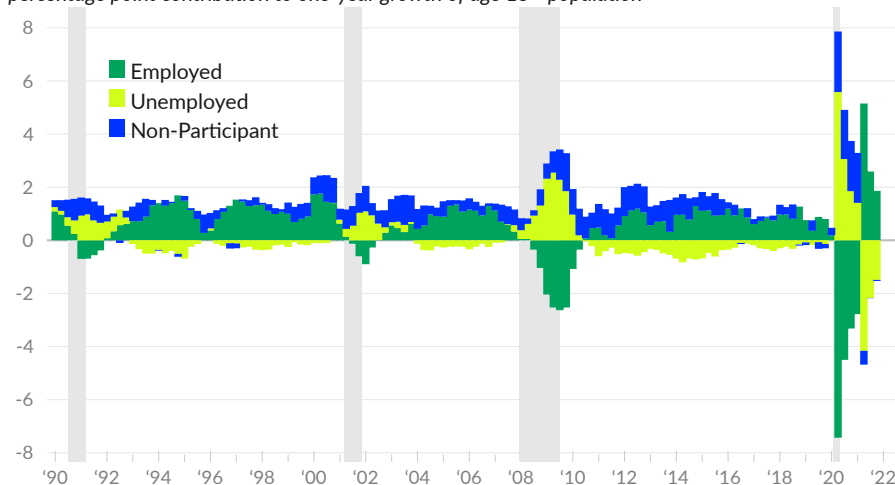
Source: Author's Calculations from CPS

When a member of a household is not employed but looked for a job during the past four weeks or is on temporary layoff, they are considered **unemployed**. As of December 2021, there are 6.0 million unemployed people. The combined group of employed and unemployed people is the labor force. The number of unemployed people divided by the number of people in the labor force is the unemployment rate, currently 3.7 percent. The number of people in the labor force divided by the total population is the labor force participation rate, currently 49.8 percent.

People who are not employed and not unemployed are considered to be outside of the labor force. These non-participants usually comprise about half of the population, and total 163.6 million in December 2021. The category includes children (59.6 million), students (18.0 million), unpaid caregivers (13.2 million), those unable to work due to disability or illness (14.0 million), those who want a job but have given up looking (5.7 million), and retirees and the elderly (50.8 million).

### Labor Force Status Changes

percentage point contribution to one-year growth of age 15+ population



Source: Author's Calculations from CPS

The labor force status of the US population varies by age, sex, and over time. Because very few people receive capital income, the share of the population with labor income is particularly important to overall levels of economic activity.

### Labor Force Status

December 2021, thousands of people, not seasonally adjusted

|                    | Total,<br>16+ | Men,<br>16-29 | Men,<br>30-59 | Men,<br>60+ | Women,<br>16-29 | Women,<br>30-59 | Women,<br>60+ |
|--------------------|---------------|---------------|---------------|-------------|-----------------|-----------------|---------------|
| Population         | 262,136       | 29,626        | 61,462        | 35,744      | 29,451          | 63,636          | 42,218        |
| Employed           | 155,732       | 18,548        | 51,412        | 12,064      | 17,553          | 45,771          | 10,384        |
| Multiple jobs      | 7,470         | 714           | 2,543         | 490         | 937             | 2,379           | 407           |
| Full-time          | 118,178       | 13,069        | 44,790        | 8,559       | 10,634          | 34,848          | 6,278         |
| Part-time          | 37,554        | 5,479         | 6,622         | 3,506       | 6,918           | 10,922          | 4,106         |
| Economic reasons   | 4,059         | 743           | 1,175         | 224         | 656             | 1,083           | 177           |
| Unemployed         | 5,964         | 1,308         | 1,676         | 330         | 981             | 1,419           | 250           |
| Not in Labor Force | 100,440       | 9,770         | 8,374         | 23,350      | 10,917          | 16,446          | 31,584        |
| Discouraged        | 5,515         | 1,013         | 1,090         | 652         | 894             | 1,257           | 611           |
| Disabled/III       | 13,967        | 880           | 3,730         | 2,273       | 622             | 3,819           | 2,644         |
| Family/Care        | 13,205        | 519           | 937           | 138         | 2,213           | 8,380           | 1,018         |
| School             | 14,408        | 6,820         | 361           | 37          | 6,681           | 489             | 20            |
| Retirement         | 51,005        | 89            | 1,594         | 20,122      | 140             | 1,979           | 27,081        |

Source: Author's Calculations from CPS

Additionally, changes over time in labor force status are particularly important to understanding both secular and cyclical trends in the economy. The following table presents the net two-year change in labor force status, in number of people.

### Labor Force Changes

Change from December 2019 to December 2021, thousands of people

|                    | Total,<br>16+ | Men,<br>16-29 | Men,<br>30-59 | Men,<br>60+ | Women,<br>16-29 | Women,<br>30-59 | Women,<br>60+ |
|--------------------|---------------|---------------|---------------|-------------|-----------------|-----------------|---------------|
| Population         | 1,955         | -783          | 90            | 1,672       | -732            | -50             | 1,757         |
| Employed           | -2,772        | -557          | -938          | 52          | -636            | -636            | -57           |
| Multiple jobs      | -589          | -78           | -56           | -93         | -45             | -279            | -38           |
| Full-time          | -1,666        | -349          | -734          | 93          | -549            | -236            | 110           |
| Part-time          | -1,106        | -208          | -204          | -42         | -86             | -400            | -166          |
| Economic reasons   | -191          | -52           | 75            | -72         | -97             | -50             | 4             |
| Unemployed         | 460           | -27           | 243           | 66          | 42              | 131             | 7             |
| Not in Labor Force | 4,266         | -199          | 785           | 1,555       | -138            | 456             | 1,807         |
| Discouraged        | 885           | 71            | 246           | 117         | 59              | 324             | 68            |
| Disabled/III       | -818          | -128          | -65           | -184        | -31             | -395            | -13           |
| Family/Care        | 986           | 155           | 226           | 46          | 40              | 431             | 90            |
| School             | -996          | -411          | -141          | 10          | -358            | -81             | -16           |
| Retirement         | 3,376         | -19           | 210           | 1,563       | 2               | 38              | 1,582         |

Source: Author's Calculations from CPS

## Labor Force Status and Age

There is a clear relationship between age and employment. Children are not permitted to work and many young people attend school full time. During ages 25 to 54, around 80 percent of the population is employed. The remaining 20 percent include caregivers and those unable to work due to disability or illness. Retirement becomes more likely as workers reach their 60s and 70s; less than 10 percent of people continue to work into their 80s.

### Labor Force Status, by Age

share of same-age population, percent, December 2021



change since December 2019, percentage points



Source: Author's Calculations from CPS, Bruenig



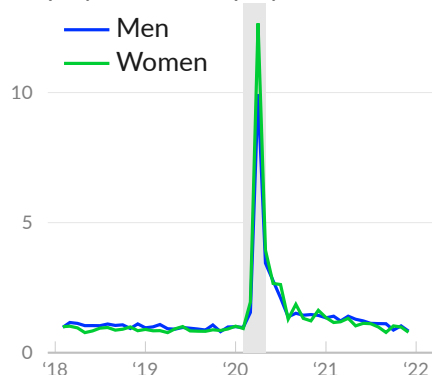
## Gross Labor Force Status Changes

The changes in labor force status described above are net changes, rather than gross changes. That is, the one-year change in unemployment is the result of some people staying unemployed, some becoming unemployed, and some no longer being unemployed, as well as other flows like deaths and people becoming working age. This section looks at six categories of gross changes, specifically the share of people with a given labor force status who move to a different status in the following month.

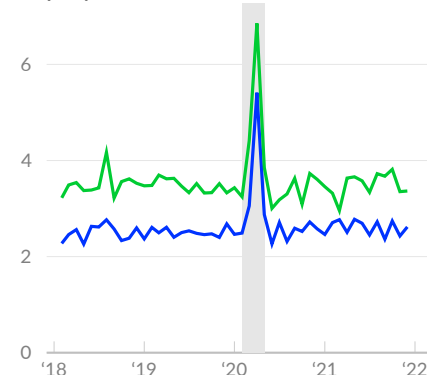
### Gross Flows

share of initial labor force status, percent

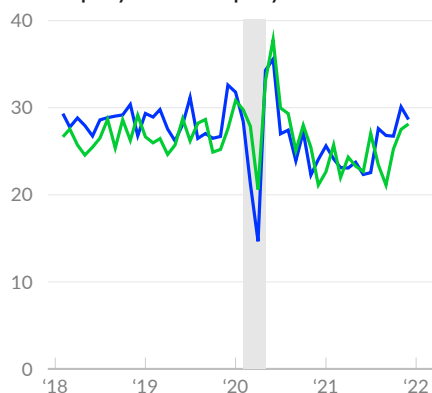
Employed to Unemployed



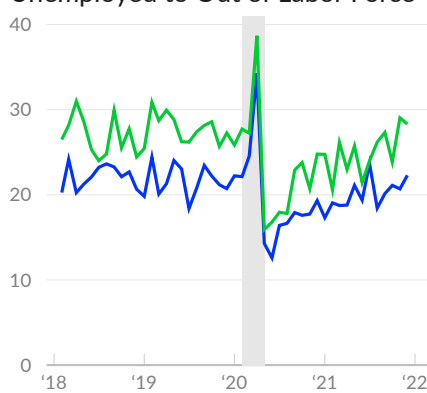
Employed to Out of Labor Force



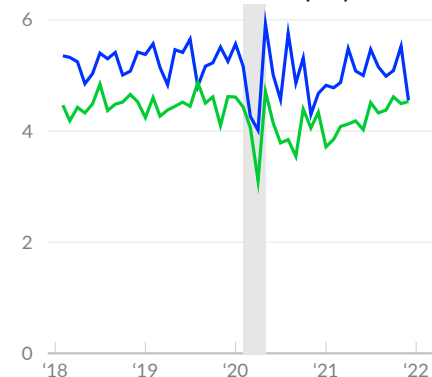
Unemployed to Employed



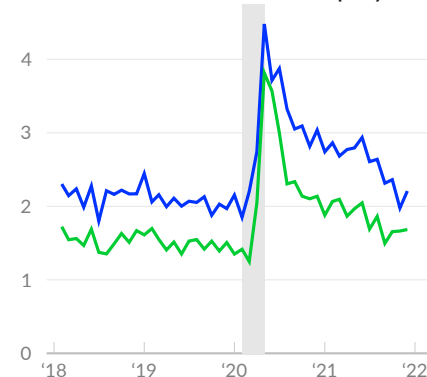
Unemployed to Out of Labor Force



Out of Labor Force to Employed



Out of Labor Force to Unemployed



Source: Bureau of Labor Statistics



## Labor Share of Income

compensation of employees as share of net domestic income, percent



Source: Bureau of Economic Analysis

The labor share (see —) measures the portion of net income paid to labor. While the laborer share of the population has fallen, cyclical patterns suggest worker bargaining power also affects labor's share.

As of the third quarter of 2021, labor receives 64.0 percent of net domestic income. Labor's share decreased 2.7 percentage points over the past year. The labor share is 2.7 percentage points above its 30-year low of 61.3 percent in 2014 Q3, and 4.7 percentage points below the 30-year high of 68.7 percent in 2020 Q2.

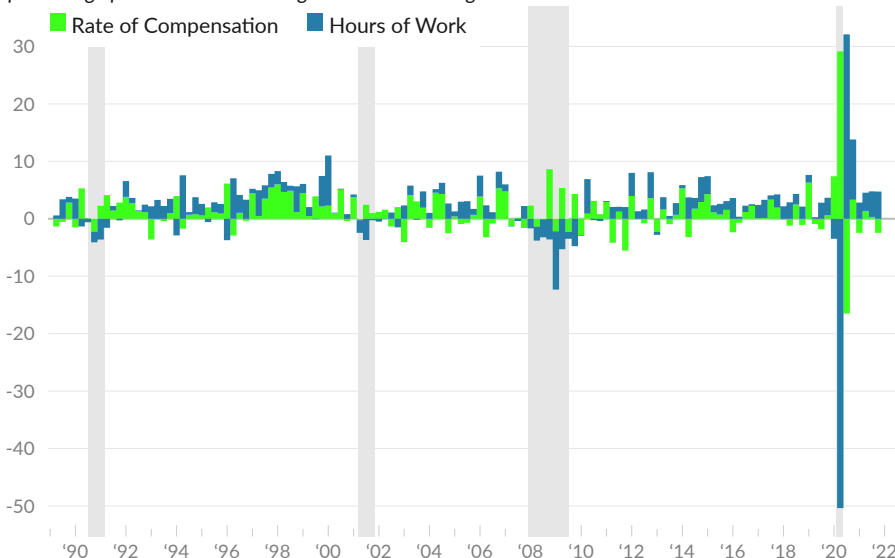
## Gross Labor Income

Wages (the unit price of labor) tend not to be cut in response to a short-term decrease in demand; businesses typically instead employ fewer workers and/or cut hours. As a result, wage data give only a partial picture of the labor income received by households.

**Gross labor income** (compensation of employees in the national accounts), which captures both the amount of employment (see ■) and the rate of compensation (see ■), increased at an annualized and inflation-adjusted rate of 2.29 percent in 2021 Q4. Changes in wages subtracted 2.45 percentage points, and changes in total hours worked contributed 4.74 percentage points.

## Gross Labor Income Growth

percentage point contribution to gross labor income growth



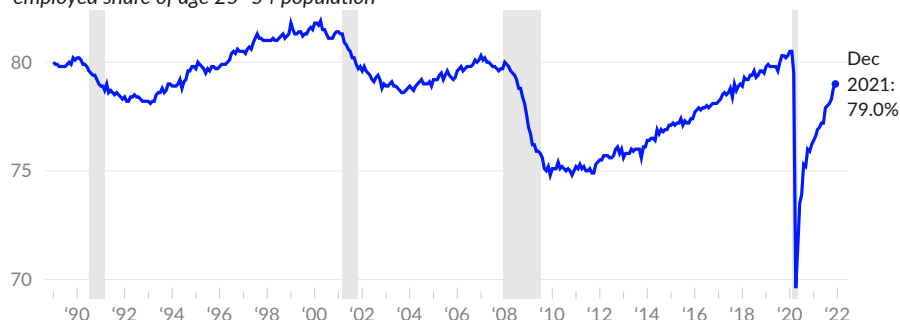
Source: Author's Calculations

## Employment

In December 2021, 79.0 percent of 25-54 years olds were employed, compared to 78.8 percent in November 2021. Over the past year, the age 25-54 employment rate increased 2.8 percentage points. The December 2021 rate was 2.4 percentage points (equivalent to 3.1 million workers) below the average rate of 81.4 during the tight labor market of 1999–2000.

### Age 25–54 Employment Rate

*employed share of age 25–54 population*



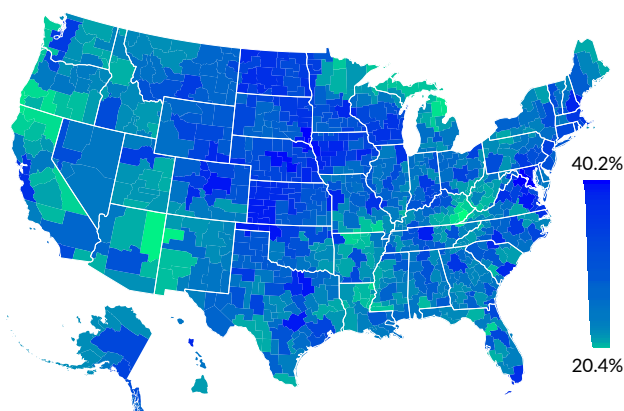
Source: Bureau of Labor Statistics

The monthly jobs report describes employment at a given point in time, by asking about activities during a specific week of the previous month. To instead examine activities over a period of time, annual data on weeks worked per year and hours worked per week can be combined to identify the *fully-employed*, or *full-time, full-year workers*, who usually work 35 hours per week or more for 50 weeks per year or more. The Census Bureau [report](#) 105.5 million fully-employed people in 2020, equivalent to 32.3 percent of the US population, compared to 119.2 million (36.6 percent) in 2019.

Employment rates vary dramatically by location. In 2020, 33.6 percent of commuter zones have at least a third of their population working full-time and full-year. A total of 30 commuter zones (out of 741), covering 3.4 million people, have a quarter of the population or less fully employed. The top ten and bottom ten commuter zones by fully-employed rate are listed below.

### Commuter Zone Fully-Employed Rate

*full-time, full-year worker share of population, 2020*



Top 10:

|       |                        |
|-------|------------------------|
| 40.2% | Washington, DC         |
| 40.1% | Sioux Falls, SD        |
| 39.1% | Sioux City, IA         |
| 38.6% | Dallas, TX             |
| 38.5% | Denver, CO             |
| 38.3% | Richmond, VA           |
| 38.3% | Austin, TX             |
| 37.9% | Nashville-Davidson, TN |
| 37.5% | Fredericksburg, VA     |
| 37.5% | Kansas City, MO        |

Bottom 10:

|       |                    |
|-------|--------------------|
| 21.4% | Gallup, NM         |
| 22.9% | Corbin, KY         |
| 23.0% | Altamont, OR       |
| 23.1% | Roseburg, OR       |
| 23.9% | Ocala, FL          |
| 24.0% | Eureka, CA         |
| 24.3% | Pikeville, KY      |
| 24.4% | Port Angeles, WA   |
| 24.4% | Mount Pleasant, MI |
| 24.8% | McComb, MS         |

Source: American Community Survey, Dorn, Author's Calculations

## Employment Rates of Largest Commuter Zones, 2020

|                   | <i>all ages</i>       |          | <i>age 25–54</i>      |          |
|-------------------|-----------------------|----------|-----------------------|----------|
|                   | full-time & full-year | employed | full-time & full-year | employed |
| Los Angeles, CA   | 32.2                  | 58.8     | 55.7                  | 88.3     |
| New York, NY      | 33.4                  | 59.4     | 57.8                  | 89.5     |
| Chicago, IL       | 36.3                  | 61.4     | 63.2                  | 91.2     |
| Houston, TX       | 34.9                  | 59.2     | 60.1                  | 89.1     |
| Newark, NJ        | 35.3                  | 61.1     | 61.3                  | 90.8     |
| Philadelphia, PA  | 34.0                  | 61.0     | 60.7                  | 91.4     |
| Washington, DC    | 40.2                  | 64.0     | 67.9                  | 93.1     |
| Boston, MA        | 35.9                  | 64.7     | 62.3                  | 92.6     |
| Atlanta, GA       | 36.0                  | 60.9     | 62.6                  | 90.5     |
| San Francisco, CA | 36.2                  | 63.3     | 62.1                  | 92.6     |
| Detroit, MI       | 30.8                  | 59.6     | 55.6                  | 90.0     |
| Phoenix, AZ       | 33.8                  | 58.3     | 60.9                  | 89.7     |
| Dallas, TX        | 38.6                  | 62.1     | 65.9                  | 91.6     |
| Seattle, WA       | 35.6                  | 63.7     | 60.4                  | 92.7     |
| Miami, FL         | 36.6                  | 60.3     | 61.9                  | 90.6     |

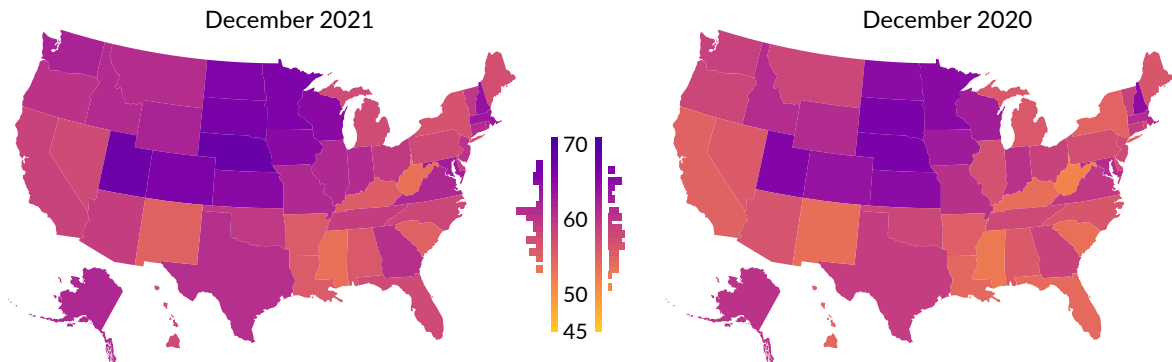
Source: American Community Survey, Dorn, Author's Calculations

The share of the age 16 and older population that is employed in any amount at a point in time varies by state and over time. In December 2021, 25 states had an employment rate above 60 percent, compared to 44 in April 2020. In December 2020, 33 states had an employment rate below 60 percent and three states had an unemployment rate above 65 percent. In December 2021, seven states have an employment rate above 65 percent.

The states with the highest employment rates in December 2021 are Nebraska (67.6%), Utah (67.3%), and District of Columbia (66.6%). The states with the lowest employment rates are West Virginia (53.0%), Mississippi (53.2%), and New Mexico (54.7%).

## Employment Rate by State

*employed share of population, percent*



Source: Bureau of Labor Statistics

The employed share of those ages 25 to 54 is an important measure of labor market utilization. When a local labor market is tight and wages are able to adjust to increase participation, this age group will be employed at a very high rate, barring any local labor supply constraints, for example availability or cost of child care or high rates of disability.

### Age 25–54 Employment Rate by State

*employed share of age 25–54 population, percent*



Source: Author's Calculations from CPS

### Employment Rate by State

*employed share of age 25–54 population, percent, not seasonally adjusted*



Source: Author's Calculations from CPS



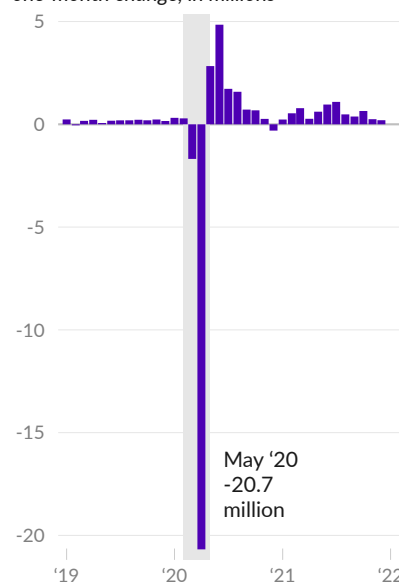
## Payroll Employment

The [establishment survey](#) from the monthly jobs report asks nonfarm businesses about their payrolls. In December 2021, there were a seasonally adjusted total of 149.0 million such nonfarm payroll jobs.

The establishment survey is particularly useful for identifying how many jobs were added or lost in each industry each month. The US added 199,000 total payroll jobs in December 2021 (see ■), compared to 249,000 added in November 2021, and an average of 365,000 added over the past three months. US payrolls shed a combined 22.4 million jobs in March and April 2020, and have since recovered 18.8 million jobs (84.0 percent).

To maintain a steady employment rate with population growth, the US needs to add around 150,000 jobs per month. In 2019, the US was adding an average of 168,000 jobs per month.

**Total Nonfarm Payroll Growth**  
one-month change, in millions



Source: Bureau of Labor Statistics



## Nonfarm Payrolls by Industry Group

|                               | seasonally adjusted, thousands |          | monthly change |          |          |          | combined |                 |
|-------------------------------|--------------------------------|----------|----------------|----------|----------|----------|----------|-----------------|
|                               | Dec 2021                       | Dec 2019 | Dec 2021       | Nov 2021 | Oct 2021 | 2019 Avg | May '20- | Mar and Apr '20 |
| <b>Total</b>                  | 148,951                        | 151,919  | 199            | 249      | 648      | 168      | 18,790   | -22,362         |
| Education & Health Services   | 23,804                         | 24,433   | 10             | 14       | 71       | 48       | 2,082    | -2,843          |
| Government                    | 21,908                         | 22,729   | -12            | -21      | -66      | 18       | 82       | -1,009          |
| Professional & Business Serv. | 21,434                         | 21,410   | 43             | 72       | 130      | 24       | 2,352    | -2,387          |
| Leisure & Hospitality         | 15,693                         | 16,811   | 53             | 41       | 211      | 33       | 7,002    | -8,224          |
| Retail Trade                  | 15,452                         | 15,619   | -2             | -13      | 51       | -7       | 2,216    | -2,374          |
| Manufacturing                 | 12,580                         | 12,809   | 26             | 35       | 52       | 1        | 1,166    | -1,385          |
| Financial Activities          | 8,919                          | 8,832    | 8              | 17       | 28       | 14       | 323      | -279            |
| Construction                  | 7,560                          | 7,557    | 22             | 35       | 44       | 12       | 1,025    | -1,113          |
| Transportation & Warehousing  | 6,041                          | 5,761    | 19             | 42       | 57       | 19       | 793      | -575            |
| Wholesale Trade               | 5,766                          | 5,899    | 14             | 11       | 14       | 2        | 280      | -409            |
| Information                   | 2,795                          | 2,897    | 0              | 1        | 12       | 3        | 162      | -281            |
| Mining & Logging              | 656                            | 694      | 6              | 2        | 4        | -4       | 34       | -68             |
| Utilities                     | 536                            | 549      | -0             | -0       | 0        | -0       | -7       | -4              |

Source: Bureau of Labor Statistics



Employment rates vary over time, but also by age, gender, and education. Over the three months ending December 2021, the employment rate for most age and education subgroups is lower than it was before the pandemic (the three months ending December 2019).

**Employment Rates** ■ December 2021 ■ December 2019  
employed share of age group, percent



Source: Author's Calculations from CPS



## Changes in Employment by Occupation

The COVID-19 pandemic changed the occupational composition of the US workforce. Business closures reduced the share of the US population that is employed in personal care and related services, administrative support, and sales. Many workers trained in these occupations lost or changed jobs and, additionally, some full-time workers became part-time. While employment increased in some occupations, such as healthcare support, the share of people employed full-time decreased in most occupational groups during the past three months, which end December 2021, compared to the same three months prior to the pandemic (ending December 2019).

### Change in Occupational Employment, December 2021

*change in share of population employed, latest three months vs pre-pandemic, percentage points*



Source: Author's Calculation from CPS



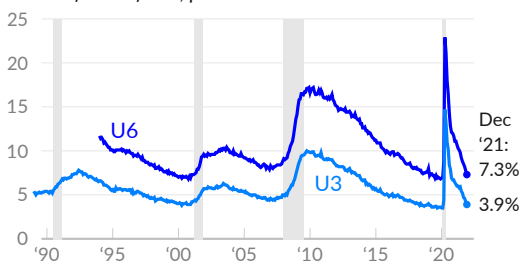
## Unemployment

The headline unemployment rate, also known as the U3 unemployment rate, measures people who do not have a job but are looking for one or are on temporary layoff, as a share of the labor force (those employed and unemployed). BLS [reports](#) 6.3 million unemployed persons in December 2021, and an unemployment rate of 3.9 percent (see [—](#)), slightly below the November 2021 rate of 4.2 percent, and substantially below the December 2020 rate of 6.7 percent.

BLS also [report](#) a broader measure of unemployment, known as U6 or labor under-utilization. Labor under-utilization includes unemployed people counted in U3 as well as people who have given up looking for work and people who are part-time but would like to work full-time. In December 2021, the labor under-utilization rate is 7.3 percent (see [—](#)).

### Unemployment Measures

share of labor force, percent

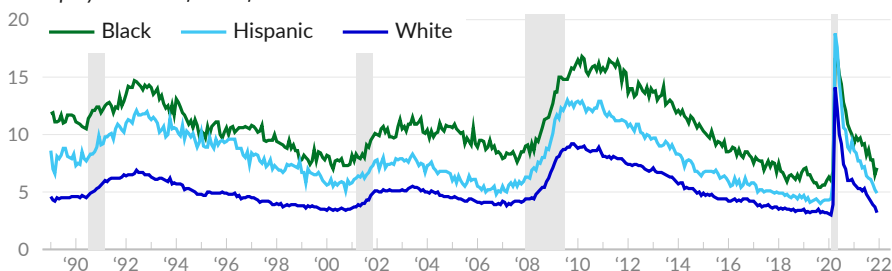


Source: BLS

Unemployment is much more common for disadvantaged groups, with the black or African American unemployment rate typically double the white unemployment rate. A very tight labor market may have the effect of reducing racial discrimination in hiring. However, disadvantaged groups are more likely to lose jobs in a downturn. As a result, the full-employment portion of the business cycle is quite short for many people. Since February 2020, the black unemployment rate has increased by 1.1 percentage points to 7.1 percent (see [—](#)).

### Unemployment Rate

unemployed share of labor force



Source: Bureau of Labor Statistics

### Unemployment Measures

seasonally adjusted, percent

|                             | Dec '21 | Nov '21 | Oct '21 | Sep '21 | Aug '21 | Jul '21 | GFC peak | Date    |
|-----------------------------|---------|---------|---------|---------|---------|---------|----------|---------|
| Under-utilization Rate (U6) | 7.3     | 7.7     | 8.2     | 8.5     | 8.8     | 9.2     | 17.2     | Dec '09 |
| Unemployment Rate (U3)      | 3.9     | 4.2     | 4.6     | 4.7     | 5.2     | 5.4     | 10.0     | Oct '09 |
| by race/ethnicity:          |         |         |         |         |         |         |          |         |
| White                       | 3.2     | 3.7     | 3.9     | 4.2     | 4.5     | 4.8     | 9.2      | Oct '09 |
| Black                       | 7.1     | 6.5     | 7.8     | 7.8     | 8.7     | 8.2     | 16.8     | Mar '10 |
| Hispanic                    | 4.9     | 5.2     | 5.7     | 6.1     | 6.2     | 6.4     | 13.0     | Aug '09 |
| Asian                       | 3.8     | 3.9     | 4.2     | 4.2     | 4.5     | 5.2     | 8.4      | Dec '09 |

Source: Bureau of Labor Statistics

Current Population Survey microdata are used to calculate unemployment by race and ethnicity over the latest six months, on average, and for the same six months before the COVID-19 pandemic. The groups used to produce these estimates separate those with a non-Hispanic ethnicity by race: white alone, black alone, Asian or Hawaiian/Pacific Islander alone, Native American/American Indian or Alaskan Native alone, or more than one race, from those with a Hispanic ethnicity and any race.



## Unemployment Rate



## Unemployment Rate, Continued



Source: Author's calculations from CPS



## Reasons for unemployment

There are multiple reasons for unemployment. Some unemployed lost a job, others left a job voluntarily. Some of those looking for a job had previously left the labor force, for example to take care of a child. Lastly, some unemployed are looking for their first job.

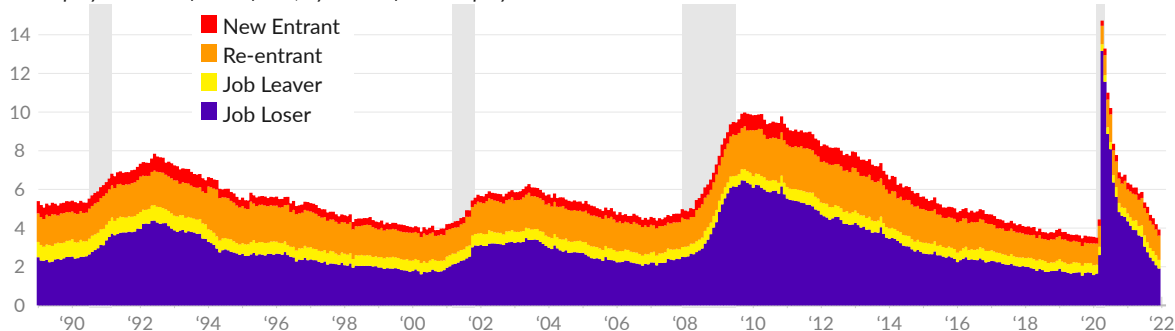
The composition of the unemployed is affected by economic conditions. During the trough of a business cycle, most unemployed are those who lost a job, for example from layoffs, or had a temporary job end (see ■). During and after an economic downturn, it takes young people longer to find their first job. As a result, a higher portion of unemployed are new-entrants (see ■) during the trough of a business cycle.

In contrast during the peak of the business cycle, a much larger share of the unemployed are re-entrants to the labor market, meaning they had previously stopped looking for work but are looking for a job again (see ■). Lastly, good economic conditions can give individuals the confidence to leave jobs they do not enjoy and look for a new job. The share of unemployed who left a job voluntarily (see ■) is highest during the peak of the business cycle.

In December 2021, 1.9 percent of the labor force were unemployed because of losing a job or having a temporary job end. Of these, 0.5 percent of the labor force are unemployed due to temporary layoff, equivalent to 12.9 percent of the unemployed. Additionally, 0.4 percent of the labor force were re-entrants, 1.3 percent were new entrants, and 0.3 percent were job leavers.

### Unemployment by Reason

unemployed share of labor force, by reason for unemployment



Source: Bureau of Labor Statistics



### Unemployment Reasons and Employed Not at Work

share of labor force, percent

|                        | Dec '21 | Nov '21 | Oct '21 | Sep '21 | Aug '21 | Dec '20 | Nov '20 | Oct '20 | Sep '20 | Aug '20 |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Unemployed, Any Reason | 3.9     | 4.2     | 4.6     | 4.7     | 5.2     | 6.7     | 6.7     | 6.9     | 7.9     | 8.4     |
| Job Loser              | 1.9     | 2.1     | 2.3     | 2.5     | 2.7     | 4.6     | 4.6     | 4.8     | 5.6     | 6.4     |
| Temporary Layoff       | 0.5     | 0.5     | 0.6     | 0.7     | 0.7     | 1.9     | 1.7     | 2.0     | 2.9     | 3.8     |
| Permanent Separation   | 1.0     | 1.2     | 1.3     | 1.4     | 1.6     | 2.2     | 2.3     | 2.3     | 2.3     | 2.1     |
| Re-entrant             | 1.3     | 1.3     | 1.4     | 1.4     | 1.5     | 1.4     | 1.2     | 1.3     | 1.3     | 1.3     |
| New entrant            | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.4     | 0.3     | 0.3     | 0.3     |
| Job Leaver             | 0.4     | 0.5     | 0.5     | 0.5     | 0.5     | 0.5     | 0.4     | 0.5     | 0.5     | 0.4     |

See also:

|                       |     |     |     |     |     |     |     |     |     |     |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Employed, Not at Work | 3.0 | 2.9 | 3.2 | 3.1 | 5.3 | 3.5 | 3.1 | 3.0 | 3.3 | 4.8 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Source: Bureau of Labor Statistics; Author



## Duration of unemployment

US unemployment benefits are available for a relatively short duration, compared with other advanced countries. Therefore, the long-term unemployed risk running out of unemployment benefits, causing a sharp reduction in income. Additionally, long periods of unemployment can make re-entering the labor market more challenging.

As of December 2021, BLS [reports](#) that 0.73 percent of the age 16+ population have been unemployed for 27 weeks or longer, compared to 1.48 percent in December 2020 (see [—](#)). This measure of long-term unemployment peaked at 2.96 percent of the population in April 2010, but had fallen to 0.36 percent in April 2020.

In December 2021, 1.00 percent of the age 16+ population have been unemployed for at least 15 weeks (see [—](#)), following 1.12 percent in November 2021, and 1.24 percent in October 2021.

### Long-term Unemployed

unemployed 27+ weeks, share of population



Source: Bureau of Labor Statistics

### Long-term Unemployed

unemployed 15+ weeks, share of population

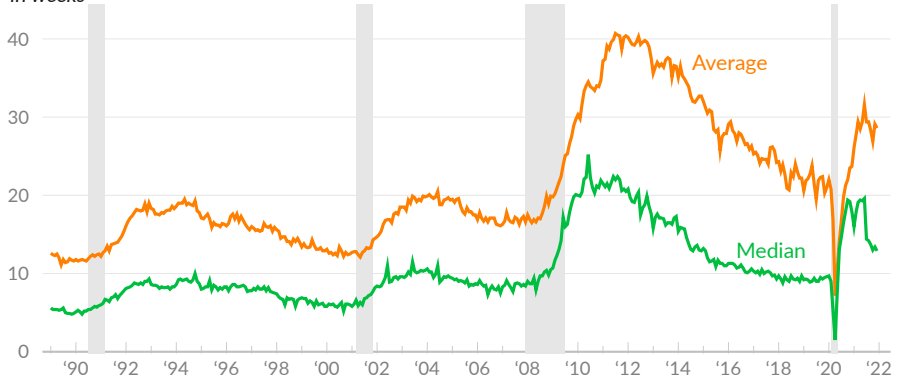


Source: Bureau of Labor Statistics

Among those who are unemployed, the average (mean) duration of unemployment is 28.6 weeks (see [—](#)), and the typical (median) duration of unemployment is 12.9 weeks (see [—](#)), as of December 2021. Over the year prior to COVID-19, ending February 2020, the average duration of unemployment was 21.7 weeks and the typical duration was 9.3 weeks.

### Duration of Unemployment

in weeks



Source: Bureau of Labor Statistics



## Unemployment by metro area

The Bureau of Labor Statistics [produce](#) local area estimates of unemployment, including the **unemployment rate for metro areas**. BLS report the share of the local area labor force that is unemployed in the largest 300 or so metropolitan areas. The following map captures recent changes by displaying the difference between the average unemployment rate over the past three months and the previous three months. A positive change indicates that the unemployment rate increased.

### Change in Unemployment Rate by Metro Area

*most recent three months change from previous three months  
in percentage points, latest three months end November 2021*



Source: Bureau of Labor Statistics

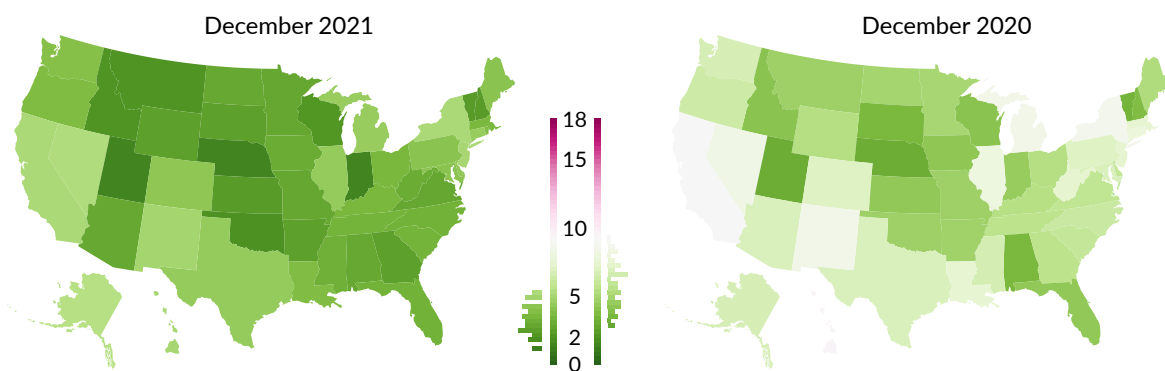
## Unemployment by state

The Bureau of Labor Statistics [report](#) the state unemployment rate—unemployed people as a share of the state labor force—each month, around two weeks after reporting the national unemployment rate. In December 2021, no states had an unemployment rate above ten percent, compared to 41 states in April 2020. In December 2020, no states had an unemployment rate above ten percent and only 33 states had an unemployment rate above five percent. In December 2021, three states have an unemployment rate above five percent.

The states with the highest unemployment rates in December 2021 are Alaska (5.4%), Nevada (5.2%), and District of Columbia (5.1%). The states with the lowest unemployment rates are Utah (1.3%), Nebraska (1.3%), and Indiana (1.3%).

## Unemployment Rate by State

*unemployed share of labor force, percent*



Source: Bureau of Labor Statistics

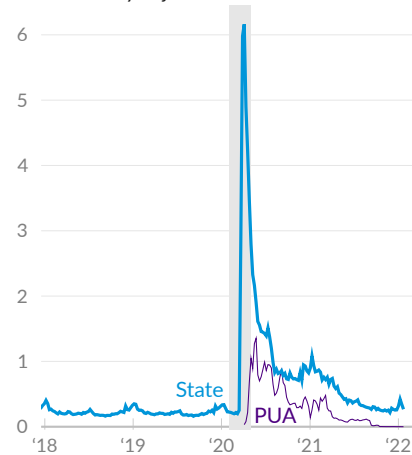
## Jobless Claims

The Department of Labor [report](#) 267,573 actual new claims for unemployment insurance (UI) under state programs (see —) during the week ending January 22, 2022, a one-week decrease of 73,400. Over the past four weeks, new claims have averaged 336,300 per week. During the same four-week period last year, there were an average of 939,800 new claims per week.

For the week ending January 15, 2022, the Department of Labor [reports](#) 2,004,640 continued claims for unemployment insurance (insured unemployed) under state programs (see —), a one-week decrease of 60,300. One year prior, during the week of January 16, 2021, there were an average of 5,218,500 insured unemployed.

### New UI Claims

*initial claims per week, in millions,  
not seasonally adjusted*

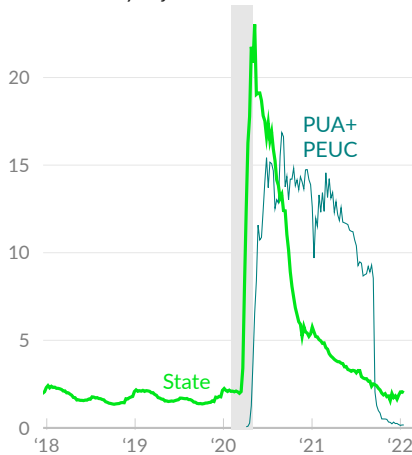


Source: Department of Labor



### Continued UI Claims

*insured unemployed, in millions,  
not seasonally adjusted*



Source: Department of Labor



In response to the COVID-19 pandemic, traditional state-run unemployment insurance was temporarily boosted by federal programs that expanded eligibility for benefits and increased the amount of benefit payments. These programs were ended on September 6, 2020, reducing the income of millions of families.

## Labor Force Participation

Those who are either employed or unemployed are considered to be in the labor force. Over the long term, the share of the US population that is in the labor force, called the labor force participation rate, has been falling because of the aging of the population (because labor force participation rates are lower among the elderly and an increasing share of the overall population are elderly). However, participation in the labor force is also cyclical and affected by economic conditions. For example, during a downturn people become discouraged by their labor force prospects and stop looking for work, removing them from the labor force.

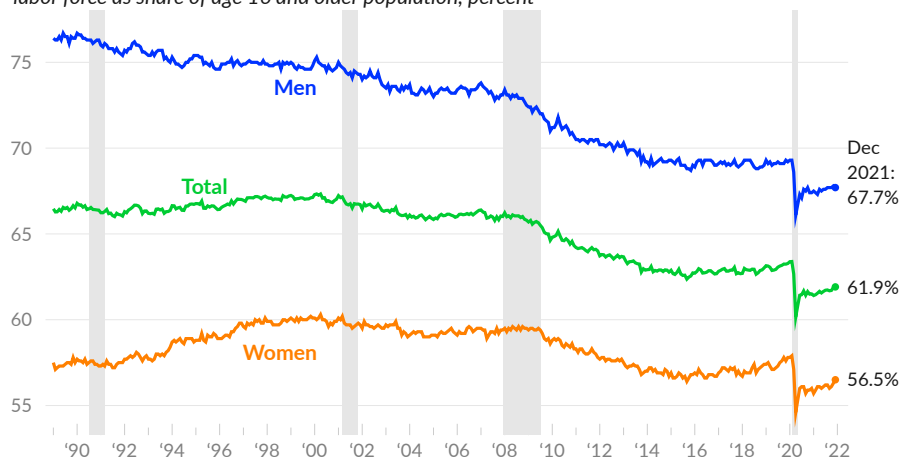
Age is not the only demographic factor affecting labor force participation. The US population has become much more educated over the past 30 years, putting upward pressure on labor force participation, as participation rates tend to increase with education. Additionally, women were participating in the labor force at increasing rate in the US until the 2000s while men were not.

In the latest data, covering December 2021, 61.9 percent of people age 16 and older are in the labor force (see —), compared to 61.9 percent in November and 61.7 percent in October. In February 2020, when US confirmed cases of COVID-19 were still low, this labor force participation rate was 63.4 percent.

In December 2021, 67.7 percent of men age 16+ are in the labor force (see —), compared to 56.5 percent of women (see —). Since February 2020, labor force participation has decreased 1.6 percentage points among men, and decreased 1.3 percentage points among women.

### Labor Force Participation Rate

*labor force as share of age 16 and older population, percent*



Source: Bureau of Labor Statistics

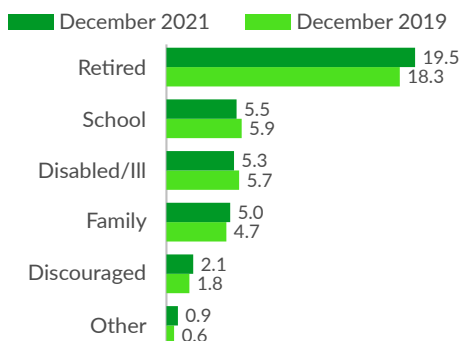


## Reasons for labor force non-participation

The Current Population Survey (CPS) asks those who are not employed or looking for work about their major activities and reasons for not participating in the labor market. [Answers](#) vary by age in intuitive ways, and are influenced by labor market conditions.

### Labor Force Non-Participation

share of age 15+ population, percent



Source: Author's calculations from CPS

These labor force non-participants, which do not include those under the age of 16, total 100.4 million in December 2021, or 38.3 percent of the age 16 or older population, compared to 37.0 percent in December 2019. Slightly less than half of non-participants, and 19.5 percent of population, are retirees in December 2021 (see ■). A total of 14.0 million people, or 5.3 percent of the age 15 or older population, are out of the labor force due to disability or illness; 5.5 percent were out of the labor force for school, and 5.0 percent for family or caregiving reasons.

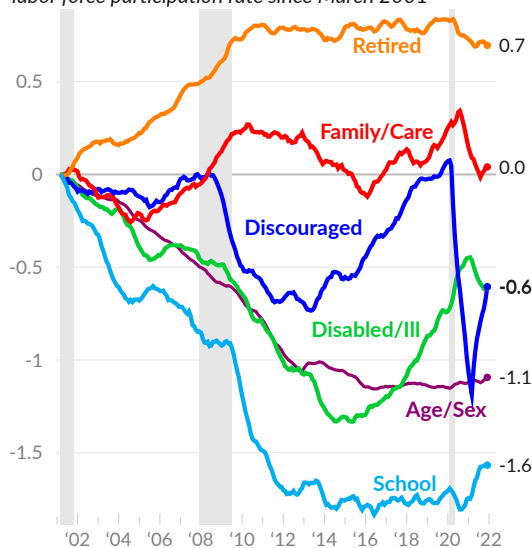
While the recession of 2001 appears mild in measures of expenditure, it was followed by a substantial reduction in the share of the population receiving labor income. The economy was losing jobs at an alarming rate long after the 2001 recession had officially ended, though labor market weakness was [partially masked](#) by a major housing bubble. Seven years after the recession of 2001, the housing bubble collapsed, causing the great recession, which pushed many more people out of the labor force.

From March 2001 to the latest available twelve months of data, ending December 2021, an additional 3.4 percent of the age 18–64 population left the labor force. Changes in the demographic composition of the population affect the rate of participation. For example, the larger-than-normal population cohort born after World War II is reaching retirement age in this period. Changes in the age and sex distribution within the age group explain 1.1 percentage points of the cumulative decrease in participation since March 2001 (see —).

Additionally, young people are staying in school longer, on average, reducing the age 18–64 labor force by 1.6 percent (see —). Disability and illness reduce the labor force by another 0.6 percent (see —). Less retirement among those age 18–64 increases the labor force by 0.7 percent, over the period (see —).

### Contribution to Labor Force Participation

cumulative percentage point contribution to age 18–64 labor force participation rate since March 2001



Source: Author's Calculations from CPS

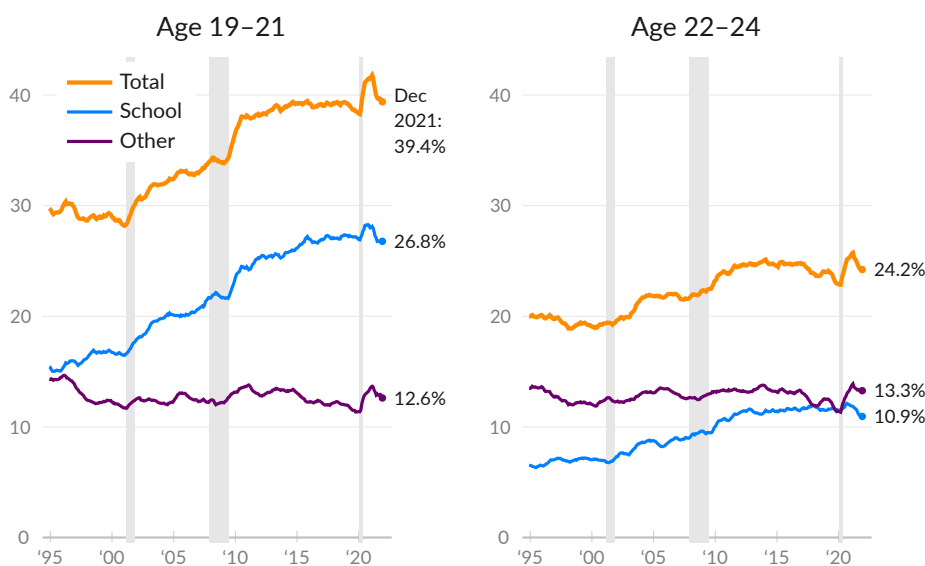
Series in the chart are adjusted so that the distribution of the age 18–64 population by age and sex is constant and equal to its March 2001 value. The total effect of this adjustment on labor force participation is included separately in the chart, as [Age/Sex](#).

Young people's participation in the labor market, by working or looking for work, is affected by trends in educational attainment and by economic conditions. From 1994 to 2000, labor force participation among young people increased slightly. Following the recession of 2001, and carrying through the great recession, participation rates dropped sharply. From 2000 to 2014, annual labor force non-participation increased from 28.2 percent to 39.3 percent for 19 to 21 year olds and from 19.3 percent to 24.6 percent for 22 to 24 year olds. The increase is nearly entirely accounted for by increased college enrollment.

By February 2020, the labor market had improved and the annual non-participation rate was 38.3 percent for 19 to 21 year olds and 22.9 percent for 22 to 24 year olds. In the latest data, covering the 12 months ending December 2021, the rate of non-participation is 39.4 percent for 19 to 21 year olds and 24.2 percent for 22 to 24 year olds.

### Reason for Labor Force Non-participation, by Age

share of age group population, percent, 12-month moving average



Source: Author's Calculations from CPS



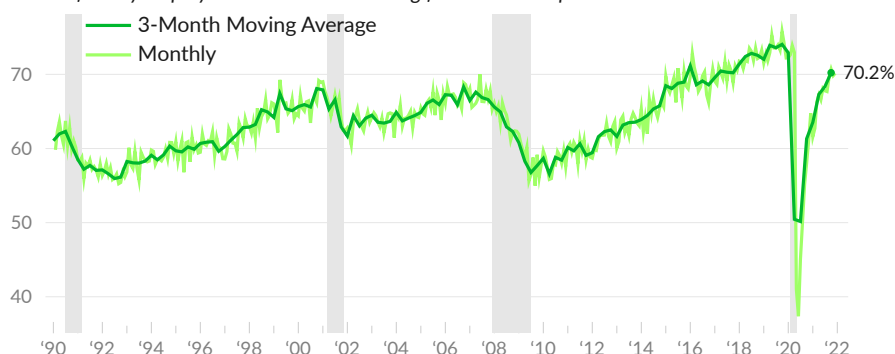
## Labor Force Flows

The current population survey interviews households up to eight times over 16 months, allowing insight into the labor force status of the same individual over time, and in particular, into flows between different employment, unemployment, and other categories. The Bureau of Labor Statistics [publish](#) many monthly indicators based on labor force flows, and others can be calculated directly from the public use data.

Among newly-employed workers, some were looking for work or otherwise considered unemployed the prior month, while others were not in the labor force. In December 2021, 6.5 million people were newly employed (on a gross basis). Of these, 70.1 percent were not looking for work in the prior month (see [—](#)). Over the past three months, an average of 70.2 percent of the newly employed were not looking for work the month prior (see [—](#)). When unemployment is low, the newly employed are more likely to come from outside of the labor force. Three years ago, in December 2018, 73.3 percent of the newly employed had not looked for work the previous month.

### Newly Employed, Not Previously Looking For Work

*share of newly employed that were not looking for work in the prior month*



Source: Bureau of Labor Statistics

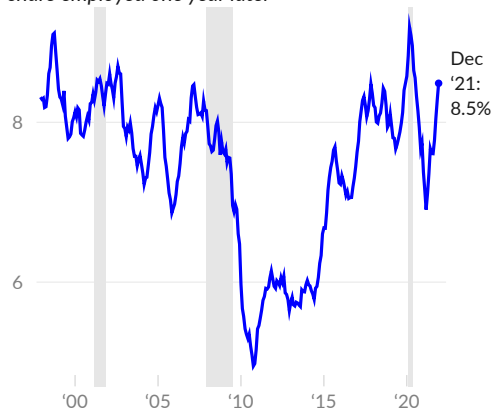


The great recession worsened job-finding prospects for those not in the labor force (NILF) due to disability or illness. As a result, the flow into employment for people age 25 to 54 who are out of the labor force due to a disability or illness slowed considerably. These prospects first recovered to pre-recession levels around 2017.

Over the year ending December 2021, 8.5 percent of people age 25–54 who were out of the labor force due to disability or illness in the prior year are now employed (see [—](#)). This one-year rate of job-finding has increased substantially from its 2010–2013 average of 5.8 percent.

### Flow, Disability to Work

*NILF disability/illness, age 25 to 54, share employed one year later*



Source: Author's Calculations from CPS



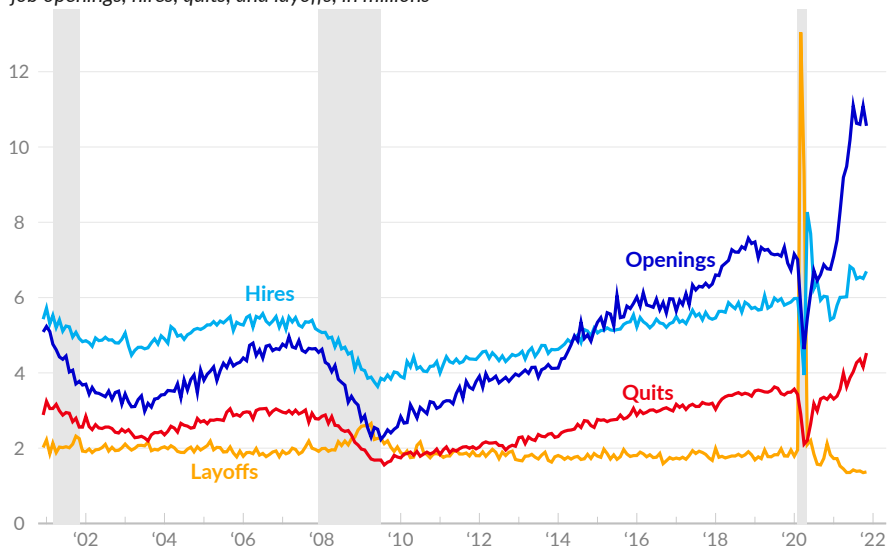
## Job Openings and Labor Turnover Survey

Some types of **turnover** in the labor market are healthy and mean people are better able find a new job if they do not like the one they have. Additionally, the job prospects outside of a firm affect the bargaining power of the workers inside of the firm. The Bureau of Labor Statistics [report](#) the number of job openings, hires, and separations in several industry groups on a monthly basis. Separations include layoffs, voluntarily leaving a job (*quits*), and other separations such as retirements, transfers to other locations, or separations due to death or disability.

In November 2021, there were 10.6 million total nonfarm job openings (see —) and 6.7 million hires completed (see —). In the same month, there were 6.3 million nonfarm separations, including 1.4 million layoffs (see —), 4.5 million quits (see —), and 377,000 other separations. In 2019, there were an average of 5.8 million hires completed and 5.7 million total separations, per month.

### Job Turnover

*job openings, hires, quits, and layoffs, in millions*

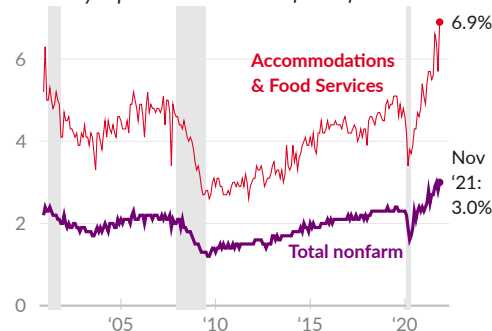


Source: Bureau of Labor Statistics

The number of people who voluntarily separate (quit) a job in a given month, divided by the total number employed is the *quits rate*. The rate typically increases when workers are confident enough to leave one job for another one, and a high quits rate, particularly in low-paying industries, can be a sign of a tight labor market.

### Quits Rate

*voluntary separations as share of workforce*



Source: Bureau of Labor Statistics

The quits rate is cyclical within the accommodations and food services industries (which includes restaurants), and tends to rise when a tight labor market pulls people out of restaurant jobs and into higher paying jobs in other industries.

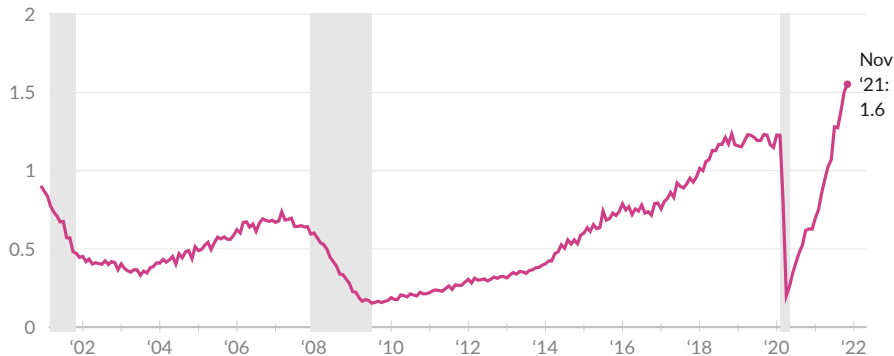
In November 2021, the total quits rate in all industries was 3.0 percent (see —). The accommodations and food services quits rate was 6.9 percent (see —), the series high for the industry group.



In November 2021, there were 6.8 million unemployed people and 10.6 million job openings, therefore the ratio of job openings per unemployed person was 1.6 (see —). In October 2021 the ratio was 1.5, and during 2019 the average ratio was 1.2.

### Job Openings Per Unemployed Person

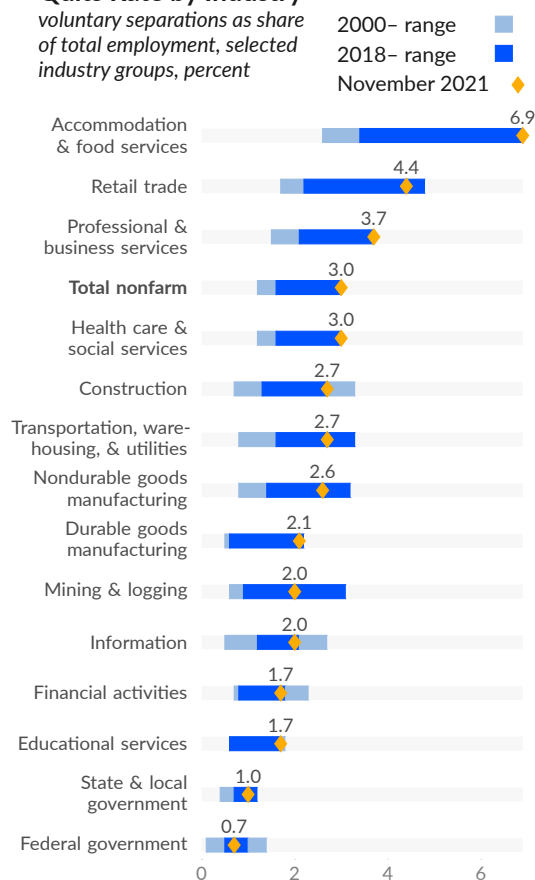
*job openings divided by total unemployment*



Source: Bureau of Labor Statistics

### Quits Rate by Industry

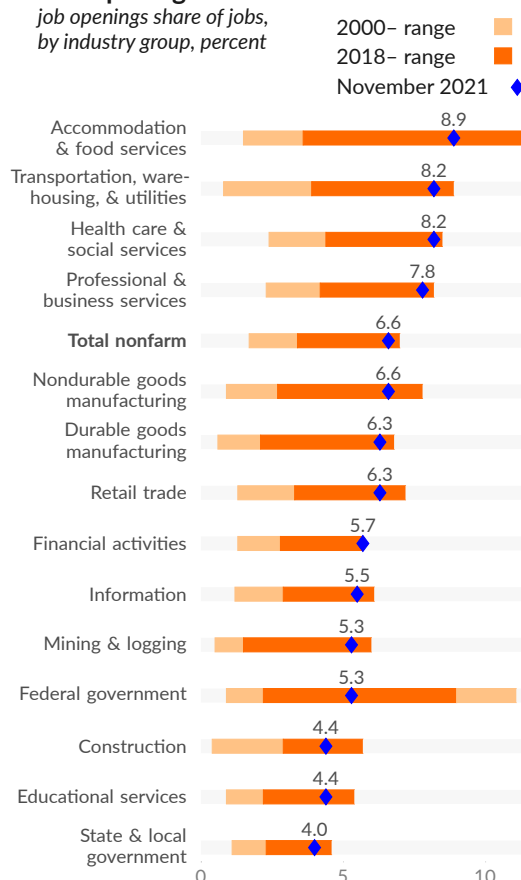
*voluntary separations as share of total employment, selected industry groups, percent*



Source: Bureau of Labor Statistics

### Job Openings Rate

*job openings share of jobs, by industry group, percent*



Source: Bureau of Labor Statistics

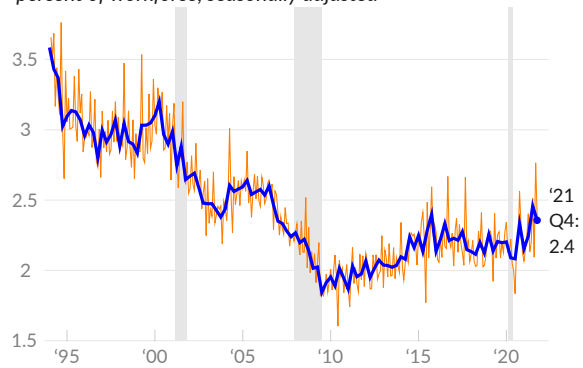
## Job Switching

Job switching is important for getting people into the jobs where they are most productive. Switching to a more productive industry or moving from a less-productive firm to a more-productive firm, both boost labor productivity.

The current population survey asks whether individuals have the same employer as they did the previous month. The rate at which people say they have changed employers had fallen to below two percent after the great recession, from an average of around three percent during the late 1990s.

### New Employer

*percent of workforce, seasonally adjusted*



Source: Author's calculations from CPS



More recent data show a slight increase in job switching rates. In December 2021, 2.3 percent of the workforce had a different employer than the previous month, after seasonal adjustment (see —). Smoothed data show 2.4 percent of the workforce with a new employer during the fourth quarter of 2021 (see —). Prior to COVID-19, in 2019 Q4, 2.2 percent of the workforce switched jobs.

## Hours Worked

The Bureau of Labor Statistics (BLS) report hours worked per week in both Current Employment Statistics (CES) and Labor Force Statistics (LFS).

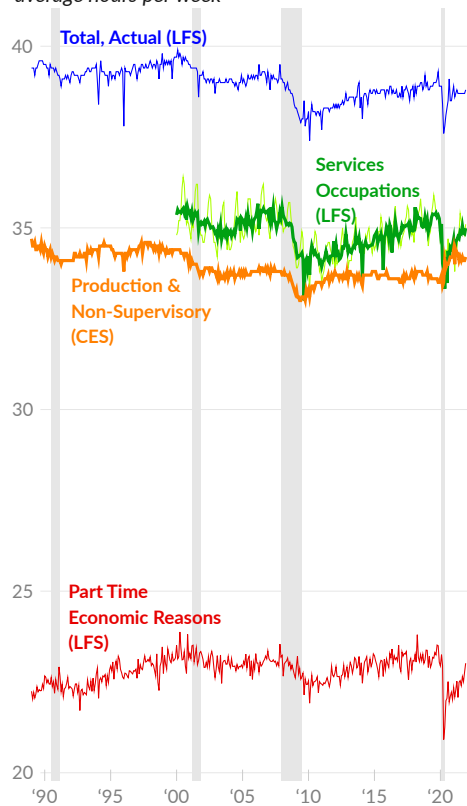
Actual hours worked by people at work in all industries during the survey reference week average 38.8 in December 2021 (see —) in line with the 38.9 average actual hours worked in February 2020. Average actual hours for this group average 39.6 from 1998 through 2000, and fell to a great recession low of 37.4 in February 2010.

Those in service occupations (see —) work fewer hours on average, with 35.0 average weekly hours in December 2021, in line with the 35.1 average in February 2020. Those part-time for economic reasons (see —) work an average of 23.0 hours per week in December 2021.

In December 2021, production and non-supervisory workers (see —), about four of every five employees, worked 34.2 hours per week on average, slightly above the 33.7 average weekly hours in February 2020 and in line with the 1998–2000 average of 34.4 hours.

### Hours Worked

average hours per week



Source: BLS



### Hours Worked, Various Measures

average hours per week, seasonally adjusted

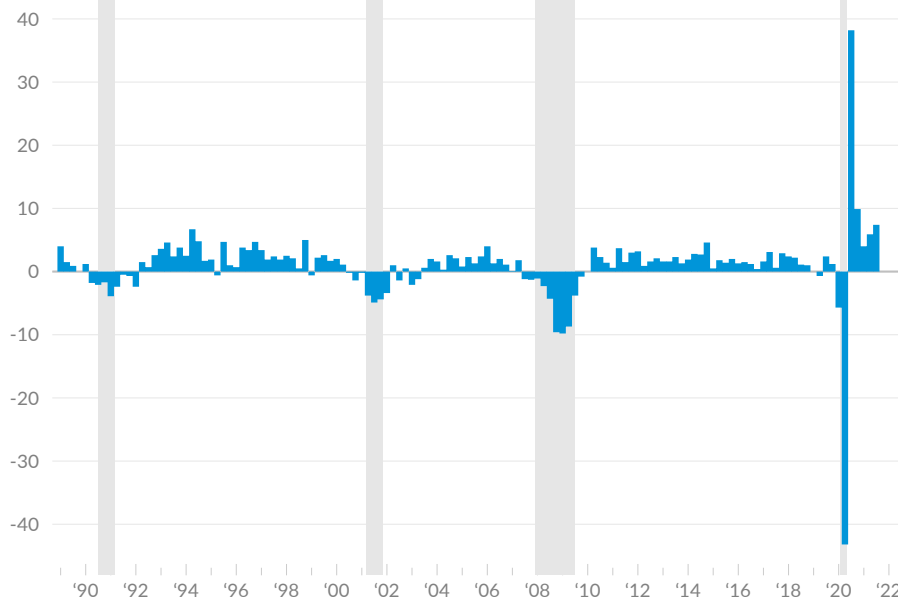
|   | Dec '21 | Nov '21 | Oct '21 | Dec '20 | Nov '20 | Oct '20 | Dec '19 |
|---|---------|---------|---------|---------|---------|---------|---------|
| Total Actual, CES                       | 34.7    | 34.7    | 34.7    | 34.7    | 34.8    | 34.8    | 34.3    |
| Total Actual, LFS (—)                   | 38.8    | 38.7    | 38.7    | 38.7    | 38.5    | 38.5    | 38.9    |
| Total Usual, CPS                        | 38.7    | 38.7    | 38.7    | 38.7    | 38.7    | 38.7    | 38.8    |
| Production & Non-Supervisory, CES (—)   | 34.2    | 34.1    | 34.1    | 34.2    | 34.2    | 34.2    | 33.5    |
| Services Occupations, LFS (—)           | 35.0    | 34.8    | 34.9    | 34.5    | 34.4    | 34.5    | 35.3    |
| Part-time for Economic Reasons, LFS (—) | 23.0    | 22.8    | 22.5    | 22.0    | 22.2    | 22.1    | 23.0    |

Source: Bureau of Labor Statistics; Author

BLS also [report](#) a quarterly index tracking aggregate hours worked in nonfarm businesses (see [■](#)). Total hours worked in nonfarm businesses increased at an annual rate of 7.4 percent in 2021 Q3, following an increase of 5.9 percent in 2021 Q2. From 2017 through 2019, total hours worked increased at an average rate of 1.5 percent. Since 2019, hours worked have decreased by a total of 1.1 percent.

### Aggregate Hours Worked

*nonfarm businesses, quarterly growth at seasonally adjusted annual rate, percent*



Source: Bureau of Labor Statistics



## Part-time Work

Part-time workers who would prefer full-time work are referred to as involuntary part time or part time for economic reasons in the labor force statistics produced by the Bureau of Labor Statistics. This group is comprised of people who don't have enough hours because of slack business conditions or who are unable to find full-time work.

### Part Time, Economic Reasons

*percent of labor force*



Source: Bureau of Labor Statistics

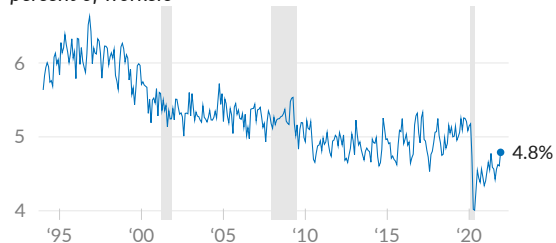
As of December 2021, 3,929,000 people are working part time because of economic reasons, equivalent to 2.4 percent of the labor force (see —), the lowest level since July 2019 and slightly below the February 2020 rate of 2.7 percent. During the great recession, the involuntary part-time share of the labor force peaked at 6.0 percent in September 2010.

## More Than One Job

Multiple jobholding rates have been fairly stable from 2000 to 2019. The household survey used to identify people with more than one job asks about a specific reference week. As a result, the multiple jobholding rate is not intending to capture people who rely on a patchwork of multiple jobs over time, but work at one job in the survey reference week.

### Multiple Jobholders

*percent of workers*



Source: Bureau of Labor Statistics

In December 2021, 7,461,000 people are working more than one job, equivalent to 4.8 percent of workers (see —), the highest level since February 2020 and slightly below the February 2020 rate of 5.2 percent. The multiple jobholder share of workers peaked at 6.6 percent in November 1996.

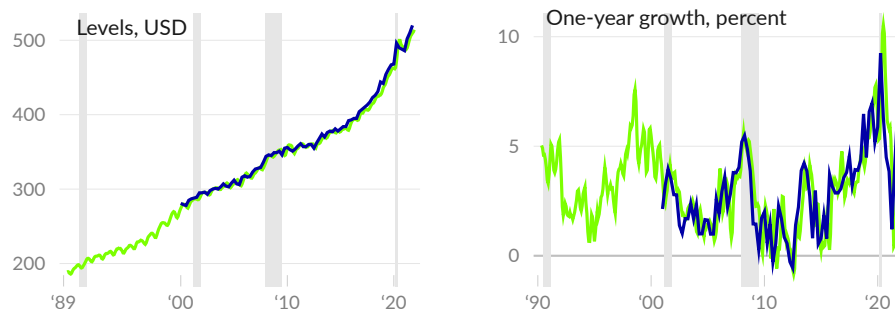
## Wage Growth

The **usual wages of full-time workers** can be measured at various points in the income distribution using the Current Population Survey. BLS report these data by decile and quartile, with the most commonly used measure being the median usual weekly earnings.

BLS [calculations](#) (see —) for 2021 Q4 show nominal first decile usual weekly earnings of \$520.00, compared to \$488.00 in 2020 Q4, resulting in one-year growth of 6.6 percent. In the previous quarter, 2021 Q3, first decile usual weekly earnings grew by 4.1 percent over the year. Author's calculations from the CPS (see —) show three-month moving average first decile usual weekly earnings of \$517.00 in December 2021, \$513.00 in November 2021, and \$491.00 in December 2020. One-year growth was 5.0 percent for the three months ending December 2021, 4.0 percent for the three months ending November 2021, and 3.0 percent for the three months ending October 2021.

### Weekly Earnings, First Decile

full-time, wage and salary earners, age 16+



Source: Bureau of Labor Statistics, Author's Calculations



### Usual Weekly Earnings

full-time, wage and salary earners, age 16+, nominal USD

|                | 2021<br>Q4 | 2021<br>Q3 | 2021<br>Q2 | 2021<br>Q1 | 2020<br>Q4 | 2019<br>Q4 | 2018<br>Q4 | 2017<br>Q4 | 2016<br>Q4 |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| First decile   | 520        | 510        | 502        | 486        | 488        | 467        | 444        | 417        | 404        |
| First quartile | 697        | 683        | 665        | 657        | 654        | 623        | 601        | 580        | 558        |
| Median         | 1010       | 1001       | 990        | 989        | 984        | 936        | 900        | 857        | 849        |
| Third quartile | 1578       | 1577       | 1557       | 1563       | 1539       | 1488       | 1437       | 1372       | 1351       |
| Ninth decile   | 2444       | 2412       | 2405       | 2424       | 2321       | 2280       | 2213       | 2097       | 2067       |

Source: Bureau of Labor Statistics

### Weekly Earnings Growth

full-time, wage and salary earners, age 16+, one-year growth, percent

|                | 2021<br>Q4 | 2021<br>Q3 | 2021<br>Q2 | 2021<br>Q1 | 2020<br>Q4 | 2019<br>Q4 | 2018<br>Q4 | 2017<br>Q4 | 2016<br>Q4 |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| First decile   | 6.6        | 4.1        | 1.2        | 3.8        | 4.5        | 5.2        | 6.5        | 3.2        | 3.1        |
| First quartile | 6.6        | 2.4        | -0.7       | 4.3        | 5.0        | 3.7        | 3.6        | 3.9        | 3.5        |
| Median         | 2.6        | 0.7        | -1.2       | 3.3        | 5.1        | 4.0        | 5.0        | 0.9        | 2.9        |
| Third quartile | 2.5        | 0.1        | 0.4        | 3.3        | 3.4        | 3.5        | 4.7        | 1.6        | 1.6        |
| Ninth decile   | 5.3        | 1.2        | 0.9        | 4.5        | 1.8        | 3.0        | 5.5        | 1.5        | 3.7        |

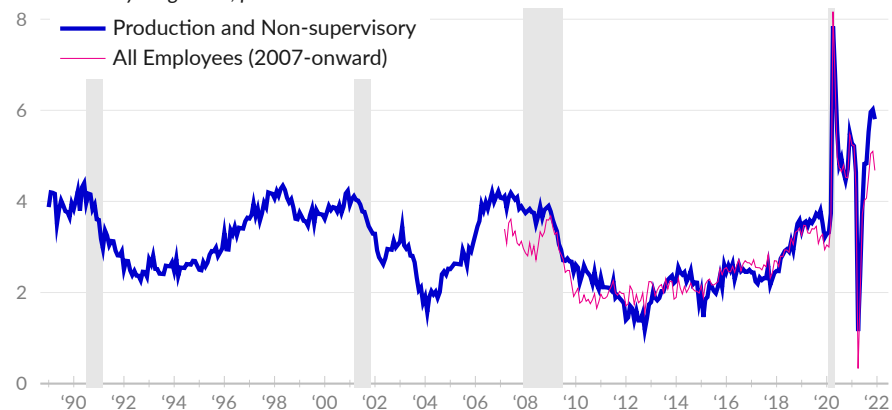
Source: Bureau of Labor Statistics

## Nominal Hourly Wages

Over the year ending December 2021, nominal wages increased by 4.7 percent for all employees (see —) and increased by 5.8 percent for production and non-supervisory workers (see —), according to the Bureau of Labor Statistics. Comparing the latest three months to the previous three months, nominal wages increased at an annual rate of 6.1 percent for all employees and increased at an annual rate of 6.9 percent for production and non-supervisory employees.

## Average Hourly Earnings

*nominal one-year growth, percent*

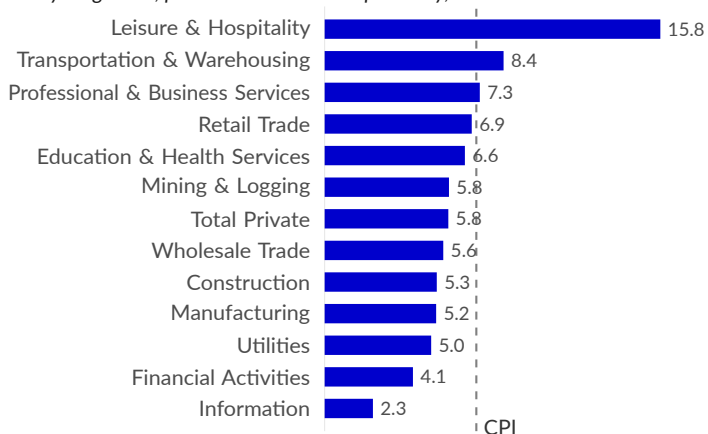


Source: Bureau of Labor Statistics

By industry, 3 of 12 groups experienced real wage growth (wage growth above the increase in prices indicated by the consumer price index). The leisure & hospitality industry had the fastest nominal growth rate, at 15.8 percent, followed by 8.4 percent in transportation & warehousing and 7.3 percent in professional & business services.

## Average Hourly Earnings Growth by Industry

*one-year growth, production and non-supervisory, December 2021*



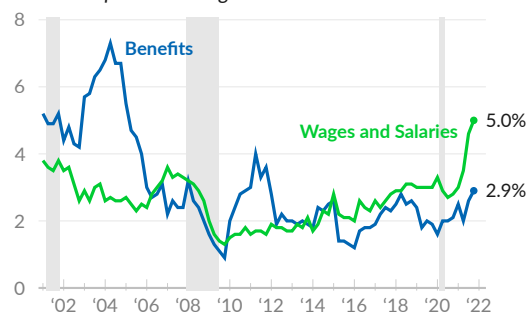
Source: Bureau of Labor Statistics

## Employment Cost Index

The Bureau of Labor Statistics [publish](#) the employment cost index as a measure of changes in the cost of employing a fixed set of labor inputs. The index is less influenced by short-term changes in the industry and occupation composition of the US workforce. The publication separates total compensation, wages and salaries, and benefits.

### Employment Cost Growth

*private industry wage and salary workers,  
12-month percent change*



Source: Bureau of Labor Statistics

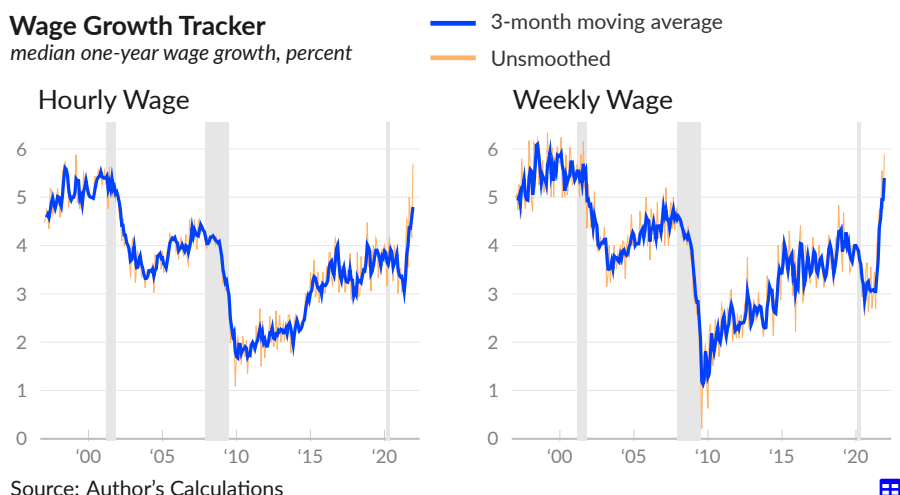
In the fourth quarter of 2021, private industry wage and salary costs (see —) increased by 5.0 percent (12-month percent changes shown), following an increase of 4.6 percent in 2021 Q3, and an increase of 3.5 percent in 2021 Q2. Private sector benefit costs increased by 2.9 percent (see —) over the 12-months ending 2021 Q4, following an increase of 2.6 percent in 2021 Q3.



## Wage Growth Tracker

The Federal Reserve Bank of Atlanta [publish](#) a wage growth tracker that captures the distribution of changes in nominal hourly wages of the same people over one year. This approach avoids some of the compositional changes that affect aggregate wage growth measures, though the sample used to calculate the data is affected by changes to respondents' employment status, and by survey response rates.

Replication of the wage growth tracker using the bd CPS shows matched-observation hourly wage growth of 5.7 percent in December 2021 (see —), and average wage growth of 4.8 percent over the three months ending December 2021 (see —). One year prior, in December 2020, three-month moving average wage growth was 3.5 percent.



By observing the same person's wage at two points, one year apart, we see how many people do not receive a wage increase. The Atlanta Fed measures this as the share of individuals who have one-year hourly wage growth of between -0.5 and 0.5 percent. The Atlanta Fed approach is replicated using the bd CPS, and smoothed with a 3-month moving average.

In December 2021, 12.9 percent of individuals had no hourly wage growth, compared to 13.0 in November 2021 (see —). One year prior, in December 2020, 14.5 percent of individuals had no wage growth.



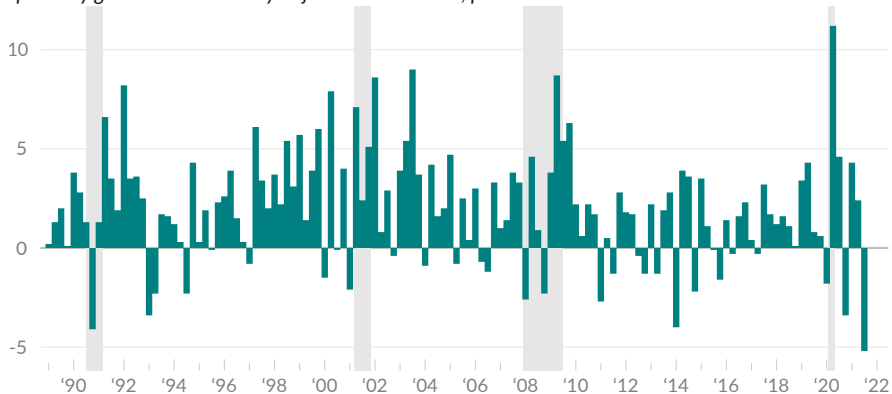
## Labor Productivity

Labor productivity is [reported](#) by the Bureau of Labor Statistics and measured as **real output per hour of work** in the nonfarm business sector. Economic theory suggests that labor productivity is particularly important for long-term real economic growth. The measure captures the rate at which people, with all of the resources and equipment and infrastructure available to them, are able to produce goods and services with their work. An increase in labor productivity means real wages can increase without putting upward pressure on inflation. Alternatively, an increase in productivity means a society can meet its material needs with less work.

In 2021 Q3, labor productivity decreased at an annual rate of 5.2 percent (see [■](#)), as the result of an increase of 1.8 percent in real output and an increase of 7.4 percent in hours worked. In the prior quarter, 2021 Q2, labor productivity increased at an annual rate of 2.4 percent, as real output increased 8.5 percent and hours of work increased 5.9 percent. Over the past five years, labor productivity growth has averaged 1.6 percent, slightly below the 1989-onward average of 2.0 percent.

### Labor Productivity Growth

quarterly growth at seasonally adjusted annual rate, percent



Source: Bureau of Labor Statistics



In the short-term, productivity growth is heavily affected by changes in the composition of the workforce, and by and volatility in both the number of hours worked and in production. In the longer-term, the level of business net investment in equipment and other capital goods, particularly relative to the size of the workforce, affects productivity growth. Such investment allows more goods and services to be produced by the same hours of work. Yet efforts to stimulate business investment directly through reducing corporate income taxes do not seem to have worked.

One theory of what drives long-term trends, sometimes called the *Kaldor-Verdoorn Law*, states that demand, and the capacity to meet that demand, determine productivity growth. An economy facing real resource constraints, where demand for goods and services exceeds the capacity to provide these services, is more likely to find ways to produce goods and services more efficiently. As one example, businesses invest more in labor-saving technologies when faced with a tight labor market.



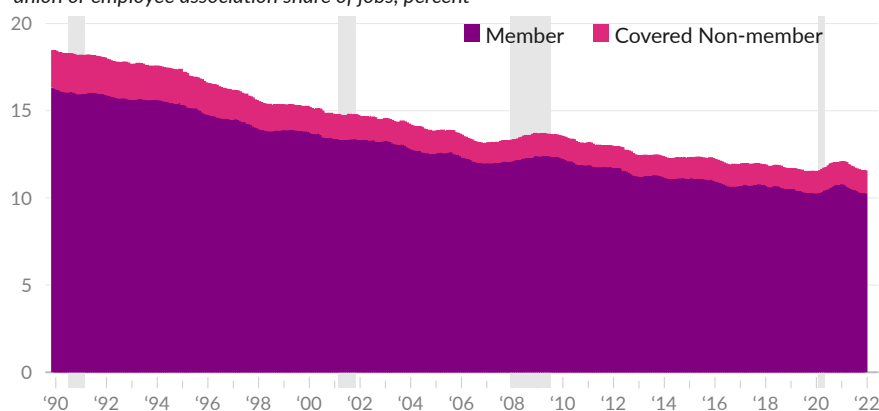
## Union Membership

Membership in **unions and employee associations** has diminished in the United States over the past fifty years. Unionized jobs typically offer higher wages and better benefits and union membership tends to increase wages and benefits even in nonunion jobs. Many researchers argue that lower union membership increases income inequality.

Over the 12 months ending December 2021, the share of jobs held by union and employee association members averaged 10.3 percent. In levels, there were 14.0 million union jobs, and 122.4 million nonunion jobs, on average over the period. This union membership rate averaged 10.8 percent during the 12 months ending December 2020, and 10.3 percent during the 12 months ending December 2019. Union jobs decreased by 247,000 from December 2020 to December 2021, while nonunion jobs increased by 4,462,000.

### Union Membership and Coverage

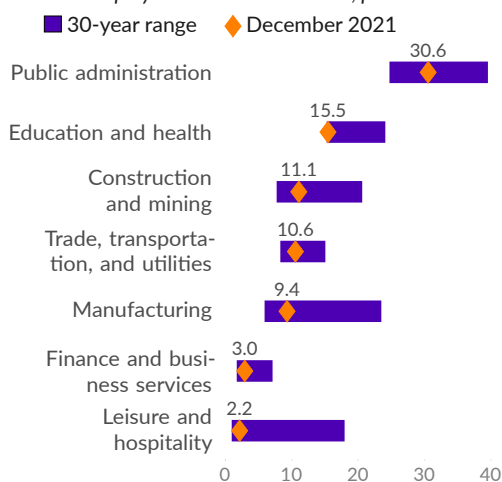
union or employee association share of jobs, percent



Source: Author's Calculations from Current Population Survey

### Union Membership Rate by Industry

union or employee association member, percent



Source: Author's Calculations from CPS

Union membership rates vary substantially by industry. Public administration has the highest union membership rate, at 30.6 percent as of December 2021, followed by education and health with 15.5 percent, and construction and mining with 11.1 percent. The leisure and hospitality industry experienced the largest overall percentage point decrease in union membership rates over the past 30 years, and is currently 15.8 percentage points below its January 1989 rate of 18.0 percent. The manufacturing industry union membership rate was 9.4 percent in December 2021, 7.0 percent in December 2020, and 7.8 percent in December 2019.

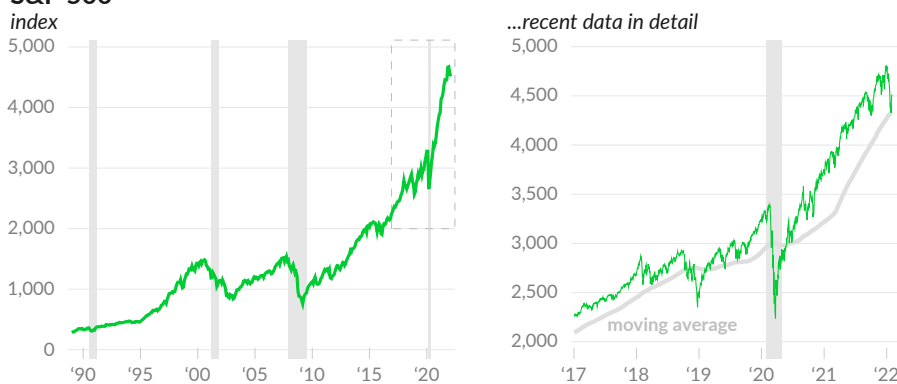
# Financial Markets

The US equity and capital markets and provide funding for borrowers' activities and provide additional income to lenders.

## Equity Markets

The **S&P 500** (see —) is a market-cap-weighted stock market index based on 500 large companies listed on US exchanges. The index is a broad measure of price levels in US equity markets. The S&P 500 closed at 4,516 on January 31, 2022. The index is currently 6.3 percent below its one-year high of 4,819 on January 4, 2022, and 21.3 percent above its one-year low of 3,723 on March 4, 2021. The average over the past year is 4,333; the index is 4.2 percent above its one-year moving average (see —).

### S&P 500



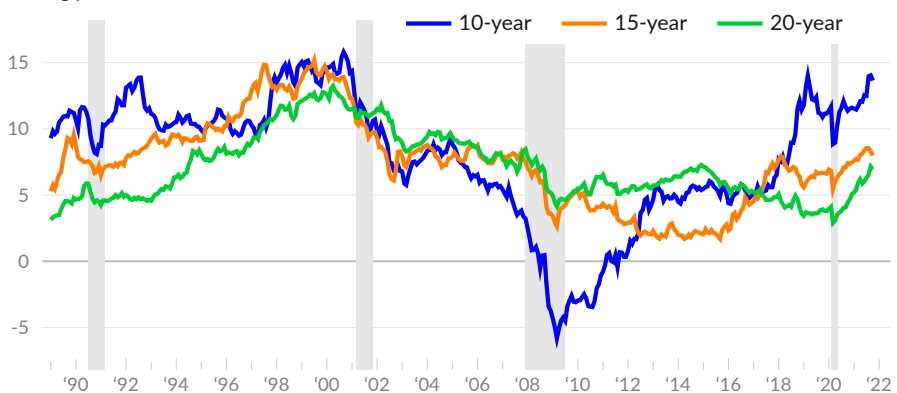
Source: Yahoo! Finance



According to historical stock market [data](#) from Robert Shiller, the inflation-adjusted trailing twenty year annual rate of return of the S&P 500 was 6.9 percent as of October 2021. Long-term real returns are currently low relative to the average trailing twenty year real annual return of 10.1 percent during 1995–2005.

### S&P 500 Real Return

trailing period annualized real return



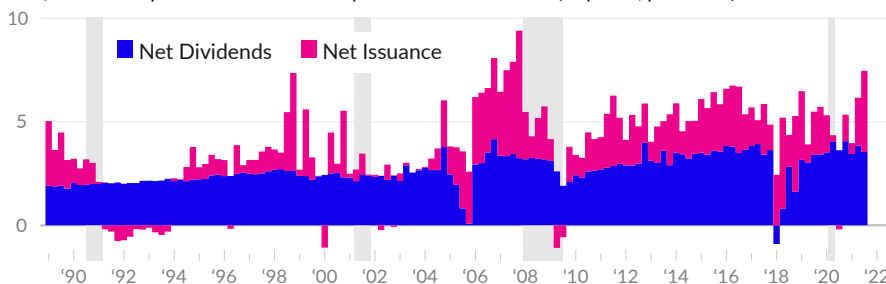
Source: Shiller, Author's Calculations



The total return on corporate equities includes both dividends and stock buybacks. US nonfinancial corporations have used stock buybacks to return money to investors, often at the expense of domestic fixed investment. To the extent that markets respond rationally, however, buybacks are no different from dividends.

### Corporate Equity Payout

nonfinancial corporation net dividends paid and net issuance of equities, percent of GDP



Source: Federal Reserve, Bureau of Economic Analysis



### Valuation

The [cyclically-adjusted price to earnings ratio](#) (CAPE) compares the current price of the S&P 500 to the previous ten-years of total S&P 500 returns, including dividends and buybacks (treated as dividends). Valuations often use recent or forecasted earnings. Robert Shiller's CAPE covers a normal business cycle so that valuations are less-affected by the idiosyncrasies of current economic conditions.

### Price to Earnings Ratio

10-year total return PE ratio



Source: Shiller

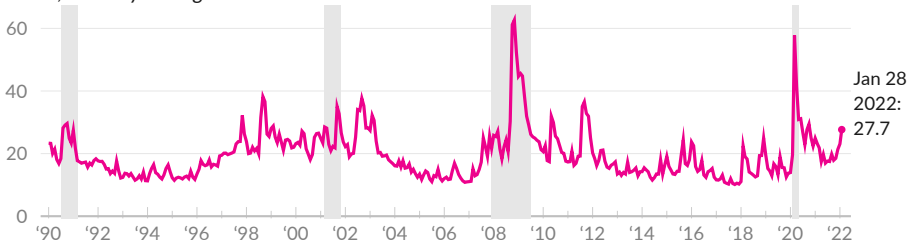


### Volatility

The Chicago Board Options Exchange uses S&P 500 options data to [identify](#) expectations of future volatility. This volatility measure, the VIX index (see [—](#)), was 27.7 on January 28, 2022, slightly above the average index value of 21.7 over the past three years. The VIX decreased by 1.2 points over the past week.

### S&P 500 Volatility Index

index, monthly average shown



Source: Chicago Board Options Exchange



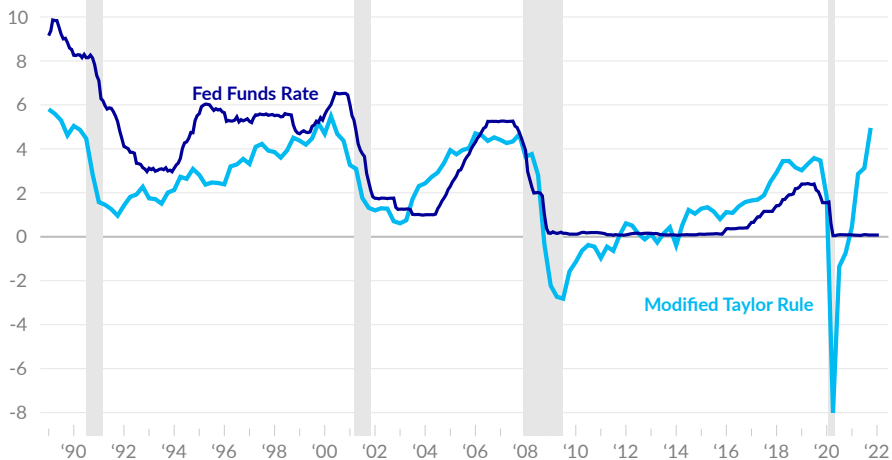
## Interest Rates

The US Federal Reserve System (Fed) has a congressional [mandate](#) to promote price stability and maximum employment. In practice, a Fed committee (the FOMC) determines the federal funds rate, which aims to influence interest rates in the broader economy. There are several channels through which interest rates affect broader economic activity, for example, lower interest rates stimulate investment in capital goods and the production of these capital goods employs people, who in turn spend their wages on other goods and services. In other words, the Fed's monetary policy can aim to be neutral or to stimulate or slow the economy.

The effective fed funds rate (see [—](#)) is 0.08 percent, as of January 28, 2022. The FOMC cut [interest rates](#) three times in 2019, for a total reduction of 75 basis points. Responding to the economic shock of the coronavirus, the FOMC cut rates twice in March 2020, by 150 basis points, bringing the lower bound of the federal funds rate range to zero. With rates near zero, the Fed has adopted several additional measures to increase liquidity in the global financial system.

### Effective Fed Funds Rate

percent, monthly average except for latest value



Source: Federal Reserve, Author's Calculations

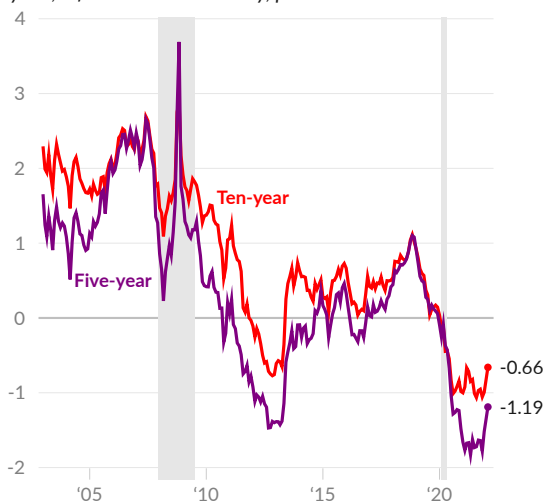
Economist John Taylor described a rule for determining the Fed Funds rate based on inflation and output. Versions of this Taylor Rule track the actual Fed Funds rate fairly closely during the 1990s and 2000s. Former Fed Chair Ben Bernanke [described](#) a modified Taylor rule based on core PCE inflation and a stronger response to the output gap (see [—](#)).

## Real Interest Rates

Since the purchasing power of the dollar changes over time, inflation is important to money markets. A lender expecting the future purchasing power of the principal to be below its current purchasing power will charge a higher interest rate to make up for the difference. Interest rates that have been adjusted for expected inflation are referred to as real interest rates, and can offer insight into economic and financial conditions. Low real interest rates encourage borrowing and consumption and increased economic activity while high real interest rates discourage borrowing and encourage saving.

### Real Interest Rates

yield, inflation-index treasury, percent



Source: Federal Reserve



US Treasury inflation-indexed securities are used to measure real interest rates. Treasury yields in general are a good proxy for low-risk rates, and the treasury offers specific securities that have interest payments indexed to the consumer price index (CPI) rate of inflation.

The real yield for such treasuries with ten years to maturity is -0.66 percent, as of January 28, 2022 (see —), compared to -0.98 percent on December 29, 2021. For a five-year maturity, the real yield is -1.19 percent in the latest data (see —), compared to -1.54 percent a month prior.

## Government Bonds

As of January 28, 2022, the constant maturity yield for a ten-year US Treasury bond (see —) is 1.78 percent, compared to 1.11 percent one year prior. The yield for a two-year Treasury (see —) is 1.15 percent, compared to 0.11 percent a year prior.

### Treasury Constant Maturity Yields

percent, monthly average shown except for latest value



Source: Federal Reserve



### Selected US Treasury Rates

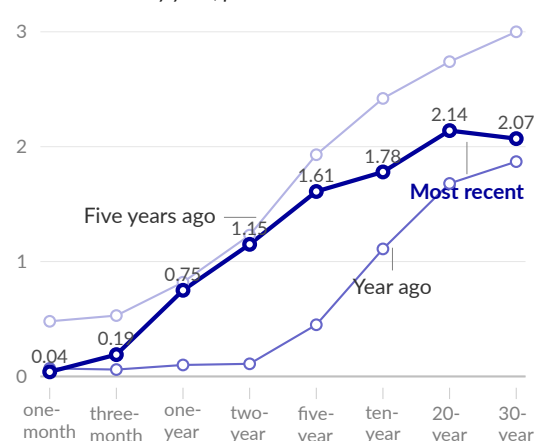
constant maturity yield, percent

|             | Jan 28, 2022 | Jan 27, 2022 | Jan 24, 2022 | Dec 29, 2021 | Oct 27, 2021 | Jul 28, 2021 | Jan 29, 2021 | Jan 31, 2017 |
|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Three-month | 0.19         | 0.20         | 0.19         | 0.05         | 0.06         | 0.05         | 0.06         | 0.52         |
| Two-year    | 1.15         | 1.18         | 0.99         | 0.75         | 0.50         | 0.20         | 0.11         | 1.19         |
| Five-year   | 1.61         | 1.66         | 1.53         | 1.29         | 1.16         | 0.72         | 0.45         | 1.90         |
| Ten-year    | 1.78         | 1.81         | 1.75         | 1.55         | 1.54         | 1.26         | 1.11         | 2.45         |
| Thirty-year | 2.07         | 2.09         | 2.10         | 1.96         | 1.95         | 1.90         | 1.87         | 3.05         |

Source: Federal Reserve

### Treasury Yield Curve

constant maturity yield, percent



Source: Federal Reserve

The **Treasury yield curve** shows the yield on different maturities of Treasury bonds and bills, usually from short-term, such as three-month, to long-term such as 30-year.

This measure is at times described as *inverted*, which means the short-term-debt end of the curve is higher than the long-term-debt end. For example, if the yield on two-year treasuries is higher than the yield on ten-year treasuries.





As of January 28, 2022, the spread between a 10-year treasury bond and a three-month treasury bill is 1.59 percentage points (see —), compared to 1.05 percentage points one year prior. The spread between 10-year and 2-year treasuries (see —) is 0.63 percentage point on January 28, 2022, and 1.00 percentage point one year prior.

### 10-Year – 3-Month Spread

percentage point treasury yield spread



Source: Federal Reserve



### 10-Year – 2-Year Spread

percentage point treasury yield spread



Source: Federal Reserve



## Corporate Bonds

The US Treasury [publish](#) a yield curve for corporate bonds based on the market-weighted average of bonds rated AAA, AA, and A. The yield on high-quality corporate bonds with a maturity of 10 years is 2.61 percent in December 2021, following 2.63 percent in November 2021. One year prior, in December 2020, this spot rate was 2.06 percent, and two years prior, in December 2019, it was 2.92 percent.

### High Quality Corporate Bonds, 10-Year

spot rate, percent, monthly average



Source: Treasury



## Money and Monetary Policy

The Federal Reserve [publish](#) data on the **money supply**. A broad measure of the amount of money, called M2, includes cash and deposits such as savings accounts and checking accounts, as well as time deposits smaller than \$100,000, and retail accounts in money market funds. As of December 2021, the M2 money stock totals \$21.8 trillion.

A large increase in the amount of money held by individuals and institutions can be the result of a higher rate of saving, a larger government sector financial deficit, an increase in the money supply, a change in preferences for liquidity, or something else. The M2 money stock increased 12.9 percent over the past year (ending December 2021), compared to an increase of 12.7 percent over the year ending November 2021. The M2 money stock has increased 41.1 percent, in total, over the past two years.

### M2 money stock

*one-year percent change*



Source: Federal Reserve



## Fed Asset Purchases

During periods where the Fed funds rate is at or near zero the Fed has engaged in large scale asset purchases in an effort to further improve financial market conditions. These asset purchases show up on the Fed balance sheet, which is [reported](#) weekly.

In response to the collapse of the housing bubble, the Fed purchased U.S. Treasury bonds and mortgage-backed securities. Total assets held by the Federal Reserve (see [—](#)) increased from \$0.9 trillion in August 2008 to \$2.2 trillion in November 2008. Additional rounds of asset purchases, referred to as quantitative easing, increased the balance sheet to \$4.5 trillion by January 2014. As bonds mature they were replaced until October 2017, when the Fed allowed the size of its balance sheet to normalize. Total assets fell below \$3.8 trillion in August 2019.

Balance sheet normalization ended in September 2019 when the Fed increased operations in overnight and term repurchase agreement (repo) markets, following a sharp increase in rates in these markets. The Fed balance sheet increased to \$4.1 trillion by December 2019.

### Federal Reserve Balance Sheet

total assets, trillion of USD



Source: Federal Reserve

During the COVID-19 pandemic, the Fed offered lending to businesses and currency swaps to major US trading partners, began to purchase commercial bonds, and expanded purchases of treasuries and mortgage-backed securities.

The Fed balance sheet increased from \$4.2 trillion in February 2020 to \$8.9 trillion, as of the latest data, covering January 26, 2022. The Fed currently holds \$5.7 trillion in Treasuries and \$2.7 trillion in mortgage-backed securities.

### Federal Reserve Assets

billions of US dollars

|                                      | Jan 26,<br>2022 | Jan 19,<br>2022 | Dec 29,<br>2021 | Jan 27,<br>2021 | Jan 29,<br>2020 |
|--------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Total (see <a href="#">—</a>)</b> | 8,860.5         | 8,867.8         | 8,757.5         | 7,404.9         | 4,151.6         |
| U.S. Treasury securities             | 5,716.2         | 5,693.3         | 5,652.3         | 4,766.1         | 2,409.1         |
| Mortgage-backed securities           | 2,660.8         | 2,686.3         | 2,615.5         | 2,069.8         | 1,387.3         |
| Central bank liquidity swaps         | 0.3             | 0.3             | 3.3             | 9.6             | 0.1             |
| Repurchase agreements                | 0.0             | 0.0             | 0.0             | 1.0             | 175.1           |
| Loans                                | 30.6            | 31.6            | 35.0            | 51.1            | 0.0             |
| Payroll Protection Program           | 30.2            | 31.1            | 34.3            | 46.7            | 0.0             |
| Net unamortized premium              | 332.6           | 334.4           | 334.9           | 338.8           | 110.2           |
| Other                                | 89.7            | 90.9            | 82.2            | 121.8           | 69.8            |

Source: Federal Reserve

## Prices

Changes in prices affect the amount of goods and services that can be purchased by a fixed income. When measuring changes in prices, researchers consider both the quantity that can be purchased by a unit of currency, and also changes in item quality. To understand the overall change in prices paid or charged by a certain group, such as consumers or manufacturers, researchers create a representative “basket” of the goods and services relevant to the group, and track the changes in the basket, and the price of the basket, over time. The end result of these methods is a price index.

Researchers can then use the price index to calculate the rate of inflation. Perhaps the most common way of measuring inflation is to calculate the 12-month percent change in the index values. This measures how prices in a given month compare to prices during the same month, one year prior.

### Price Growth, Various Measures

12-month percent change

|                        | Dec '21 | Nov '21 | Oct '21 | Sep '21 | Dec '20 | Dec '19 | '17-19 Avg. | '00-Avg. |
|------------------------|---------|---------|---------|---------|---------|---------|-------------|----------|
| CPI, All Items         | 7.0     | 6.8     | 6.2     | 5.4     | 1.4     | 2.3     | 2.1         | 2.2      |
| CPI, ex. Food & Energy | 5.5     | 4.9     | 4.6     | 4.0     | 1.6     | 2.3     | 2.1         | 2.1      |
| PPI, All Commodities   | 20.2    | 22.6    | 22.4    | 20.5    | 0.8     | -1.0    | 2.6         | 2.9      |
| Imports Price Index    | 10.4    | 11.7    | 11.0    | 9.3     | -0.3    | 0.5     | 1.6         | 1.8      |
| Exports Price Index    | 14.7    | 18.2    | 18.3    | 16.3    | 0.4     | -0.9    | 1.6         | 1.7      |
| PCE, All Items         | 5.8     | 5.7     | 5.1     | 4.4     | 1.3     | 1.7     | 1.8         | 1.9      |
| PCE, ex. Food & Energy | 4.9     | 4.7     | 4.2     | 3.7     | 1.5     | 1.6     | 1.8         | 1.8      |
| PCE, Trimmed Mean      | 3.0     | 2.9     | 2.6     | 2.3     | 1.8     | 1.9     | 1.9         | 2.0      |

Source: BLS, BEA, Federal Reserve Bank of Dallas

The 12-month percent change in prices is affected not only by recent price changes, but also by price changes that happened over the past year. Results using the 12-month measure are smoothed by including a longer time interval.

While the chartbook uses less-volatile 12-month inflation rates in most cases, the one-month rate can be more useful for examining short-term trends, for example by eliminating the base effects from changes in prices a year ago. In December 2021, the annualized one-month change in the consumer price index was 3.7 percent (see ■), following 6.1 percent in November 2021.

### CPI One-Month Change

monthly percent change, annualized



Source: Bureau of Labor Statistics



## Consumer Price Index

Consumer prices increased seven percent over the year ending December 2021 (see —), according to the Consumer Price Index for all urban consumers (CPI-U). The core CPI, which does not include the more-volatile food and energy prices, increased 5.5 percent over the same one-year period (see —).

### Consumer Price Index

annual growth, percent, not seasonally adjusted



Source: Bureau of Labor Statistics

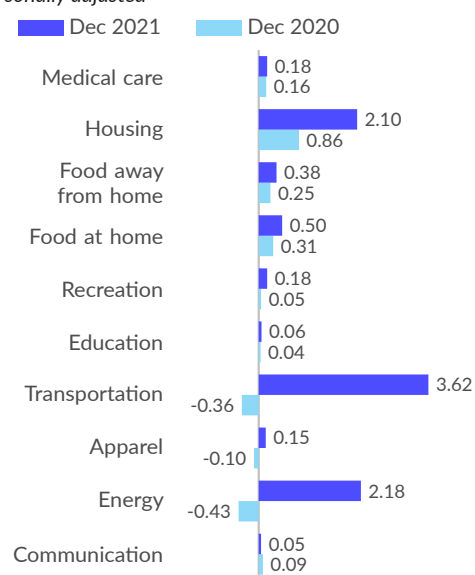
The prices of individual goods and services do not change at the same rate. A large change in the price of one category of goods or services is not likely to cause a large change in the overall price level, particularly if the category is a small portion of the consumption basket or if consumers are able to substitute or reduce consumption of the category. The contribution of a category to overall inflation is an important consideration, and reflects both price changes within a category and the relative importance of the category to the overall index (its share of the consumption basket).

In December 2021, medical care added 0.18 percentage point to overall CPI inflation, in line with the category's December 2020 contribution of 0.16 percentage point. Housing contributed 2.10 percentage points to inflation in December 2021 far above added 0.86 percentage point in December 2020. Food away from home contributed 0.38 percentage point to inflation, and added 0.25 percentage point one year prior.

Communication contributed 0.05 percentage point to inflation in December 2021, in line with the contribution of 0.09 percentage point during the same month one year prior. Energy added 2.18 percentage points in December 2021, far above the reduction of 0.43 percentage point in December 2020.

### Consumer Price Index

contribution to annual growth, percentage points, not seasonally adjusted



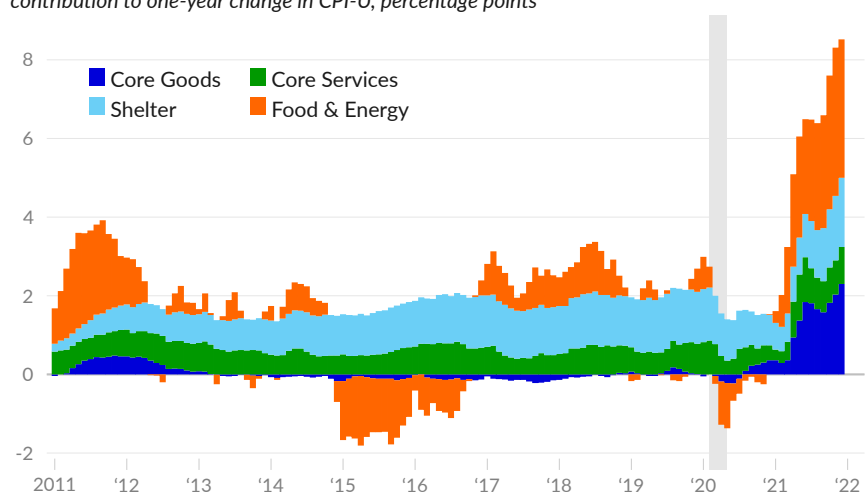
Source: Bureau of Labor Statistics

As mentioned, price indices are affected by changes in the prices of individual goods and services and by the re-weighting of the components used in the index, based on changes in consumption habits. By considering both sources of changes, we can decompose medium- or long-term trends based on the contribution to overall inflation from different categories of spending.

As of December 2021, core goods contributed 2.30 percentage points to the overall non-seasonally-adjusted CPI inflation rate of 8.49 percent, while core services excluding shelter contributed 0.94 percentage point. Shelter contributed 1.76 percentage points, and food and energy contributed 3.52 percentage points. One year prior, in December 2020, the corresponding CPI inflation rate was 1.62 percent; core goods contributed 0.36 percentage point, core services excluding shelter contributed 0.38 percentage point, shelter contributed 0.77 percentage point, and food and energy contributed 0.02 percentage point.

### CPI Decomposition

contribution to one-year change in CPI-U, percentage points



Source: Bureau of Labor Statistics, Author's Calculations

### Why isn't the CPI revised?

The consumer price index (CPI-U) is used in contracts that include cost adjustments. As a result, historical CPI-U data are not revised if there is a change to the way the CPI is calculated. For research purposes, however, it is ideal to have the most accurate measure of overall changes in prices faced by consumers. BLS also publish a research series, the [CPI-U-RS](#), which adjusts the historical data of the CPI-U to be consistent with the current methods of producing it.

## Relative Prices

While the previous section decomposes the overall change in prices to identify the contributions from categories of consumer spending, the next table instead shows the one-year percent change in prices for each category. Additionally, the weight that a category has in the overall index—the category share of the basket of goods and services—is included as the last column in the table.

### Selected CPI Categories

*one-year percent change*

|                               | Dec<br>'21 | Nov<br>'21 | Oct<br>'21 | Sep<br>'21 | Dec<br>'20 | Feb<br>'20 | Dec<br>'19 | Weight,<br>Dec '21 |
|-------------------------------|------------|------------|------------|------------|------------|------------|------------|--------------------|
| All items                     | 7.0        | 6.8        | 6.2        | 5.4        | 1.4        | 2.3        | 2.3        | 100.0              |
| Housing                       | 5.1        | 4.8        | 4.5        | 3.9        | 2.0        | 2.7        | 2.6        | 42.385             |
| Owners' equivalent rent       | 3.8        | 3.5        | 3.1        | 2.9        | 2.2        | 3.3        | 3.3        | 23.046             |
| Rent of primary residence     | 3.3        | 3.0        | 2.7        | 2.4        | 2.3        | 3.8        | 3.7        | 7.862              |
| Household furnishings & ops.  | 7.4        | 6.5        | 6.2        | 5.1        | 3.2        | 0.7        | 1.0        | 4.682              |
| Transportation                | 21.1       | 21.1       | 18.7       | 16.6       | -2.4       | 1.7        | 1.9        | 15.160             |
| New vehicles                  | 11.8       | 11.1       | 9.8        | 8.7        | 2.0        | 0.4        | 0.1        | 3.756              |
| Used cars and trucks          | 37.3       | 31.4       | 26.4       | 24.4       | 10.0       | -1.3       | -0.7       | 2.750              |
| Medical care                  | 2.2        | 1.7        | 1.3        | 0.4        | 1.8        | 4.6        | 4.6        | 8.870              |
| Professional services         | 3.3        | 3.1        | 2.8        | 2.8        | 1.9        | 1.2        | 1.6        | 3.661              |
| Hospital and related services | 3.3        | 3.5        | 4.1        | 3.3        | 3.1        | 4.1        | 2.9        | 2.419              |
| Health insurance              | -1.2       | -3.8       | -6.4       | -9.4       | 4.8        | 20.7       | 20.4       | 1.209              |
| Food at home                  | 6.5        | 6.4        | 5.4        | 4.5        | 3.9        | 0.8        | 0.7        | 7.771              |
| Food away from home           | 6.0        | 5.8        | 5.3        | 4.7        | 3.9        | 3.0        | 3.1        | 6.347              |
| Energy                        | 29.3       | 33.3       | 30.0       | 24.8       | -7.0       | 2.8        | 3.4        | 6.155              |
| Recreation                    | 3.3        | 3.2        | 3.9        | 3.5        | 0.9        | 1.5        | 1.5        | 5.797              |
| Communication                 | 1.3        | 1.3        | 1.5        | 1.5        | 2.4        | 1.0        | 0.7        | 3.777              |
| Education                     | 2.0        | 2.1        | 2.0        | 2.0        | 1.4        | 2.2        | 2.1        | 3.033              |
| Apparel                       | 5.8        | 5.0        | 4.3        | 3.4        | -3.9       | -0.9       | -1.2       | 2.663              |

Source: Bureau of Labor Statistics

Housing prices increased 5.1 percent over the year ending December 2021, substantially above the pre-COVID rate of 2.7 percent (covering the year ending February 2020). Medical care prices increased 2.2 percent, these prices grew 4.6 percent over the year ending February 2020. In contrast, prices of food consumed at home (groceries) increased 6.5 percent in the year ending December 2021 compared to 0.8 percent over the year ending February 2020.

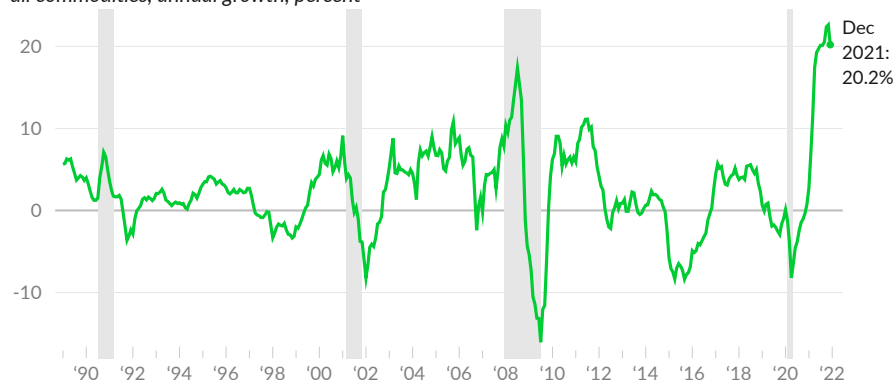
Transportation prices increased 21.1 percent over the year ending December 2021, far above the pre-COVID 1.7 percent increase. Energy prices increased 29.3 percent in the latest month, compared to a 2.8 percent increase in February 2020. Energy prices are historically more volatile than other categories.

## Producer Prices

The Bureau of Labor Statistics [report](#) prices producers receive for the various goods and services they produce. The producer price index for all commodities (see —) increased 20.2 percent over the year ending December 2021, far above the 12-month growth rate of 0.8 percent in December 2020. Over the past three years, producer prices increased by 4.4 percent per year, on average.

### Producer Price Index

*all commodities, annual growth, percent*



Source: Bureau of Labor Statistics





## Inflation Expectations

Researchers gain insight on expected changes in prices through regular **surveys of consumers** and through **market data**. One market-based measure is known as the **inflation breakeven** and is calculated as the difference between the yield on a nominal treasury bond and the yield on a treasury inflation-protected bond of the same maturity. This difference represents the amount of inflation markets have priced in, on average, for the maturity of the bond.

### 5-year Expected Average Inflation

*expected average annual rate, percent*



Source: FRED; U. of Michigan

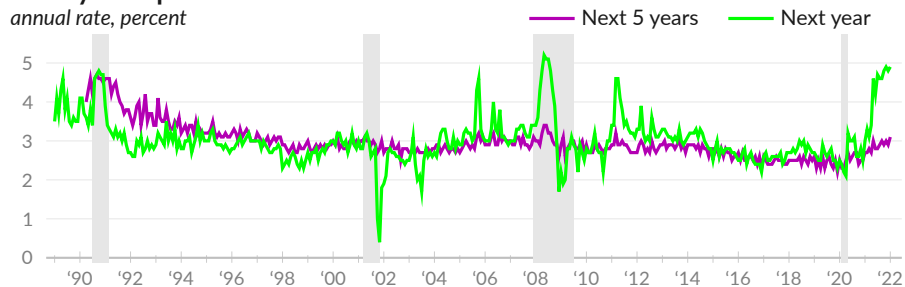
As of January 2022, surveyed consumers expect an average inflation rate of 3.1 percent over the next five years, (see —), compared to an expected rate of 2.7 percent in January 2021. Consumers had expected inflation to average 2.6 percent over the past five years, while actual inflation over the period was 2.5 percent.

As of January 31, 2022, markets expect an average inflation rate of 2.8 percent over the next five years (see —), compared to an expected rate of 2.2 percent on February 1, 2021. Markets had expected inflation to average 1.9 percent per year over the past five years, five years ago.

Both survey- and market-based estimates of expected inflation offer techniques for distinguishing between near-term inflation and expected medium-term inflation. The survey-based measure asks about inflation over the next year. Respondents expect consumer prices to increase 4.9 percent over the year starting January 2022 (see —).

### Survey of Expected Inflation

*annual rate, percent*



Source: University of Michigan

### Market Expected Inflation

*annual rate, percent*



Source: FRED

The market-based measure can be used to calculate expected inflation over the five years starting five years from now. Over this five-year period, markets suggest 2.1 percent inflation per year. Inflation rates in the near-term are therefore expected to exceed inflation rates in the longer-term

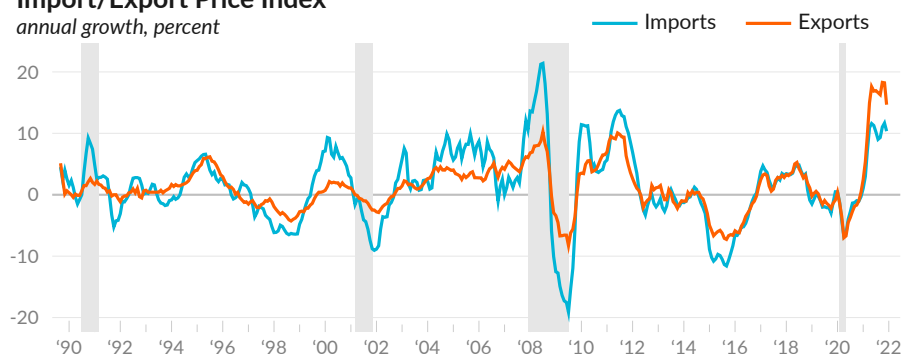
## Import/Export Price Index

The Bureau of Labor Statistics [report](#) changes in the prices of imports and exports. Over the year ending December 2021, US import prices grew 10.4 percent (see [—](#)), following an increase of 11.7 percent in November and 11.0 percent in October. Excluding fuels, US import prices increased 6.4 percent in December 2021 and grew 6.3 percent in November. Over the three years ending February 2020, prior to the US COVID-19 pandemic, US import prices increased at an average rate of 1.3 percent. Excluding fuels, import prices increased at an average rate of 0.3 percent during the same three-year pre-COVID period.

Prices of US exports (see [—](#)) grew 14.7 percent over the year ending December 2021, compared to 18.2 percent in November, 18.3 percent in October, and 1.5 percent on average during the three years ending February 2020.

### Import/Export Price Index

annual growth, percent



Source: Bureau of Labor Statistics



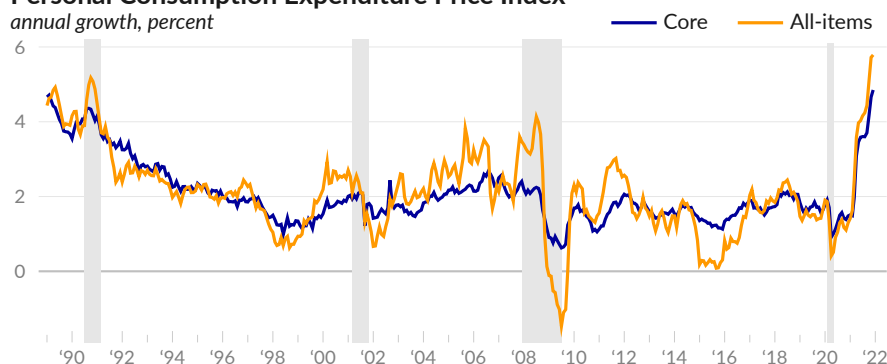
## PCE Price Index

The Personal Consumption Expenditure (PCE) Price Index from the Bureau of Economic Analysis [captures](#) both changes in the price of goods and services as well as monthly changes in consumer behavior. The index is additionally updated over time to the latest methodology.

As of December 2021, PCE inflation, measured as the one-year percent change in the overall index, is 5.8 percent, compared to 5.7 percent in November 2021, and 1.3 percent in December 2020. Core PCE inflation, which excludes food and energy, was 4.9 percent in December 2021, 4.7 percent in November 2021, and 1.5 percent in December 2020.

### Personal Consumption Expenditure Price Index

annual growth, percent



Source: Bureau of Economic Analysis



## Commodity Prices

As of January 24, 2022, a barrel of west Texas intermediate (WTI) **crude oil** sells for \$84.48 (see —). Over the past year, this measure of oil prices grew 62.4 percent. Over the past two years, the price increased 46.9 percent. Notably, the WTI price is currently \$49 per barrel below its peak price of \$134 per barrel in June 2008 (monthly average).

### Oil Price

USD, west Texas intermediate crude, monthly average



Source: FRED



### Gold Price

USD, monthly average and latest value



Source: FRED



London Bullion Market data on gold prices is [available](#) through FRED. As of January 28, 2022, one troy ounce of gold sells for \$1,790.20 (see —), compared to an average of \$1,869.67 per ounce during January 2021. Following the great recession, the monthly average price of gold reached \$1,780.65 per ounce, in September 2011.



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